From the Ballot to the Blackboard

The Redistributive Political Economy of Education

A Dissertation Presented by

Ben W. Ansell

to

The Department of Government
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in the subject of Political Science

Harvard University
Cambridge, Massachusetts
September 2006
From the Ballot to the Blackboard: The Redistributive Political Economy of Education

Dissertation Advisor
Beth Simmons

Ben W. Ansell

ABSTRACT

This dissertation presents a unified redistributive theory of public education spending. The project develops a formal model of the cross-cutting redistributive forces that determine political preferences over education and develops from these a series of hypotheses about the key determinants of national education policy, which are then tested using statistical techniques and case histories. In particular, three critical factors are highlighted: a state’s regime type; its openness to the international economy; and partisan control of government within the state.

Since wealthy individuals dislike education spending because of its negative fiscal, scarcity, and lottery effects on their children’s income, regime transition to democracy should be associated with higher education spending. Since the scarcity effects of expanding education are weaker in highly open states, a state’s degree of openness to the international economy should also be positively associated with education spending. Finally, left-wing governments are associated with higher levels of education spending, both absolutely and relative to other government spending but this relationship is much weaker in states with proportional electoral systems.

The dissertation also examines the composition of education spending, noting that wealthy individuals have an incentive to promote spending on higher education at the expense of primary education. These hypotheses are tested on a variety of cross-national
panel datasets, both within and outside the OECD group of wealthy countries, using several econometric techniques. Furthermore, the mechanisms suggested in the dissertation are tested in case histories of the Philippines, India, Malaysia, Spain, Portugal, Greece, the United Kingdom, Sweden, and Germany.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS

CHAPTER ONE: INTRODUCTION

1.1 The Puzzle
1.2 Theories of Education
1.3 Methodology
1.4 Structure of the Dissertation

CHAPTER TWO: A FORMAL MODEL OF EDUCATION SPENDING

2.1 Introduction and Synopsis
2.2 The Baseline Model of Education Spending
2.3 The Baseline Model – Simple Extensions
2.4 Coalitional Politics

CHAPTER THREE: DEMOCRACY, AUTOCRACY, AND EDUCATION SPENDING

3.1 Introduction
3.2 Theoretical Development
3.3 Measures of Democracy
3.4 Time Series Analysis of Democracy and Absolute Education Spending
3.5 Time Series Analysis of Democracy and Relative Education Spending
3.6 Cross-sectional Analysis
3.7 Dummy versus Continuous Measures of Democracy
3.8 Conclusion

CHAPTER FOUR: DEMOCRACY EXTENSIONS

4.1 Introduction
4.2 Disaggregating Democracy
4.3 Varieties of Autocracy
4.4 Private Spending
4.5 Democracy and the Composition of Education Spending
4.6 Conclusion

CHAPTER FIVE: GLOBALIZATION AND EDUCATION SPENDING

5.1 Introduction
5.2 Theoretical Development
5.3 Measures of Globalization
5.4 Time Series Analysis of Globalization and Absolute Education Spending
5.5 Time Series Analysis of Globalization and Relative Education Spending
5.6 Interactions between Democracy, Income, and Globalization
5.7 Cross-sectional Analysis
CHAPTER SIX: DEMOCRACY AND GLOBALIZATION – CASE ANALYSES

6.1 Introduction
6.2 The Philippines: Examining Democratic and Trade Volatility
6.3 India and Malaysia: Comparing Two Puzzles
6.4 Dual Shocks: Southern Europe Joins the European Union
6.5 Conclusion

CHAPTER SEVEN: PARTIES AND ELECTIONS IN THE OECD

7.1 Introduction
7.2 Theoretical Development
7.3 Measures of Partisanship
7.4 Testing Partisan Preferences: Does Partisanship predict Expressed Preferences?
7.5 Testing Partisan Preferences: Does Partisanship predict Revealed Preferences?
7.6 Does Policy Reflect Voters or Politicians
7.7 Cabinets vs. Parliaments
7.8 Partisan Policy Under Electoral Constraints
7.9 Conclusion

CHAPTER EIGHT: TARGETED SPENDING IN THE OECD

8.1 Introduction
8.2 Testing Partisan Preferences and the Composition of Education Spending
8.3 A Higher Education Trilemma
8.4 Empirical Analysis of the Trilemma
8.5 Conclusion

CHAPTER NINE: PARTISANSHIP IN THE OECD - COUNTRY CASES

9.1 Introduction
9.2 The United Kingdom: Education Policy since 1833
9.3 Sweden: Education Policy since 1842
9.4 The Higher Education Trilemma in Germany, Sweden, and the United Kingdom
9.5 Conclusion

CHAPTER TEN: CONCLUSION
Before writing this thesis I had often heard that dissertation writing is a solitary, painful, confusing, and interminable process. This was emphatically not my experience. Instead, I have had a relatively enjoyable process completing this work and hope that is apparent within the project. Credit for that accomplishment lies not in my hands but firmly in the mentors, colleagues, friends, and family who have supported, advised, cajoled, and criticized me at every point along the way.

I would like to begin by thanking the most critical academic influences on this dissertation: my thesis committee. In particular, I want to single out Beth Simmons who represents the single continuous presence in my graduate school career, since it was at her suggestion I moved from UC Berkeley, where I began graduate school, to Harvard. Both schools have affected me equally, in highly contrasting manners, but Beth Simmons has always been a constant source of advice and support. She tolerated my frequent absences, whether in Europe or California, and always strongly supported my ambitions and interests. I can safely say that without her encouragement and interest at Berkeley, I would never have developed my interest in political economy, nor learned the techniques I would need to research that interest. Her astonishingly detailed pencil notes on many assignments, working papers, and finally dissertation chapters, were the most vivid testament to her deep devotion to making sure her students’ arguments are bold, clear, and right.

The other two members of my thesis committee – Torben Iversen and Michael Hiscox – also seem as if they accompanied me from Berkeley to Cambridge because both made me feel so immediately welcome at Harvard, enabling me to assemble and defend a
newborn prospectus within the proverbial nine months. I would not be alone in thanking Torben for his indefatigable energy and interest in his students’ work – I know of several equally grateful graduate students. But I would like to extend particular thanks to him for the many extended conversations we had in his offices at the Center for European Studies and the Institute for Quantitative Social Sciences. It is extremely rare for graduate students to get much longer than half an hour with faculty members to talk over work. With Torben, a meeting lasting less than ninety minutes was unheard of and it was in these meetings that the core theoretical apparatus of this dissertation was developed. Torben also arranged a variety of opportunities for me to present and discuss work with major names in the field – an absolutely priceless opportunity. Michael Hiscox also met with me on my first trips to Harvard, even taking the time to study closely the rough working papers I had emailed him hopefully. Mike has always been willing to work with me on this project over a beer and some ‘friendly’ Anglo-Australian sports banter – a great relief from the normal academic process. Furthermore, it was Mike who really aided me in figuring out how to express my ideas about the interaction between globalization and education spending in the language of trade theory, thereby helping me build an essential section of this project. His generous provision of data developed with Scott Kastner also aided me enormously with the study of the effects of global integration on education spending.

A number of other Harvard faculty aided me so greatly in this project that I would like to thank them for their de facto ‘shadow’ membership of my committee. Jim Alt in fact made a cameo appearance in my prospectus defense and was an ever-present in the GOV3007 political economy workshop where this project met its most intense criticism
and advice. Jim has seen this project develop from a term paper through to a dissertation and has offered cheerful and pointed advice at every point along the way, especially in terms of approaching the horrors of the job market. Jeff Frieden also has an intimate knowledge of this project, particularly since he, for unknown reasons, was continuously nominated to serve as discussant of my GOV3007 iterations of this paper. As his students know, Jeff has an uncanny ability to dissect your argument and help you discover what matters and what is irrelevant and I hope some of his incisiveness has made its way into this thesis. Peter Hall should also be credited for helping me first develop the prospectus from which this project germinated in his research workshop. His highly detailed notes helped to steer me in the current direction and away from the vague and potentially impossible projects I had been intending. The fact that this dissertation was completed in fairly rapid time owes much to his advice. Finally, I would like to offer special thanks to Pepper Culpepper, for whom I worked for almost three years as a research assistant, with varying degrees of timeliness. Pepper, as well as being a hugely engaging and knowledgeable boss, really helped me to develop a sense of where my project would fit in the broader political economy and comparative politics literatures, as well as providing me with an exemplar of precise, detailed research that dealt with big questions in interesting ways. I would like to thank him further for his great encouragement of me and my wife in our travails on the job market.

Whilst at Harvard I have been fortunate enough to receive funding from a variety of sources. I would like to thank the Graduate School of Arts and Sciences for funding my transfer to Harvard, the Center of European Studies – in particular – for financing both summer research in Europe (the outcome of which is Chapter Nine), providing me
with office space, and, critically, granting me a year’s dissertation writing fellowship. Finally, I would like to thank the Weatherhead Center for International Affairs for housing me for the last two years of the dissertation and providing me with seed money for conferences and computer equipment. I would like to thank three individuals in particular for supporting me at graduate school: Trisha Craig at the Center for European Studies, Clare Putnam at the Weatherhead Center, and the ever-helpful, and often life-saving, Thom Wall at the Government Department.

I began my graduate career at Berkeley, receiving the lion’s share of my training there, and no set of acknowledgements would be complete without referencing the many scholars there who helped to shape me as a researcher. I would like, in particular, to thank John Zysman, who first piqued my interest in political economy and who supported me for the first precarious years at graduate school through the Berkeley Roundtable on the International Economy. I hope that this work displays some of John’s ability to find interesting answers to interesting puzzles, and that it meets his ‘why should I care?’ threshold. I also learned a great deal from graduate seminars at Berkeley with Steve Weber, Jonah Levy, Jim Robinson, Bob Powell, Brad DeLong, Gerard Roland, Matt Rabin, George Akerlof, and Laura Stoker. I would also like to thank Nick Ziegler and the late Judy Gruber for their care and understanding when I made the difficult decision to move to Harvard. Finally, I would like to thank my undergraduate tutors at the University of Manchester, particularly James Vernon, Arthur Mawby, and Mark Micale. Mark, in particular, inspired my interest in studying in America, and I owe a great deal to his early interest in my work.
Without one’s colleagues in misery, graduate school might be a more disheartening experience. I had the great fortune of making friends across Berkeley and Harvard, where despite their different reputations, the graduate students are similarly friendly, helpful, and intellectually high-powered. From Berkeley, I would particularly like to thank Ralph Espach, Keith Mattrick, Ed Fogarty, Zach Zwald, Andreij Krickovic, James Harney, Lib Anker, Thad Dunning, Jen Bussell, Rachel van Sickle-Ward, Jill Greenlee, David Bach, Abe Newman, and Mike Nelson. Those graduate students who met me at Harvard also had to deal with my dissertation, so special thanks go to Dan Epstein, Marcy McCullaugh, Ryan Moore, Erin Simpson, Olivia Lau, Andrew Reeves, Sarah Sled, Nirmala Ravishankar, Mike Kellerman, Mike Horowitz, Hillel Soifer, Will Phelan, Victor Shih, Mark Copelovitch, Sonal Pandya, Katerina Linos, Magnus Feldmann, John Ahlquist, Jose Fernandez-Albertos, Phil Lipsy, Dan Hopkins, Nathan Paxton, and Ellie Powell.

Not only have I transferred between California and Massachusetts but I have also had fortunate occasion to spend considerable amounts of time in England over the last few years. The ability to do this was largely funded by Her Majesty’s Treasury, which has employed me variously as an intern, a contract worker, a permanent civil servant, and now as consultant to the Leitch Review of Skills. I owe a great deal to the Right Honorable Ed Miliband, Member of Parliament for Doncaster North. I met Ed at Harvard and it was at his suggestion that I landed a place as an intern in the Productivity Team at the Treasury, working for Jitinder Kohli and later for Ella Joseph, Chris Martin, and Louise Tilbury. These highly talented individuals were enormously important in allowing me to understand how education policy is really made and in permitting me to actually
become involved in this process with the establishment of the Leitch Review of Skills. I would like to express my thanks to these individuals, along with Lord Alexander Leitch, for involving me in this fascinating and rewarding experience. I would particularly like to thank Ella Joseph, who I accompanied to India, China, and Sweden – thereby grounding some of my case studies in actual policy experience - for her constant support of my desires to conduct academic and policy research simultaneously. I would also like to thank the other team members: Stephen Evans, Andy Westwood, Jenny Pescod, Tom Orlik, Mark Leaver, and Mick Wilson.

Finally, we come to the most important part – friends and family. Much of this dissertation was written in England, where I was supported by Jack Stilgoe, Faith Stilgoe, Tom Edge, Rupert Russell, Alex MacNaghten, Emma Barker, Jim McTavish, and Julia McTavish. My family was always willing to listen, often at considerable transatlantic cost – to my dissertation woes. It was their intellectual interest in the world, their ability to be at once opinionated and non-judgmental, and their constant love and support that molded me. I cannot repay them enough or do justice to them, so I just want to express pure thanks to my brother Ed Ansell, my father Tony Ansell, and my mother Penny Ansell. And above all, I want to thank my wife, Jane Gingrich, to whom I dedicate this thesis. Few people, I imagine, meet their wife in game theory, or end up with offices in the same department six years later. Jane and I have been lucky, but our luck has come from finding each other. A more intelligent and caring friend and scholar I could never hope to meet. To Jane go the last words of many in thanks.
CHAPTER ONE: INTRODUCTION

1.1: The Puzzle

Mass education could be the panacea for poverty in the developing world. A flurry of interest in education policy by international organizations, development economists, and well-meaning donors has been spurred by economic evidence that education can have a massive impact on economic growth. For example, Van Reenen and Sianesi (2003) argue that a mere one percent point rise in primary enrolment could increase national income by up to three percent points. Education appears an elixir for poor states struggling in a rapidly diverging world economy. And it is not only the poor who seek to rely on education as a shortcut to growth. Leaders of the wealthiest OECD nations emphasize education as their own cornerstone policies: from Blair’s ‘Education, education, education’ to Bush’s ‘No Child Left Behind’. Investment in public education is regularly presented by popular commentators as the key to success in the global economy (Friedman, 2005). Given that the global average of education spending rose from 2.5% to 4.7% of national income between 1960 and 1995, it might appear, prima facie, that governments worldwide have absorbed the powerful lessons of education’s impact on growth.

Yet, while the average level of education spending may have increased, this conceals a more concerning phenomenon: there has also been a doubling in the standard deviation of public spending on education. In 1960, 95% of states spent between 0.5% and 4.5% of their GDP on public education – the difference between Nepal and the United States. By 1995 this range had increased almost twofold: from 0.5% to 8.5%, ranging from Equatorial Guinea to Denmark. Education spending might be universally
beneficial but it appears not every government acts on that advice. Furthermore, within individual states there have often been huge fluctuations in public spending on education. Chile, for example, began the 1960s spending 2.5% of its GDP on public education, which rose to 4.5% under the Allende government and then fell back to 2.5% under the Pinochet regime before once more rising to 4.3% in 2000. Portugal, the Philippines, and Zimbabwe, have all seen fluctuations of a similar magnitude over the past five decades. Even wealthy states see major shifts in education spending over time. In 1975 the UK spent around 6.5% of GDP on public education, comfortably placing it in the world’s top ten most generous states. This spending was, however, reduced to 4.5% by the late 1990s after eighteen years of Conservative government, putting the UK around fiftieth in international rankings. Then from 1997 to 2006, education spending saw a rebound to 5.6% of GDP under the New Labour government of Tony Blair. Clearly, education is not bulwarked against political tides.

What, then, explains this variation in education spending, both between states and across time within states? This study emphasizes that the provision of education is, at heart, a political decision. Most economists think of public education provision as the resolution to a simple market failure – education produces positive externalities that cannot be captured by the recipients of that education. Thus, a private market in education will undersupply education. Consequently, government resolves the collective action problem of securing these externalities by stepping in and funding education through the tax system. This story is, unfortunately, fatally simple. Governments undersupply public education not because they cannot resolve a collective action problem but because those who control the government do not want other people’s children to
become educated. The very provision of education has powerful redistributive effects that undermine the economic position of the elite. Thus the politics of education is a battle between the haves and have-nots. Education is costly to the already educated partly because they typically earn more and thus have to pay more in taxes to educate other people’s children. Furthermore, the already educated accrue rents from the very scarcity of their education; the only numerate person in town, for example, has a nice monopoly on accounting services. On top of scarcity effects, the already educated also dislike further education spending because it increases meritocracy at the expense of heredity and thereby threatens the transmission of wealth from generation to generation. All in all, public education is the sharpest edge of redistributive politics. Thus, education has the potential to become the arena for vicious political struggle: between the masses and autocratic rulers, between political parties of left and right, and between the beneficiaries of, and losers from, globalization. In addressing the politics of education, this study emphasizes that there are three key political factors that determine the provision of public education:

1) The extent to which political institutions democratically reflect the preferences of the citizenry as a whole.

2) The preferences of political parties and the manner in which electoral and parliamentary institutions channel these preferences.

3) The integration of states into the global economy and the effect of globalization on the preferences of individuals over education.
The first key factor is the state's basic political institutions. Democracies and autocracies represent fundamentally different ‘selectorates’ (Bueno de Mesquita, et al, 1999) with differing preferences over how much education the government should provide. This study argues that as the franchise expands and as government becomes more accountable to the wishes of the electorate, public education spending will rise. There is considerable evidence, of both statistical and case history nature, that this pattern works in both directions. Countries like Spain and Portugal that democratize will find their education spending increase massively, often doubling in a decade. However, states like the Philippines that experience autocratic coups, will typically see their spending on education plummet.

The second key factor is the behavior of political parties. Even if a state democratizes, the battle of education spending is not quieted. Parties represent the opposed interests of those citizens who greatly benefit from increased public provision of education, in most cases the middle class and poor, and those citizens who would prefer, all else equal, to pay only for the education of their own children, the wealthy. Framing this typical partisan divide is the institutional structure within which parties operate. Electoral systems can moderate or aggravate partisan differences over policy. Parliaments and cabinet may disagree over spending and this may force compromises.

The third key factor is globalization. As states integrate with the global market, price changes affect the incentives of individuals to support or block policy. Globalizing product markets mean that the return to education becomes set on international, not domestic markets. This means states can expand education without fear that this will lead to a plummeting in skill premium. Furthermore, globalization also has a powerful impact
on the demand for skills as technology transfer requires a skilled workforce to implement and operate imported technologies. Global integration is a perhaps surprising boon to education.

Understanding how these political and economic forces impact education spending is crucial for both analytical and substantive reasons. Political scientists have devoted relatively little energy to examining the determinants of education spending, although cross-country studies of other forms of social redistribution are near ubiquitous. Yet, education has the potential to be more fundamentally redistributive than most tax and transfer schemes since it threatens the rigidity of the established income distribution. This study builds a formal model that incorporates a variety of crosscutting redistributive forces – fiscal effects, scarcity effects, lottery effects, externalities, and targeted spending - in order to clarify how preferences and policy in education emerge. Moreover, this study also attempts to integrate three oft-separated strands of political economy: the study of democracy, the study of partisanship, and the study of global integration, by extending this formal model of education to incorporate a variety of political and economic forces.

Finally, this study hopes to provide a new insight into why the kinds of policy recommendations about education made by international bodies and development economists may not come to fruition. By examining the political incentives of groups to lobby for or block education spending, the study shows that the first-best solution of ‘growth through education’ may not always be politically feasible even if desirable. Education may be the source of productivity, of externalities, and of technological advancement but its redistributive impact is the most powerful of all. The next section
begins to develop this argument in greater detail, outlining major theories of education and setting out the redistributive politics of education set forth in this study.

1.2: Theories of Education

‘Education is, at heart, a political decision’, according to the preface to this introduction. While this statement summarizes the overall aim of this study it begs rather more questions than it answers. What type of education? Funded by whom? For what end? What do we mean by politics: distributional politics, identity politics, realpolitik? And how are preferences over education developed and channeled politically? Questions along these lines have inspired an extensive amount of research across the social sciences. Economists have undertaken analyses examining the extent to which externalities produced by educational investment justify state intervention in the area of education. Sociologists have examined how the standard Western forms of education provision have been mimicked by developing nations as they established public services. Political scientists have produced a variety of studies examining the impact of partisan preferences on broad educational aggregates. This is not an empty field of study by any means. However, despite the fecundity of this field of research there has not been an overarching study of how a broad range of political and economic factors affect education spending. Generally studies have been limited to examining the effect of single variables on one particular facet of education spending. Missing is a generalized model of the political economy of education, which might generate hypotheses about how a broad variety of factors might affect spending on a variety of aspects of education.
The vast literature on the economics of education began with the foundational work of Gary Becker (1964) and Theodore Schultz (1961). This literature begins from the standard economic assumptions of rational individual utility maximization and examines how individuals treat education as an investment, balancing the discounted returns from education against the present fixed cost of acquiring it. In as much as there is any reason for public involvement in the provision of education, market failures provide the key justification. Generally, credit constraints, imperfect information, time-inconsistent preferences, and externalities are examined as potential market failures that justify state intervention (Poterba, 1995). This literature thus takes an almost entirely efficiency-focused approach in analyzing education. There has generally been little analysis of the political economy of education provision: that is, of the distributive impact of education and how this might affect policy choices over the optimal level of spending. To the degree that economists have modeled the determinants of education provision, as in Perotti (1993) or Saint Paul and Verdier (1993), the underlying assumption is that all investment is privately made. Accordingly, economists view education provision as a private optimization problem, with the extent of education provision determined by the aggregation of individual investments. Yet, this model bears almost no resemblance to the actual provision of education worldwide, which is for the most part publicly provided. Instead, this project develops a full political economy model where education is publicly funded through the tax system and policy decisions are made politically. The model thus moves beyond the simple analysis of economic efficiency to examine the distributional conflicts surrounding education.
In contrast to the individual investment models of economists, the cross-national sociological literature on education provision takes a systemic view of education. Three particular theories of education provision have traditionally dominated the sociological debate. The first theory – the mainstream social differentiation theory – was a by-product of the dominant social functionalist approach of the 1950s and 1960s. Most closely associated with Parsons (1957),¹ this approach argued that education was used in order to create ‘horizontal differentiation’ between individuals serving different societal roles. The rise of modernity leads to an increasing functional complexity of society, leading to greater and greater horizontal specialization, and hence a greater demand for education that can provide individuals with the cognitive skills needed to fit into this framework. The second theory – the critical social differentiation theory – argued instead that education socialized individuals into \textit{vertically} differentiated roles; that is, education was a tool of social control by the elite (Bourdieu and Passeron, 1977; Bowles and Gintis, 1976). In this framework, growth in education spending might reflect growing control of the social elite over the lower classes. Finally, the third approach, pioneered by Boli, Ramirez and Meyer (1985) saw the international expansion of mass education as the adaptation of Western governance structures by developing nations, through a form of ‘isomorphism’. As the underlying social basis of modernity was transmitted internationally – a ‘rationalized, universalistic worldview… rooted in individual action’ - developing states adopted the Western mass education system not as a form of social differentiation but as form of ‘universalistic integration’ into the world system. Thus, in Boli et al’s formulation, education spending increased as the modern West’s social and

¹ But see also works by Durkheim (1938) and Spring (1972).
economic systems were absorbed by developing nations, regardless of whether their level of ‘functional complexity’ actually required this level of education.

This study differs significantly in its argument from the sociological literature, not only because it is built of an individualist model of political preferences rather than a systemic worldview, but also because it sees interest groups as attempting to deny one another education rather than use it as a functional tool to socialize or control individuals. Although education clearly can be used for ‘nation building’ purposes (Weber, 1976), the correlation between education and income is so profound (Mincer, 1974) that it is difficult to imagine that an autocratic elite would choose education as the most effective manner to keep their subjects down. If anything, the suggestion is the reverse; that an educated mass is dangerous for the elite (as in Acemoglu and Robinson, 2004). Furthermore, education is costly to provide and threatening of the established social order not constitutive of it. Nineteenth century elites were much more concerned with keeping education spending minimal and avoiding meritocracy than they were with using education as a direct tool of social control (see Lindert, 2003 and Chapter Nine). The isomorphism argument, for its part, may explain the transmission of Western styles of education but it certainly did not lead to Western levels of education spending. For example, India has long had a British-inspired education system, yet its levels of education spending have been pitifully low (see Chapter Six). Finally, these systemic arguments are typically very difficult to test since they specify broad levels of ‘modernity’ and ‘social control’ as independent variables; concepts that are almost impossible to operationalize and difficult to distinguish in some cases from education itself.
The final recent literature on the determinants of education spending examined in the literature review is that in the comparative political economy literature in political science. A number of authors have examined the basic effects of political institutions like democracy and partisanship on public spending on education. Carles Boix (1998), for example, has shown a positive relationship between socialist control of government and the level of education spending in the OECD between 1960 and 1990. David Lake and Matthew Baum (2001) have examined the impact of democracy on secondary school enrolment ratios, and Brown and Hunter (2004) have analyzed the impact of democratization on aggregate education spending in Latin America. However, these studies are for the most part somewhat fragmentary in that their range of cases and time periods is limited and their analysis of education is generally limited a single facet of education policy. Conversely this study examines, among other issues, aggregate education spending, education spending relative to other public goods, higher education spending, private education, teacher salaries, and partisan educational rhetoric. Moreover, none of the studies present a general model of the political economy of education spending; rather they draw on broad trends and correlations. As such, it is difficult to see how they might be effectively tested by extending the implications of their arguments, given that these arguments are couched in simple bivariate, associative terms.

The central argument in this study is developed in a baseline formal model in Chapter Two, with extensions to the model being made in the ensuing chapters. Nonetheless, it is helpful to lay out the argument in simple, informal terms as an overview. This study argues that variation in education spending can be best be explained by examining the multiple redistributive effects of education, how these effects shape
individual preferences over education policy, and how political institutions channel these preferences over redistribution so as to lead to education policy outcomes. The dissertation argues that individual preferences over education are derived from economic factors but that education policy outcomes reflect political bargains and constraints.

We begin by considering the several redistributive forces tied to public education: fiscal effects, scarcity effects, lottery effects, externalities, and targeting. **Fiscal effects** are simply defined by the level of taxation needed to supply public education and the cost of providing each ‘unit’ of education. If taxation is progressive and education is provided in a uniform amount, the tax system will redistribute resources among those who receive education from the wealthiest to the poorest. Among the recipients of public education, progressive taxation will lead to a simple rich-poor divide in terms of education spending. Accordingly, when states democratize and the poorer masses gain control of political decision-making, we expect taxation to rise and public education spending to increase. A similar logic applies with the election of left-wing governments who favor higher taxation and hence greater supply of public goods like education. However, this simple assertion must be qualified; if the provision of education is limited but taxation is universal, those who fail to receive education but pay for it are clear losers. In many societies the poor have thus paid in taxation for the education of the elite and middle-class, setting up a potential ‘ends against the middle’ coalition against education.

**Scarcity effects** relate to the relative scarcity of educated and non-educated labor in the workforce. Firms typically use both types of workers when producing goods and, provided that educated and non-educated workers are at least partial substitutes, the supply of education in the economy will determine the rate of return to education, just as
with any other factor like land or capital. Accordingly, if only the elite possess education, they will reap scarcity rents from their skills. However, as education expands to the middle class and the poor, these rents will be dissipated substantially. Thus, the elite have a vested interest in ‘protecting’ the rents accruing to their education and, thus, in keeping education spending minimal. As with the pattern of fiscal redistribution, we would expect democratization to reflect the interest of the masses in expanding education not the interest of the rich in protecting their rents. However, scarcity effects are not constant across states. Where wages are set by forces other than the domestic supply of education, for example, by global supply and demand, these scarcity effects will weaken and the elite will be less threatened by the expansion of public education.

*Lottery effects* are the third manner in which public education hurts the rich. If natural ability is uniformly distributed throughout society and education provides a way of ‘matching’ ability to income, we should expect education to help the able poor and harm the less able rich. Education, then acts a ‘lottery’ mechanism in relation to parental income, encouraging meritocracy rather than heredity and making the intergenerational transfer of wealth random. As lottery effects become more important, education becomes yet more threatening to the rich and encouraging to the poor, so much so that the rich might actually prefer to ‘buy off’ the poor with simple transfers of cash rather than allow even minimal education spending. This provides the implication, tested throughout the dissertation, that regimes or parties that favor the rich will try to shift the balance of government spending away from education and toward other government consumption that proves less of a meritocratic risk.
So far, education appears to be a curse on the rich. Yet this anti-elitist effect is not the full story. Like many other public goods, education produces positive externalities. Since these externalities are not privately capturable, education might be undersupplied on aggregate in a purely private market, justifying government intervention. However, unlike most other public goods, education is not a collectively used good like a park or clean air. Instead, education must be provided to new individuals in order to increase the provision of the public good. Thus the elite face an intriguing trade-off, they want to benefit from the externalities of an educated workforce but in order to reap these returns they have to suffer the negative fiscal, scarcity, and lottery effects of having other educated people. Externalities thus provide an economic justification for providing public education but they do not necessary provide a political justification if the other negative redistributive forces dominate. Unlike most public goods, the simple logic of the collective action problem cannot explain outcomes in education policy.

If externalities alone do not encourage the elite to provide public education, there may be another mechanism through which we see the elite advocate increased spending. If the elite can target education towards only themselves we may see them become public education enthusiasts, albeit for a very limited form of education. Higher education, for example, is typically biased in its enrolment towards the children of the wealthy. Thus, high income groups may favor increased education funding if it can be targeted towards higher education and away from more universally accessed areas like primary education. The possibility of targeting is not limited to groups with high income: in countries where the political ethnic elite happens not to coincide with the economic elite we may see targeting of education towards the politically powerful ethnicity as in,
for example, Malaysia. Generally though, we expect political and economic hierarchies to be closely aligned and thus for autocracies to be associated with a greater ratio of targeted spending (higher education) to universal spending (primary education).

The discussion of the redistributive perversities of targeted spending highlights the critical importance of political rules and institutions in determining how the economic redistributive preferences laid out above actually play out in the education policy arena. Political rules answer three questions: who gets to participate in decisions over education policy? What possible coalitions between groups can emerge? And are groups out of power able to constrain or block reforms? The first question addresses regime type. Autocracies typically translate into rule by and for the elite in society. We established above that because of the fiscal, scarcity, and lottery effects of public education, the elite will attempt to curtail any further expansion of education beyond themselves. However, they can only succeed in this goal where they control political decision-making, that is, where they are the ‘selectorate’ (Bueno de Mesquita et al, 1999). Following democratization the elite relinquish power to the masses, whose preferred level of education spending will be considerably higher. Thus, as participation expands so typically will education provision.

Democracy is not merely synonymous with the extension of the franchise. While representation matters, it is crucial that the executive is responsive to the demands of representatives if desires for mass public education are to become manifest. However, as we shall see in Chapter Four, other facets of democracy are less important. Stability of rule, for example, is often claimed to be a reason why both democratic and monarchic leaders, as opposed to non-monarchic tyrants, favor long-term investments like education
(e.g., Olson, 1993). Such arguments rely on efficiency conceptualizations of education and ignore its redistributive importance – monarchs may have long time horizons but they like the negative economic impact of education on the elite no more than do tyrants. Instead, regime type matters in three key manners: the extent of the franchise; the representativeness of the legislature; and the responsiveness of the executive. Redistributive preferences over education flow through these three gates and a blockage in any of them will likely stem the tide of education.

The rise of democracy provides an answer to the question of which groups have their preferences represented but it raises the further question of what kinds of coalitions will form between newly represented groups. In a one-dimensional world where politics aligns on a rich-poor redistributive axis, we would expect the middle class to dominate politically as they become the ‘median voter’ of democracy. In that case we expect education provision to expand up to the middle class. However, the destiny of the poor remains less clear. If externalities to education are sufficiently high, or if the poor have sufficient representation, we should expect education to become universal. But it is possible that the middle class will fail to provide for the poor, leaving them both uneducated and anti-education. As Michael Ross (2005) has noted, democracy does not always provide the kinds of public goods that the poor want – it is the middle class who typically pull the political strings in democracy. Thus, if we move beyond a simple one-dimensional model of politics to a multi-dimensional coalitional model, where groups must trade-off education versus simple cash transfers, we might find the poor willing to ally with the rich in an anti-education, ‘ends against the middle’ alliance. This outcome,
similar to Latin American populism, is explored in Section 2.4 and, with reference to higher education, in Chapter Eight.

The final political question is whether groups out of government can block reform. Political parties representing groups of differing income levels may not be able to commit to ignore their own partisan preferences, even if they are seeking the approval of an electoral median voter. As we shall see in Chapter Seven, parties can only be held to promises they make about education spending that align with their overall partisan identity. Empirically, voters appear to have little say in determining the path of policy other than through parties, since parties will enact their own partisan preferred policies regardless of their margin of victory. Parliamentary and electoral institutions can, however, curtail governing parties. Chapter Seven shows that extremist cabinets can be moderated by centrist parliaments and that volatility in education spending is accentuated in electoral systems like majoritarianism that work against coalition-forming and split the middle class. These powerful partisan effects on education spending demonstrate the redistributive force of education spending – when parties have unconstrained control over policymaking, education policy will fluctuate wildly as the left and right alternate office.

The final element of the argument in this dissertation is an examination of how education spending is affected by globalization. As noted above, scarcity effects are determined by the degree to which domestic returns to education are set by the domestic supply of education. In a closed economy, expanding education means reducing the rents accrued by the educated. Thus, the already educated have a powerful incentive to block further education spending. However, when states integrate into the global economy, prices and wages become set by global supply and demand rather than domestic market
forces. Consequently, the already educated no longer see their wages reduced when education expands and this will reduce their antipathy towards education spending. This supply-side force of globalization is complemented by a demand-side effect through the spread of technology. When countries open up to international markets they typically face competition from foreign firms with more advanced technology. Either they adapt to this technology or they become replaced by the foreign firm. Either way globalization leads to a demand for education in order to implement the new technology. Furthermore, the kinds of technology that are being transferred have become more ‘skill-biased’ over the past half-century: for example, computers not only require skills to build but also to operate. This provides yet further impetus to public education spending. Thus globalization alters the political dynamics surrounding education spending. Putting the argument together, we see that the economic forces of redistribution and trade exposure are channeled through political coalitions and constraints to produce education outcomes.

1.3: Methodology

Attempting to explain variation in education policy across over one hundred states since 1960 is a broad remit and necessitates a carefully structured methodology. There are three key objectives that such a methodology needs to accomplish. Firstly, the methodology must lay out a set of clear hypotheses that have been logically derived from a set of justifiable baseline assumptions. Secondly, the methodology must show how these deductive implications are reflected empirically in the pattern of outcomes in education policy across states and across time. Finally, the methodology must also demonstrate that not only the pattern of association but also the mechanism of causation
suggested by the hypotheses is recognizable within specific cases. Thus, to summarize, the methodology must clearly set out techniques of measuring the validity of the argument, of association, and of causation.

Such a methodology, aiming to encompass a broad variety of objectives, must therefore incorporate a selection of differing approaches: it must be a ‘mixed methodology’. No one technique, whether it be formal modeling, statistical analysis, or case comparison, can as effectively accomplish the goals set above as can a mixture of all three. Formal modeling provides us with the tools to derive a multitude of clear implications from a set of baseline assumptions. Statistical analysis permits the robust testing of these implications against a broad sample of very varied states across forty years, examining whether moves in variables of interest are associated with changes in education policy. Case studies and case comparisons allow a more detailed examination of whether the casual mechanisms suggested by the formal model are reflected in the specific histories of individual states and allow us to ascertain who the key actors in education policy are and the process by which they make education policy.

Formal modeling of education policy presents a number of advantages. Firstly, it provides clear, deterministic hypotheses about the relationship between education policy and variables such as democracy, partisanship, or global integration. These implications are all drawn from a simple baseline model, which is subjected to various extensions, and are based on identical underlying theoretical principles. This prevents hypotheses from being ad hoc relationships: the logic of the formal model suggests the structural form of empirical analysis, while non-formal approaches tend to remain silent on the full relationship between independent variables. Secondly, modeling makes explicit the
identity, preferences, and strategies of relevant actors. Defining who actors are, what they want, and how they get it, allows us to cleanly derive how opportunities and constraints like political representation and market structure alter the behavior of these actors and ultimately lead to different education outcomes. Thirdly, formal modeling forces the analyst to be clear and rigorous about the simplifications that all theories involve. Paul Krugman (1994) suggests that purported alternatives to modeling that emphasize ‘richness’ often reduce to a different kind of simplification - the use of metaphors and heuristics, which lack the internal validity that is the sine qua non of a formal model.

Models alone are, of course, merely suggestive—without empirical testing they remain abstract hypotheses, no matter how rigorous or mathematically elaborate their construction. All models are thus essentially tautological until exposed to the glare of empirical evidence. Although a model may be commonly accepted by a discipline as offering the best depiction of the likely mechanisms underlying some facet of social behavior, the external validity of a model is always open to testing even if its internal validity is unquestioned. Given these caveats the question remains, however, as to what form of empirical test to undertake. This study takes a two-pronged approach to empirical analysis, using both statistical testing and case comparison. In essence, this study makes no decision as to the optimal solution to the ‘small n’ / ‘large n’ dilemma that bedevils both comparative politics and international relations: rather it bridges the debate by applying both sets of tools so as to appropriate both the rigor and generality of statistical work and the richness and causal narrative of case-based analysis.

2 The Jorge Luis Borges story of an empire where ‘the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province’, until eventually cartographers create a map of the Empire at a 1:1 scale, is indicative of the impossibility of providing a useful theory that does not in some sense simplify the object of study (Borges, 1999).
The study uses a broad variety of statistical techniques to examine a number of claims about the influence of political variables on education policy outcomes. By and large, the statistical analysis aims for *breadth* of coverage in both time periods and the number of states under analysis. There are two key benefits of seeking breadth: the first being that extending the sample to more time periods and countries means that the claims made in the analysis are likely to be more generalizable to those countries and years missing from the dataset and to future time periods as predictions. Moreover, covering more states and more time periods extends the range of the relevant independent and dependent variables, increasing the confidence of estimates. The second key benefit of breadth is the purely statistical advantage of having a larger number of observations and the possibility such an increase creates in terms of applying more advanced techniques like panel fixed effects, which cannot be employed in smaller samples.

While statistical analysis permits us to ascertain how widespread and how robust the implications of the formal model are, it cannot verify the chain of casual mechanisms drawn by the model. Statistical testing examines the association between *outputs* as defined by hypotheses drawn from the model but it cannot analyze the constituent parts of the model unless the hypotheses are broken down into smaller and smaller chunks and each tested with relevant observations. Clearly, this process quickly meets the law of diminishing returns since data availability tends to become more fragmentary or difficult to measure as we move below the level of aggregate outputs. How then to decide if the causal mechanism suggested by the model is empirically valid? This study uses case analyses to help resolve precisely this quandary. By examining country cases in detail we can trace the process laid out in the model and compare it to the historical record.
The key objective of using country case studies in this study is *process-tracing*. This technique is intended to provide a plausibility test of the mechanism as developed in the formal model. This mechanism incorporates a variety of actors, with differing preferences, and a variety of potential strategies and actions under a set of political constraints. There are, hence, numerous moving parts in the formal model and it is imperative that the validity of the model not be justified only by its internal deductive validity or by the predicted correlation of certain outputs from the model. This study rejects Milton Friedman’s (1953) assertion that a model’s true worth be judged foremost in its predictive power. A variety of potential mechanisms could be associated with similar, possibly identical, predictive outcomes, with no further technique by which to judge the superiority of any particular mechanism under the Friedman rules. Of course, the true objective of any analytical exercise is at the author’s behest and predictive veracity may be the goal of many analysts, especially those with an interest in forecasting. However, this study intends that the theory developed be reflective of the actual mechanism that underlies policy change, albeit at an obviously simplified level: meeting both *explanatory* and *predictive* goals. Cases are thus used to test if the actors, preferences, and strategies detailed in the model actually have real-world counterparts – not merely because of a desire to have ‘capital letters’ in the analysis but to prod and test the process suggested in the model.

Case selection in this dissertation accomplishes three key goals. Firstly, the cases all display significant *within-case variation*. The formal model, as developed in Chapter Two, is based around political and economic changes in one state. Hence, it is important that such processes actually be traced within a particular state, rather than using cross-
case comparison as a substitute. Secondly, the cases allow examination of discontinuities in the variables of interest, for example, democratization, trade policy, or government partisanship. This contrasts with the statistical analysis, which compares the overall relationship between variables along a continuum. The study of sharply defined changes in our variables of interest helps to clarify the causal process and verify the dynamic cause and effect relationship. Finally, case comparisons in this dissertation are structured to cover broad variation along the independent variable, ideally by choosing cases that are ‘off the diagonal’: that is, those cases that display unusual configurations of the independent variables of interest. By examining distinct and unusual cases we are covering the potential range of counterfactuals implied by the overall argument.

1.4: The Structure of the Dissertation

The dissertation as a whole is built off a baseline formal model of political preferences over education spending developed in the following chapter. Each ensuing chapter adds extensions to the original model and tests the empirical implications of these extensions. Chapters Three and Four examine the effects of political regime type on education spending across 115 states, beginning with a baseline empirical analysis of the effect of democracy on aggregate education spending in Chapter Three, before moving to disaggregated forms of regime type and education policy in Chapter Four. Chapter Five examines how globalization creates supply and demand side forces increasing education spending and tests this hypothesis on a broad panel dataset. Chapter Six provides a series of case studies testing both the argument about regime type and that about globalization on country comparisons of the Philippines, India, Malaysia, Portugal, Spain, and Greece.
From Chapter Seven onwards the dissertation focuses on partisan politics in the OECD. Chapter Seven provides a formal model and empirical analysis of parties’ expressed and revealed preferences over aggregate education spending and tests whether voters, parliament, or electoral institutions can constrain party preferences. Chapter Eight focuses on higher education, developing a model of a ‘trilemma’ in higher education policy and testing this configuration against OECD data. Chapter Nine provides case analyses testing the implications of the previous two chapters, examining the patterns of partisan policymaking in aggregate education and higher education in the United Kingdom, Sweden, and Germany. Chapter Ten concludes the study. We now turn to a more detailed description of each chapter.

Chapter Two develops the baseline model of political preferences over public education spending, upon which a variety of extensions are added in later chapters. The formal model starts from a series of assumptions about individual behavior and the impact of education on income and utility, justified with reference to theoretical literature in economics and political science. The chapter examines how the redistributive politics of education play out through a variety of mechanisms: fiscal redistribution, scarcity effects, lottery effects, externalities, and targeting. The politics of education spending are then modeled both in a one-dimensional median voter framework, which suggests that both democratization and left-wing government will lead to greater education spending, and in a multi-dimensional coalitional model of politics, which allows for the emergence of unusual political alliances, like an ‘ends against the middle’ coalition.

Chapter Three provides the first extended empirical analysis of the implications of the formal model developed in Chapter Two, namely that democratization should lead to
an expansion in education spending. This hypothesis is tested using a variety of empirical methods on a dataset of 115 countries stretching from 1960 to 2000. In particular, the empirical section of the chapter examines several different methods of panel data analysis, including panel-corrected standard errors, fixed effects, and instrumental variables estimation. The latter method is particularly important because of the potential endogeneity between education spending and democratization and it requires searching for and testing a number of potential instruments, including lags of the level of democracy and the regional average level of democracy. Following the dynamic tests, the chapter also examines whether cross-sectional analysis shows the same relationship between democracy and education spending and whether the results hold up when using different measures of democratization.

Chapter Four continues our analysis of the impact of regime type on education by disaggregating both side of the analysis. We begin by cutting into our measurement of democracy, inquiring whether executive power, regime stability, popular representation, or the degree of factionalism affect education spending. Similarly, we also examine the impact on education spending of different types of autocracy, specifically communist and oil states. We then move to a disaggregation of the education variable. We start by considering private education and demonstrate that democracies appear to substitute public spending for private spending on education. We then move on to the analysis of ‘targeted’ education spending, showing that democracies tend to have a lower ratio of tertiary to primary education spending than do autocracies, indicating that autocracies target educational resources to the elite. We conclude with an empirical analysis demonstrating that teacher salaries rise considerably following democratization.
Chapter Five moves to an analysis of the impact of opening a state’s economy to global trade. The formal model is extended to examine how global integration changes both the impact of education supply on wages, reducing the negative effects of education on the elite, and also the demand for skilled labor through technology transfer. Both supply and demand forces push up education spending under globalization. This argument is tested on the 115 state dataset used in the previous two chapters, finding strong and robust effects of various measures of openness on education spending in both dynamic and cross-sectional analysis.

Chapter Six examines in greater detail the arguments developed in previous chapters about the role of democracy and globalization on education spending. Through careful case analysis and comparison the purported mechanism developed in the formal model is further tested. We begin by examining the Philippines, which has had significant volatility in both regime type and its level of integration with the global economy since the days of Spanish rule. We discuss the differing impact of Spanish, American, and Japanese colonialism before moving to the differences in education policy of the variously democratic and autocratic regimes governing the Philippines in the postwar era. We also examine the impact on education policy of Philippine trade strategy, noting that its reliance on import substitution industrialization (ISI) weakened its demand for education. We then turn to a case comparison of India and Malaysia in terms of the impact of openness on their education policy since independence. India and Malaysia provide an interesting contrast, since both lie ‘off the diagonal’ of open democracies and autarkic autocracies. A final set of cases also attempt to distinguish the effects of democracy and globalization by examining three states that experienced shocks to each
variable in distinct periods: Portugal, Spain, and Greece, who all democratized in the 1970s and joined the European Community in the 1980s.

Chapter Seven provides the start of the second empirical half of the thesis; the study the impact of parties and electoral institutions on education policy in the OECD. Chapter Seven develops a model of parties and elections, noting that party promises to provide education policies that cut against basic partisan preferences are unlikely to be credible. Instead, parties have distinct and systematic preferences over education policy, expressed in their manifesto declarations and revealed in their policy enactments once in office. The chapter tests the impact of switches in party control on both overall education spending, and education spending relative to other government consumption, showing a powerful positive effect of left-wing control of government on education spending. The chapter goes on to test whether such policy changes are reflective of party control of government alone or of voter demands more generally and examines whether parliamentary or electoral institutions can constrain parties in enacting their preferred education policies.

Chapter Eight extends our analysis of partisan preferences over education by examining higher education policy. The chapter begins by demonstrating empirically that right-wing governments tilt the balance of tertiary to primary funding towards the former, which typically favors their upper income constituents. The chapter goes on to develop formally a typology of higher education systems, which result from a ‘trilemma’ of trade-offs between subsidization, coverage, and total cost. The empirical veracity of the trilemma is tested against cross-sectional OECD data.
Chapter Nine uses a series of case studies to examine the theoretical mechanisms relating partisanship to education policy in the previous two chapters. It begins with an extended case comparison of the educational histories of the United Kingdom and Sweden since the early nineteenth century. This historical analysis allows us to connect our earlier study of the effects of democracy on education spending to the later emphasis on partisanship since both countries underwent gradual democratization and significant partisan turnover during the period of analysis. We find that the different electoral systems of the United Kingdom and Sweden, the former leading to volatility, the latter to consensus, have a large impact on the flow of education policy and that the left-right dimension of party politics has been the key determinant of modern education reform in these states. The chapter concludes with a three-way case analysis of higher education in the United Kingdom, Sweden, and Germany, which each represent a corner of the ‘trilemma’ developed in the previous chapter. The change from elite to mass higher education systems in the former two states, and the stasis in the latter, are explained using the partisan arguments developed in Chapter Eight.

Chapter Nine concludes the study, showing how implications and extensions of the simple model developed in Chapter Two help to explain how a huge variety of political and economic forces affect education spending. The conclusion notes that the study of education policy holds great promise for political economy in that it allows analysts to examine a variety of cross-cutting redistributive forces that complicate our normal unidirectional view of redistributional politics.
CHAPTER TWO: A FORMAL MODEL OF EDUCATION SPENDING

2.1: Introduction and Synopsis

2.2: The Baseline Model of Education Spending

2.3: The Baseline Model – Simple Extensions

2.4: Coalitional Politics

2.1: Introduction and Synopsis

Education is a somewhat peculiar form of government intervention in the economy. Superficially, a public education system has the same political dynamics as any other form of public spending. If the tax system is progressive, any increase in public education provision sets up a classic rich against poor battle over the rate of taxation and spending. However, education also has effects that differentiate it sharply from standard public spending. For example, education is often considered to be the source of significant positive externalities (Acemoglu and Angrist, 2000; Haskel et al, 2004), that is, effects through which the education of one individual redounds to the benefit of all, including the wealthy. These externalities might justify higher education spending than the rich would otherwise tolerate. On the other hand, because public education increases the supply of educated individuals in the workforce, it threatens the privileged position of an educated elite against the uneducated masses. The expansion of public education chips away at the scarcity rents earned by the already educated and this creates resistance from those who stand to be harmed by this greater competition. Furthermore, education increases the degree of meritocracy in the economy, replacing hereditary privilege with the ‘lottery’ of intelligence and thereby advantaging clever poor children vis-à-vis less gifted rich scions.
Thus, the political economy of education is far from simple. These several economic effects of education set up crosscutting redistributive forces, complicating the typically one-dimensional rich-poor axis of politics. Different groups in society face conflicting trade-offs when considering their ‘optimal’ level of public education spending. When public education expands the elite lose out from taxation, from the loss of their scarcity rents, and from meritocracy replacing heredity. However, the elite might stand to gain from externalities in education, or more cunningly, they may be able to target education spending towards themselves, by biasing education spending to universities. The middle class, conversely, are often the big winners from education spending – it is they who are most likely to gain skills for the first time when education expands. However, they may also have an interest in limiting expansion if the downward effects of supply on skilled wages prove too strong. The poor may appear superficially to be clear beneficiaries of education spending as they typically are in most political economy models of public spending. However, if the expansion of education is limited to the rich and middle groups in society, the poor may end up paying higher taxes for no direct gain. Even then, though, the poor might gain because of the relative scarcity of unskilled labor pushing up relative unskilled wages or because they benefit from the externalities produced by a newly educated middle class. The complexity of trade-offs faced across different groups in society means that formal modeling is a useful way to separate out and clarify the forces affecting preferences over education policy.

This chapter specifies a formal model of education spending and lays out a variety of implications of that model for how political and economic forces should affect the provision of education. The model begins in a simple baseline form that sets out the
underlying mechanics of the model in an intuitive fashion. Several redistributive aspects of education spending are discussed: fiscal redistribution; scarcity effects; lottery effects; externalities; and targeting. A simple median voter political equilibrium over education spending is examined and the effects of democratization are spelled out. The model also distinguishes explicitly between the politics of public and private spending on education. Other extensions to the baseline are examined, including the nature of the costs of education and political preferences over redistributive spending. We then examine the difference in policy outcomes when political bargaining takes the form of coalitional politics rather than a simple median voter outcome. Later chapters loosen the baseline assumptions about parameters and permit a variety of forces – from targeted spending to globalization to political institutions – to be added in a series of extensions. Before we turn to establishing the baseline formal model, it is worth undertaking two related tasks. Firstly, I briefly discuss the underpinning assumptions of the model. Secondly, I provide an informal synopsis of the results of the model.

In order to provide a formalization of any political process a number of potentially controversial and restrictive modeling assumptions must be made. When the topic under analysis is education policy, these assumptions become even more contentious. Commonly, people think of education in non-economic terms: as a good ‘in itself’ or a means of self-realization – the Rousseauan view; as a method of hierarchical socialization – the Platonic view; or as a means of cultural transmission and distinction – the Burkean view (Carr and Hartnett, 1996). That a person’s income may define their preferences over public education may even appear distasteful. Nonetheless, the model developed below largely relies on economic forces to generate preferences over
education spending and in as much as political extensions are made to the economic baseline these are built off an underlying assumption that education’s costs and benefits are economic. Such an assumption is made for a number of reasons. Firstly, our dependent variable in the analysis in subsequent chapters is the level of public spending on education – in itself an economic variable. Secondly, while cultural factors are undeniably important in determining attitudes towards education, they rarely vary significantly within countries. The empirical analysis conducted in this study is mostly based on examining precisely these within-country changes, where culture ‘drops out’ of the regression. Thirdly, formal models of culture are generally less well developed in the political economy literature than those where decision-making is based around rational individualistic economic decision-making. This is not to deny the potentially huge importance of recent developments in behavioral economics. However, the nascent nature of much of this work means that it does not yet present a precise set of models about how education preferences and policy ought to interrelate, above and beyond an interest in the impact of ethnic heterogeneity (see especially Miguel 2004, and Alesina, Glaeser, and Sacerdote 2001). This latter case of ethnic heterogeneity might, in any case, be better phrased as a form of targeted spending where some ethnic groups channel economic resources towards themselves and away from rival groups. Thus the ethnic heterogeneity argument can be subsumed into the baseline model.

---

3 Developing non-economic measures of a country’s education policy is no simple task. One could look at outcomes rather than inputs and examine literacy rates or standardized tests like the OECD’s PISA evaluation, though data here are spotty and literacy scores vary little among most developed nations. Another alternative would be to develop some form of ordinal scale of educational culture but this kind of measure is itself likely a function of prior patterns in spending.

4 See Chapter Six for an analysis of Malaysian education policy, which follows this ethnic targeting pattern.
The second important assumption underpinning the formal model is that parents behave more or less altruistically towards their children. Parents can thus credibly commit resources to their children’s education, even if the returns to this education will only be reaped in a later period. In as much as there are intergenerational trade-offs or time-inconsistency problems, they are summed up into a discount factor parameter and are not explicitly modeled. Again, the literature in behavioral economics on time inconsistency (Laibson et al, 1998; O’Donaghue and Rabin, 1999) provides some hints as to how such arguments could be developed in the case of education, for example, by assuming that parents irrationally ‘fail to save’ for their children’s education. However, it is not apparent that such alterations would have important *distributive* impacts, although they could certainly lead to sub-optimal provision of education as a whole. The altruism assumption is standard amongst those economists who have examined human capital provision (e.g., Perotti, 1993; Saint Paul and Verdier, 1993)\(^5\) and does not seem out of line with typical survey responses on preferences over the education received by one’s own children (Tedin, 1994). However, altruism in education policy only extends so far. The model assumes that individuals do not care about the education of other people’s children, unless they benefit directly from externalities.

The final assumption is one typical of formal modeling in political economy and is related to the previous two: that individuals are rational utility maximizers. I assume that when deciding on education policy individuals do not rely on fixed or sticky cognitive schemas (Kahneman, Slovic, and Tversky, 1982); nor do they systematically miscalculate the likely impact of their decision-making because of bounded rationality (Simon, 1982). By and large, the formal model is decision-theoretic rather than game-
theoretic so issues of information asymmetry arise rarely. Where information might be important (as in for example the ‘lottery’ formulation of the model or in the modeling of party positions in different electoral systems), we assume common knowledge and Bayesian updating (as in Geanakoplos, 1992). To the extent that such assumptions of rational decision-making are unwarranted, the results derived below are thus provisional. However, most scholars of decision-making over local education policies, like school bonds, tend to find strong evidence of the importance of self-interest (e.g., Tedin, 1994).

We now turn to a synopsis of this chapter’s formal model, which begins by outlining several redistributive aspects of public education spending that affect the policy preferences of different societal actors. Generally, we might expect that, as with most public goods, the rich would disfavor further public investment whereas the poor would prefer to increase spending. And in many cases we do, indeed, see this pattern. However, by separating out the following redistributive patterns – fiscal redistribution; scarcity effects; lottery effects; externalities; and targeted spending – we can clarify how specific and often countervailing forces complicate the simple redistributive picture. In particular, the benefits and costs of education vary systematically across these different mechanisms, leading to an array of redistributional tradeoffs.

**Fiscal Redistribution**: The baseline model assumes that the tax system pertaining in our ‘representative’ country is progressive. In the model this is specifically stipulated as a flat tax on income combined with a flat lump sum good – in this case, public education. Thus the benefit of education is a uniform economic subsidy and the cost is linear in income. This setup is based on Meltzer and Richard’s (1984) classic formulation, which provides a political economy model of the trade-off between taxation
and productivity. Under standard Meltzer-Richard assumptions, public good provision will lead to a greater preference for increased spending by the poor and for reduced spending by the rich. However, the simple progressivity of the Meltzer-Richard model is complicated in the case of education. Whereas all citizens are taxed, the spread of education may be limited to a subset of the population – education is a potentially excludable public good. This implies that while education spending might be progressive among those who do receive education (e.g. transferring resources from the rich to the middle class), if the poor are taxed but do not receive education, they face a regressive tax structure. Thus, the extent of education provision will determine the progressivity of the tax structure. Theoretically this could lead to a fully progressive structure (where the poor receive education); an ‘ends against the middle’ coalition (where the middle class are the chief beneficiaries of the education spending); or a fully regressive system (where the elite tax the rest of the citizenry to provide education for them). The model shows that democratization will push the locus of political decision-making from the elite to the middle class leading to a more progressive system of education funding.

**Scarcity Effects:** Unlike most public goods, which simply act as a transfer of wealth from rich to poor through the tax system, education has a further distasteful effect for the rich. In a closed economy, the returns to factors of production, not only labor and

---

6 This outcome is discussed in Ross (2005) who notes that democracies commonly focus public spending on goods that benefit the middle class but have little impact on the poor. Ross shows that infant mortality outcomes among the poor appear to have little relationship to democracy, despite the finding that overall public spending rises in democracies.

7 The transition from autocracy to democracy empowers the middle class who will increase education funding so as to include their children in the system. The fate of the poor, however, depends on the extent of externalities. In Section 2.4 of this chapter we show formally how the possibility of an ‘ends against the middle’ coalition of the rich and poor might limit further public spending in education. Typically though, democracy does enfranchise the middle class at the expense of the poor and leads to higher education spending, as demonstrated empirically in Chapter Three. The pattern of partisan support for education spending does, however, appear to demonstrate a reverse-U pattern, along the lines of the ‘ends against the middle’ formulation – as demonstrated in Chapter Seven.
capital but also skilled labor, are determined by relative factor supply. Thus an economy
with a very high proportion of skilled workers will have lower skilled wages than an
economy with a limited supply of skilled workers, holding the productivity of these
workers constant. Since publicly provided education expands the group of skilled
workers (on the assumption education provides productive skills)\(^8\), individuals who
already possess such skills will see their wage returns reduced. Put simply, where
education is a scarce commodity, beneficiaries of education can crank up their wages
because of scarcity rents. Thus, in societies where wage returns are highly sensitive to the
relative supply of skills we should expect the educated elite to lobby hard against the
expansion of education. However, if this sensitivity (more formally, the elasticity of
skilled wages with respect to skill supply) is lower, the incentive of the elite to block
education spending is reduced. As Chapter Five argues, an important factor in reducing
this sensitivity is exposure to the global economy because wage returns are determined
by global, rather than domestic, market forces. The formal model, thus, predicts that
education spending will be higher in states where the scarcity effect is weaker.

**Lottery Effects:** A further impact of education spending is its capacity to increase
the degree of income mobility through a meritocratic sorting process. Education
provision can fundamentally alter the likely ordering of income tomorrow for the children
of today’s rich and poor. To be more precise, we can conceive of education, under
conditions of a uniform distribution of ‘innate talent’ in the population, as producing an

\(^8\) Considering that almost all labor economists believe that education provides significant and long-lasting wage gains, this assumption will be true for almost all forms of education provision (Becker, 1964; Mincer, 1974; Blundell et al, 1999). Moreover, even if education has no *direct* impact on productivity – that is, if its only role is in signaling inherent ability (Spence, 1973) – scarcity effects will still occur because employers will reduce skilled wages if they face a pool of apparently skilled workers, some of whom have lower inherent ability than others – this is the classic ‘adverse selection’ dilemma (Akerlof, 1970).
income distribution among children that is random with respect to the income distribution among adults. Thus, under perfect meritocracy, all children should have the identical expected income, which will equal mean income. For adults whose income is currently above the mean, such an outcome is clearly undesirable and vice versa for those poorer than the mean. The problem, however, with assuming lottery effects is that we know that, even controlling for schooling resources, the clearest determinant of a child’s level of education (and future income) is parental education (Feinstein et al, 2004). Thus, despite the ostensible existence of lottery effects, and the demonstrable success of some children from hard-scrabble backgrounds, there are some strong countervailing forces favoring the rich. However, in combination with the scarcity effects outlined above, lottery effects provide a further reason to believe that education is particularly redistributive in comparison to other government spending. This will underlie our later analysis of the politics of relative education spending (education as a proportion of overall government spending), leading to expectations that democracy and left-wing control of government will both be associated with a positive shift in relative education spending.

**Externalities:** So far we have been concerned solely with the effects of education that mirror traditional rich-poor redistributive preferences, albeit in substantively different ways. Externalities, however, do not share this simple pattern. Unlike many public transfers, education spending may benefit even those who do not receive it. For example, scientific advances and the subsequent decrease in the cost of technology mean that most citizens benefit from a small group of people earning engineering PhDs. At the opposite end of the spectrum, employers may not be able to produce at optimal levels if their workforce is too poorly educated to read instructions or follow orders. However,
even if externalities exist, their distributive impact may be unclear. In some cases, all individuals might benefit uniformly from a group of people receiving one particular form of education – a literate populace makes modern cities, with all of their economic advantages, possible. In other cases, the beneficiaries of externalities may be a smaller group than the group of recipients of education – for example, the case where a small cadre of employers have strict control over all production and profits but need employees to be able to read. Since the precise distributive effects of educational externalities are largely indeterminate, this project assumes that they are uniformly distributed.\(^9\)

**Targeted Spending**: The section above on fiscal redistribution noted that where education provision was not uniform, such spending might not be fiscally progressive in nature. In particular, if the elite control the political system, and can target existing education spending towards itself, we may see a highly regressive form of taxation. University education in developing countries, typically available to less than one tenth of the population, is one such form of targeted, regressive spending. We discuss this example at great length in Chapters Four and Eight, which look at the effects of, respectively, democracy and partisanship on preferences over higher education spending. Other targeting possibilities exist in restricted or factional political systems. For example, in ethnically divided autocracies like Malaysia - as we shall see in Chapter Six - the particular ethnic group in power, who may not be the economic elite, often target

---

\(^9\) A further complication would be to assume that different kinds of education produce different amounts of externalities. For example, Haskel et al (2004) find that intermediate skills produce greater externalities than do university degrees. This differentiation is out of the scope of this project because externalities are notoriously difficult to measure precisely. However, if externalities are larger in primary than tertiary education (the implication of most economic studies, e.g. Sianesi and van Reenen, 2002), increased overall education spending is likely to be targeted towards the poor.
resources to themselves. Generally, then, we expect autocracies to have greater levels of targeted spending than democracies.

Some of these key forces are included in the baseline model and others as extensions. The baseline model begins by considering just the fiscal redistribution and scarcity effects of education spending. We consider a simple three-group set-up, where society is composed of an elite, a middle class, and a poor class. Under autocracy education spending is limited to the elite. Our interest will be in the political preferences of each group in terms of education spending and how a transition to democracy would then affect overall education spending. We start by assuming that education spending is simply used to increase the extent of coverage of education throughout society. That is, all citizens receiving education get a uniform amount and the political question is how far this good should spread through the population. At present we assume that education spending is uniformly costly (constant marginal costs); that it cannot be targeted (we cannot increase per student funding for the group that do receive education); that fixed scarcity effects apply to both skilled and unskilled wages; that externalities do not exist; and that the groups are equal sized. Finally, we assume that the political decisions reflect the preferences of the regime’s median voter. Our basic finding is that the transition of political power to the middle class will see a dramatic increase in the breadth of coverage of education and thus a jump upwards in education spending.

We then begin to change our baseline assumptions one by one to provide a more elaborate modeling of the political economy of education spending. The first change made to the baseline model is to introduce externalities. These externalities are assumed

---

10 This jibes with the theory of ethnic heterogeneity leading to targeted education spending as propounded by Miguel (2004).
to be uniform and are increasing in the number of citizens provided with education (but not in the level of education provided to each citizen). The addition of externalities to the model creates incentives for all groups to pursue greater provision of education, since they benefit from expanding education to other groups. Next we consider the case of increasing marginal costs for the supply of education. We assume that as the coverage of education increases, so does the cost of educating the marginal student. This extension shows that under the case of increasing marginal costs we should expect lower overall investment. Those countries where the population is highly spread out are likely to require higher levels of overall expenditure (a hypothesis explored in the empirical analysis of Chapter Five).

We then turn to examining the role of private education. We find that private education is only likely to be a major component of overall education spending in autocratic systems, since only the rich can typically afford the extra net cost of private financing of education. We also see that public and private education are largely substitutes: the introduction of a public education system covering a majority of the population will lead to a significant shrinking in the extent of private education. Finally, we conclude by examining preferences for education spending relative to other forms of government consumption. We find that, provided externalities and the probability of receiving education are high enough, a shift of political power to the poor should lead to a significant tilt in government spending towards education. The ‘lottery’ model of education spending is also examined in this section as a useful expression of the inherent differences between education spending and other forms of public goods.

11 Moreover, the poor will favor public education over a private alternative. Even if private and public education are similarly costly in gross terms, public provision is typically favorable for individuals with incomes under the mean since they receive some element of the cost of education as a subsidy.
The chapter concludes by examining the political and policy implications of replacing the median voter assumption with a multi-dimensional policy space. By allowing actors to bargain over both education policy and other government spending, or over different types of education, the median voter logic is replaced by an array of potential coalitions between groups. Under this setup, an ‘ends against the middle’ coalition can form between the rich and the poor to deprive the middle class of increased spending, in exchange for lump-sum redistribution to the poor. The likelihood of such a coalition emerging is, however, dependent on the marginal costs of education and on the size of scarcity effects. The remaining extensions to the model - targeted spending, globalization, and political institutions - will be introduced in later chapters.

2.2: The Baseline Model of Education Spending

The Basic Labor Market Model:

We begin the model by imagining a country with three groups of individuals: a high-income group (the ‘elite’), a middle-income group (the ‘middle class’), and a poor group (the ‘poor’). Individuals earn income from two sources. Firstly, they receive group ‘wealth’ \( q_i \), where \( i \in \{H, M, P\} \), with \( q_H > q_M > q_P \). For the purposes of the model, it is not important where this element of income comes from – but it is important to note that it is not derived from the labor market. We can think of it as some form of unequally distributed wealth.\(^{12}\) Individuals also receive income in the form of returns to their factor endowments of skilled and unskilled labor. Individuals are either skilled or unskilled. We

\(^{12}\) This wealth can be bequeathed to the children of these individuals, though this does not alter any conclusions in the model.
have a two-good, two-factor economy, with a skill intensive good and an unskilled-labor intensive good. For the moment, we assume that these goods cannot be traded on international markets. The returns to skilled and unskilled labor, \( w_s \) and \( w_u \), are defined by their relative productivity and their relative abundance. In particular, skilled productivity \( \sigma_s \) is always higher than unskilled productivity \( \sigma_u \). However, the skill premium is reduced by the relative abundance of skilled labor vis-à-vis unskilled labor.

The proportion of the population who are skilled is \( S \in [0,1] \), and the degree to which skilled wages are reduced by an expansion in \( S \) is defined by the skilled labor supply elasticity parameter \( b \). Relative abundance of skilled labor implies relative scarcity of unskilled labor, reflected by the unskilled labor supply elasticity parameter, \( a \). Finally, individual income can be calculated as the sum of individual wealth and factor returns:

\[
y_i = q_i + w_j \text{ for } j \in \{s, u\}
\]

In order to define what \( w_j \) looks like we need to examine labor market equilibria for skilled and unskilled wages, as derived by their relative productivity and abundance.

\[
w_s = \sigma_s - bS
\]

\[
w_u = \sigma_u + aS
\]

We see that skilled wages are decreasing in the relative abundance of skilled labor, whereas unskilled wages are increasing. However, skilled wages will be higher than unskilled wages for all levels of skill provision provided that:

\[
\sigma_s - b > \sigma_u + a
\]

We will assume throughout the baseline model that the relationship in Equation (4) holds and thus that the unskilled would always have an incentive to acquire skills. One further assumption about earnings links the wealth and wage functions. We assume that all
individuals who receive the skilled wage (that is, who receive education) have a higher individual wealth than those who do not. This implies that skill provision begins with the richest member of society and gradually extends to the poorest. This assumption is hardly controversial, given that the development of public education has traditionally started in the wealthiest areas and spread to the poor – even in the presence of private education.\textsuperscript{13} To make this matter clearer, we can define an individuals ‘inverse skill index’ $s_i \in [0,1]$, where the person with $s_i = 0$ will be the first to receive education under public education expansion, and the person with $s_i = 1$ will be the last. This ‘inverse skill index’ is thus itself inversely related to the individual wealth parameter $q_i$.

$$s_i = f(q_i), \quad f'(q_i) < 0; \quad s_i(q) = 1; \quad s_i(\bar{q}) = 0$$

\[ s_i \leq S \iff w_j = w_i \]
\[ s_i > S \iff w_j = w_u \]

Thus, as $S$ increases, the number of individuals earning skilled wages also increases, but it does so from the richest to the poorest member of society. We can put these income equations together to produce a set of income equations:

$$\begin{align*}
y_i &= q_i + w_j\left(s_i(q_i), S\right) \\
y_i &= q_i + \sigma_s - bS \text{ for } s_i \leq S \\
y_i &= q_i + \sigma_u + aS \text{ for } s_i > S
\end{align*}$$

Thus we can see already from the basic income equations how the scarcity effects affect the preferences of different individuals. For those who already possess education, any expansion is a net negative for them, regardless of how it is funded, since their wages will be reduced by a factor $b$. For those who receive education for the first time,

\textsuperscript{13} If we did not make this assumption and assumed that education was distributed uniformly throughout society but in a probabilistic manner the basic results would still hold. In the case where the poor receive education first, the results would hold provided that the elite were also receiving private education and that expanded public education had a negative scarcity effect on the returns to private education.
education provision is a double-edged sword. On the one hand their wages jump by the skill premium for that particular level of $S$. On the other hand, the very act of expanding skills reduces their wages from what they might have been if only they had been upskilled. Ideally, people would thus like to be the only recipient of any expansion of education. Finally for those poorer members of society who fail to receive education, this might not hurt their net income because the new relative abundance of skilled labor necessitates an increased relative scarcity of unskilled labor. As long as $a$ is greater than zero, the poor benefit indirectly through skill provision.

Figure 2.1 demonstrates the effects of skill expansion on wages for different individuals. The key factors determining preferences over education expansion will be those noted above: the fact that education provision begins with the wealthy; the productivity gap between skilled and unskilled wages; and the degree of supply elasticity of skilled and unskilled wages with respect to the provision of education.

**Figure 2.1: The Baseline Labor Market Model**
Taxation and Education Spending:

Unfortunately, education does not come for free. Its cost must be paid for by private individuals (as we shall see in the following section) or through the public tax and transfer system. In the baseline model we assume that the cost of providing education is uniform throughout society. There are both reasons to believe that economies of scale might exist in education provision (hence the existence of schools rather than all students using individual tutors) but also that marginal costs might increase as the state attempts to reach out to the poorest members of society.\textsuperscript{14} We will revisit alternative cost functions in the next section. For the baseline model we split the difference and assume constant marginal costs $c$. Thus the total cost of education will simply be $cS$.

At this stage, with the aggregate benefits and costs of education defined, we can broach the question of how much education a social maximizer – perhaps a benevolent despot – would provide. This will provide us with a welfare baseline, to which we can compare later results for the level of provision under, for example, democracy. Social optimizers will maximize aggregate income, by increasing provision of education until the marginal benefit is exceeded by the marginal cost of doing so. Consequently, a social maximizer would set $S$ such that for the marginal person who is upskilled, the gap between skilled and unskilled wages equals the costs of skilling:

$$c = w_s - w_u$$
$$c = \sigma_s - bS - \sigma_u - aS$$

$$S_{soc} = \frac{\sigma_s - \sigma_u - c}{a + b}$$

\textsuperscript{14} For the example the UK schools funding formula provides higher per student funding for poorer schools, see Johnson (2004).
The social maximizer’s optimal level of education provision is positively related to the productivity gap, as might be expected. We also see that as costs increase, the preferred level of education provision decreases. Finally, the supply elasticity parameters are both negatively related to education spending. If the skilled supply parameter $b$ increases expanding education will reduce skilled wages considerably and hence lower aggregate income. The unskilled labor supply parameter $a$ is also negatively related to education spending – in this case, increased education spending is less desirable for the social maximizer because the gap between skilled and unskilled wages is narrowing – what is the point of upskilling the working class when their wages are already pushed up by a large educated middle class?

Of course, education supply is not set by a social optimizer. Instead, it must enter the mucky world of political decisions over taxation; and the effects of taxes on preferences over education are powerful. We assume that there is a flat tax on income $t$ which is used solely to fund education spending. This tax is applied to all individuals. If we normalize the population of the country to one, we can then denote total tax take $T$ as the tax rate $t$ multiplied by average income $\bar{y}$. The total tax take equals the total cost of providing skills, which equals marginal cost $c$ multiplied by the proportion of individuals receiving education provision $S$.

$$ T = t\bar{y} = c \cdot S $$

Equation (10) does not, however, distinguish between the periods in which taxes are collected and education is provided. We now introduce a two-generational model, where parents, who live for one period, must decide how much to tax themselves to provide education for their children, who live in the following period. The two periods
are denoted period zero and period one. There is no time-inconsistency problem, in that
tax rates decided in round zero systematically lead to spending levels in round one. As
before, we assume that education provision begins with the children of the wealthiest
citizens and spreads slowly to the children of the poorest as provision expands. We limit
our analysis to episodes of education expansion, rather than contraction, so the children
of parents who are skilled in round zero will always be skilled in round one.\textsuperscript{15} We also
limit education provision to the public sector – private provision is examined in the
following section – so even the rich must pay some positive level of taxation if they wish
to see their children educated. We can now rephrase Equation (10) as follows:

\[
\bar{y}_0 = cS_1 \Leftrightarrow t = \frac{cS_1}{\bar{y}_0}
\]  

Equation (11) provides our basic budget constraint. We now turn to examine the
utility functions of the parents who are deciding over the optimal level of education
provision. Parents are essentially trading off their round zero net income against the
future utility of their children. Their children’s utility will be a function of their future
wages, which depend on whether they are upskilled and on how many other children are
also upskilled. Parents discount their children’s utility by a discount factor of $\delta$. Utility
can thus be expressed as:

\[
U_i = (1 - t)y_{io} + \delta[y_{li}(S_i)]]
\]  

We can reframe taxes as in Equation (11) above and also specify how round one wages
are related to education provision:

\textsuperscript{15} This assumption is not a necessary restriction but makes it simpler to see the effects of democratization
and globalization, both of which tend to increase education spending. We shall see examples of education
restriction in Chapter Five’s cases – the logic of the model works similarly but in reverse.
\[ U_i = \left(1 - \frac{cS_i}{\bar{y}_o}\right)y_{i0} + \delta \left[q_{ji} + w_{ji}(S_i)\right] \]  

We can immediately see that expanding education provision only affects the wage income of children, \( w_j \), rather than their ‘inherited’ wealth income \( q_i \).\(^{16}\) Taking the derivative of utility with respect to education provision we get the following expression:

\[ \frac{\partial U_i}{\partial S_i} = -c \frac{y_{i0}}{\bar{y}_o} + \delta \frac{\partial w_{ji}(S_i)}{\partial S_i} \]  

(14)

Thus, the effects of skill provision on utility, in this very basic formulation, are negative with respect to parents’ pre-tax income and positive with respect to the effect of education provision on children’s wages. In particular, the richer that parents are vis-à-vis the mean round zero income, the worse is the effect of education provision on utility; this is the simple model of fiscal redistribution discussed earlier. The marginal cost of education also has a negative impact on utility. However, as things stand, we cannot say a lot about the precise form of the derivative of children’s wage income with respect to education provision. To do so, we need to look closely at the impact of education provision on three different groups of people: those children who receive education and whose parents were also skilled; those children who receive education but whose parents were unskilled; and those children who do not receive education and whose parents were unskilled.\(^{17}\) We begin by considering this in the abstract before examining our three groups, \( H, M, \) and \( P \).

---

\(^{16}\) We could, in fact, drop children’s wealth income from our analysis of the effects of education provision but retaining it allows us to think about how changes in wage income from education provision balance against changes in overall income.

\(^{17}\) Note that the way that education expands from rich to poor rules out the fourth option of students whose parents were skilled but who do not receive education. In a lottery model this option would, however, appear. It would serve to accentuate yet further the distaste of the rich for expanding education,
We start by considering the effects of education spending on the three abstract groups, as noted above. The following three derivatives show the precise effect of education provision on children’s wages:

\[ s_i \in [0, S_0] \Rightarrow \frac{\partial U_i}{\partial S_1} = -c q_i(s_i) + \frac{w_{s0}}{\bar{y}_0} - \delta[b] \quad (15) \]

\[ s_i \in (S_0, S_1] \Rightarrow \frac{\partial U_i}{\partial S_1} = -c q_i(s_i) + \frac{w_{s0}}{\bar{y}_0} + \delta[(\sigma_s - bS_s) - (\sigma_u + aS_s)] \quad (16) \]

\[ s_i \in (S_1, 1] \Rightarrow \frac{\partial U_i}{\partial S_1} = -c q_i(s_i) + \frac{w_{s0}}{\bar{y}_0} + \delta[a] \quad (17) \]

An interesting set of patterns emerge when one looks at Equations (15) to (17). The first implication is that for those individuals who were already skilled in round zero, any increase in the provision of education above its level in round zero leads to solely negative effects. This expansion of education is disadvantageous for two reasons. Firstly, it has fiscal redistributive costs in that it leads to a lower level of round zero net income. Secondly, it has scarcity effect costs, because the expansion of education pushes down the skill premium by a factor \( b \). For the group of unskilled adults whose children become skilled, these fiscal costs may well be outweighed by the benefit of receiving higher wages through education: \( (\sigma_s - bS_s) - (\sigma_u + aS_s) \). However, there are second-order costs for this group, in that the expansion of education both reduces the return to skilled labor and increases the return to unskilled labor through scarcity effects. If scarcity effects are strong enough, this could cancel most of the wage premium. Finally, for those unskilled parents whose children remain unskilled, they must balance the cost of higher taxation with the potential benefit of unskilled labor becoming scarcer in round one. If we now examine these effects for our specific three-group set up, and we assume that the
The expansion of skills means a move from just the elite being skilled to the elite and middle class but not the poor,\textsuperscript{18} we can rephrase Equations (15) through (17).

\[
\frac{dU_H}{dS_1} = -c \frac{q_H + w_{v0}}{\bar{y}_0} - \delta [b] \tag{18}
\]

\[
\frac{dU_M}{dS_1} = -c \frac{q_M + w_{v0}}{\bar{y}_0} + \delta [(\sigma_y - bS_1) - (\sigma_u + aS_1)] \tag{19}
\]

\[
\frac{dU_I}{dS_1} = -c \frac{q_p + w_{v0}}{\bar{y}_0} + \delta [a] \tag{20}
\]

The results are very similar to those set out before, albeit with known wealth levels. Generally, we should expect the high-income group to be against education expansion. Furthermore, the middle-income group will have a greater preference for expansion than do the poor provided that:

\[
\delta [(\sigma_y - bS_1) - (\sigma_u + aS_1)] > c \frac{q_M - q_p}{\bar{y}_0} \tag{21}
\]

That is, if the discounted skill premium, minus the scarcity effects for the poor, is greater than the tax cost differential, the middle class like education expansion more than the poor do. To get an idea of the basic politics of education spending, we assert that, in the three-group formulation, autocratic government means that the franchise is limited to the high-income group, whereas under democracy the franchise is extended to all three groups. Assuming a very simple median voter formulation, we expect political parties in democracy to converge to the policy preferences of the middle-income group.\textsuperscript{19} If that is the case, we know that the elite would prefer to restrict education provision to

\textsuperscript{18} This means a switch from instantaneous differentiation to specific derivatives, since we now know the potential size of education expansion.

\textsuperscript{19} Section 2.4 moves beyond the median voter assumption to allow coalitions to form in a multidimensional policy space.
themselves, since they receive no benefits from further education expansion (that is, the effect of expansion on their utility is entirely negative). We also know that the middle-group, will prefer a strictly positive level of education expansion, provided that the tax cost is less than the wage gain, or:

\[ c \frac{y_M}{\bar{y}_0} < \delta[\left(\sigma_u - bS_1\right) - \left(\sigma_a + aS_1\right)] \]  

(22)

This equation is very likely to hold since middle class income is lower than the mean and the wage premium is still likely to remain fairly large following the expansion of education. We also know the poor favor granting public education to the middle-class, even if they do not receive it themselves, provided that:

\[ c \frac{y_P}{\bar{y}_0} < \delta[a] \]  

(23)

Thus, if following democratization the middle class gain control of political decision-making we should expect a significant expansion of education spending. If decision-making is split between the middle-class and the poor, with the elite excluded, it is quite possible we would see a lower level of education funding than in the purely middle class scenario. A similar result would also obtain for a middle-class / rich coalition. However, in all cases, education spending will expand from the autocratic baseline. Assuming a simple median voter framework, in a full franchise, we can assume that the middle-class will act as de facto median voter and that education spending will expand following democratization, leading to Proposition 2.1:

\[ 20 \text{ Although such a coalition would almost certainly undermine our assumption that the rich receive education first – if they are banned from political activity, one would assume public goods would be targeted away from them. Still, this could nonetheless mean a lower level of education expansion than in a full democracy. See Section 2.4.} \]
Proposition 2.1: Democratization will lead to significant education expansion as the middle class, controlling political power, expand education provision to include themselves.

The basic model above does not appear to offer a way for the poor to become educated, although we saw that the poor might benefit indirectly from education expansion to the middle class because of scarcity effects. In fact, this partial expansion holds up empirically among many developing countries, and for secondary school education and above in many developed countries. Democracy is no guarantee that the poor will receive education (or other public goods, see Ross, 2006). Yet, we do see that the poor receive at least some basic education in nearly all countries worldwide. Why would democracies, let alone autocracies, choose to provide any education to the poor if the middle class lose out through both fiscal redistributive and scarcity effects? The answer must lie in the final element of our baseline model: externalities.\(^{21}\) We complete the model by adding an externalities element, which is an increasing function of overall education provision, using a simple quasiconcave increasing function, \(g(S)\):

\[
\frac{\partial g(S)}{\partial S} > 0 \quad \text{and} \quad \frac{\partial^2 g(S)}{\partial S^2} \leq 0
\]

With the addition of externalities we can envisage a situation where it is in the middle class’s interest to expand education fully throughout the population, thus

\(^{21}\) The existence of externalities provides a rejoinder to Ross’s (2006) argument that the poor fail to benefit from democracy because of middle-class control of the political process. If externalities are large enough the middle class will choose to expand education to the poor, even though there is no political pressure for them to do so.
producing a democracy with full education coverage.\textsuperscript{22} Adding externalities to our formulation we produce our final baseline model.

\[ U_i = \left(1 - \frac{cS_i}{\bar{y}_a}\right)y_{i0} + \delta \left[g_{i1} + w_{j1}(S_i) + g(S_i)\right] \] \hspace{1cm} (25)

We can take derivatives of this utility function to produce the instantaneous result:

\[ \frac{\partial U_i}{\partial S_i} = -c \frac{y_{i0}}{\bar{y}_0} + \delta \left[ \frac{\partial w_{j1}(S_i)}{\partial S_i} + \frac{\partial g(S_i)}{\partial S_i} \right] \] \hspace{1cm} (26)

Note that for all groups this leads to a higher level of income than previously. To finish the baseline model we can rephrase the group utility functions as:\textsuperscript{23}

\[ \frac{dU_H}{dS_i} = -c \frac{q_H + w_{u0}}{\bar{y}_0} + \delta \left[ g(S_i) \right] \] \hspace{1cm} (27)

\[ \frac{dU_M}{dS_i} = -c \frac{q_M + w_{u0}}{\bar{y}_0} + \delta \left[ (\sigma_s - hS_i) - (\sigma_u + aS_i) \right] \] \hspace{1cm} (28)

\[ \frac{dU_P}{dS_i} = -c \frac{q_P + w_{u0}}{\bar{y}_0} + \delta \left[ a + \frac{\partial g(S_i)}{\partial S_i} \right] \] \hspace{1cm} (29)

In all three cases, it is easy to see that the inclusion of externalities raises the utility of education expansion in comparison to Equations (18) through (20). Thus, in the presence of externalities, the middle class – our baseline political decision-maker under democracy – has an incentive to expand education beyond themselves to the poor. In fact, their chosen level of education spending will be set as follows:

\textsuperscript{22} In fact, if externalities are high enough, we could potentially envisage an autocracy with full education coverage – although this would require very strong assumptions and that education have no capacity to undermine the autocracy’s political control.

\textsuperscript{23} These equations will form our baseline comparison of group utilities in the extensions in the following chapters.
\[ S_{1M}^* = \frac{1}{b + a} \left[ g'(S_1) + (\sigma_s - \sigma_u) - c \left( \frac{y_{M0}}{\delta \bar{y}_o} \right) \right] \] (30)

It is worth comparing Equation (30) to Equation (9) – the social optimizer’s choice. The level of education provision under democracy will be higher than under the social optimizer provided that:

\[ 1 > \frac{y_{M0}}{\delta \bar{y}_o} \] (31)

This inequality will hold, unless citizens discount the future very highly, on the assumption that median income is lower than mean income.\(^{24}\) Thus, we find that democracy, particularly in the presence of externalities, will lead to large increases in education spending - beyond even the preferences of a social optimizer. Democratic governments are not afraid to reduce substantially the income of an educated elite, even for moderate gains in income for the middle class. In fact, education provision will become universal if the following inequality holds:

\[ g'(1) + (\sigma_s - \sigma_u) \geq c \left( \frac{y_{M0}}{\delta \bar{y}_o} \right) + b + a \] (32)

The baseline model then suggests that education spending will rise under middle class control of government and thus that democratization should be accompanied by increased education provision. The precise extent of education provision and, in particular, whether it will come to include the poor, largely depends on the degree to

\(^{24}\) To be precise, we are comparing Equation 30 with an adjusted version of Equation 9, which incorporates externalities. It is likely to be the case that the social optimizer values the overall level of externalities so these enter her utility function just as they do the utility function of our representative middle class citizen. Whether the externalities directly cancel out in Equation 31 depends on the shape of the externality function – they cancel if it is linear but not if it is concave. However, if it is concave we know that the social optimizer will choose a lower level of education provision, since that produces more marginal externalities than the middle class’s optimal choice. Hence, the middle class will still choose a higher level of education provision.
which it produces externalities, as well as on the scarcity parameters $a$ and $b$ and on the cost parameter $c$. In the following sections and in later chapters we gradually alter the assumptions of the baseline model by allowing some of these parameters to vary or for their effects to be modeled in a different manner. Nonetheless, the basic result - that as political power gravitates towards the middle class education expands - will continue to underpin all the following extensions. The distributive politics of education are extraordinarily powerful determinants of its provision.

Section 2.3: The Baseline Model – Simple Extensions

We now begin our analysis of extensions to the baseline model: the cost of provision; the share of education spending that is publicly funded; and the share of overall government consumption devoted to education. In this section we shall see that the basic redistributive implications of the previous section are largely unaffected by these extensions. The shape of the cost function largely determines the precise extent of education spending for a given political regime, not the qualitative effect of transitioning between political regimes.\textsuperscript{25} It does allow us, however, to think about how the density of population or other cost issues might affect overall education spending. Introducing private spending also has little effect on the political implications of the baseline model: autocratic government is associated with higher private spending and the expansion of public education following democratization tends to substitute for private spending. Finally, with education spending relative to other government spending we see a similar rich-poor pattern of preferences as with absolute spending. This effect will be stronger,

\textsuperscript{25} We will see in Section 2.4, however, that marginal costs impact the possibility of a rich-poor anti-education coalition.
the greater are the ‘lottery’ effects of education and the more important externalities are vis-à-vis simple public transfers.\textsuperscript{26}

We begin by considering adapting the cost function. There is ample evidence that it is costlier to educate poorer students than wealthier students – for example Johnson (2004) shows that per student spending in England is an inverse linear function of social and economic status. We might also consider the expansion of education provision in a geographic manner. Traditionally education provision was limited to urban cores and its extension to rural areas was a gradual process, often taking centuries to complete.\textsuperscript{27} Thus, a simple extension to the cost function developed in the baseline model above is to assume that costs are linear in the provision of education – that is, as education provision expands, the marginal cost for educating each student rises linearly by a factor $k$. This implies an altered budget constraint, where we integrate across the number of educated children:

\begin{equation}
\bar{y}_0 = \int_0^{\bar{y}_i} kS_i ds_i = \frac{k}{2} S_i^2 \implies t = \frac{kS_i^2}{2\bar{y}_0} 
\end{equation}

We can now plug this altered cost function into the earlier utility equations – firstly the generic differential:

\begin{equation}
\frac{\partial U_i}{\partial S_i} = -S_i k \frac{y_{10}}{\bar{y}_0} + \delta \left[ \frac{\partial w_{j1}(S_i)}{\partial S_i} + \frac{\partial g(S_i)}{\partial S_i} \right] 
\end{equation}

\textsuperscript{26} These results are, however, dependent on the median voter formulation of political behavior. By introducing coalitional politics in Section 2.4, we will see that coalitions against education spending could emerge in a multi-dimensional policy space.

\textsuperscript{27} See Soifer (2006) for examples of the gradual spread of publicly funded education in nineteenth century Peru, Chile, Bolivia, and Mexico.
And secondly, the middle-class group utility difference:

$$\frac{dU_M}{dS_1} = -S_1 k \frac{q_M}{\bar{y}_0} + \frac{w_{a0}}{\bar{y}_0} + \delta \left[ (\sigma_s - bS_1) - (\sigma_u + aS_1) + \frac{\partial g(S_1)}{\partial S_1} \right]$$

(35)

The first thing to note is that the effect of changing the cost function is limited to the tax-side of the equations. Where $S_1 / k$ is greater than $c$, the disutility of education spending will be higher than in the baseline model but before this level is reached, spending will be cheaper. Thus this cost set-up makes it more likely that education provision will slow down beyond a certain threshold. We now derive the middle class’s preferred policy:

$$S_{1M}^* = \frac{(\sigma_s - \sigma_u) + g'(S_1)}{(k \frac{y_{M0}}{\bar{y}_0}) + \delta (b + a)}$$

(36)

We can compare the middle class’s preferred outcome in Equation (36) to that in the baseline model of constant marginal costs, as shown in Equation (30) above. This level of education provision with linear costs could only be larger than that produced under constant marginal costs if:

$$(\sigma_s - \sigma_u + g'(S_1)) < \frac{c y_{M0}}{\delta \bar{y}_0}$$

(37)

That is, under linear costs, the only way that education provision could be higher than under uniform costs is if the benefits from education provision are smaller than the costs accrued by the middle class. Equation (30) shows that the inequality in Equation (37) can never hold if the middle class chooses a positive value of education provision in the case of uniform costs. Thus, we can show that Equation (37) cannot hold, except as a corner solution, and thus that education provision is always higher where costs are uniform. In cases where we see increasing costs to education provision, like in countries with a
sparsely populated rural hinterland, we should expect lower levels of education provision and education spending.

*Proposition 2.2: If costs are increasing in education provision, the overall level of education spending should be lower, even under democracy.*

We now move to an analysis of the effects of private spending on the results from the baseline model. While in most states the vast majority of citizens are publicly educated, in many countries the elite chooses to pay for private education rather than send their children to public schools. Moreover, private education is more widespread in educational sectors that over-represent the elite like tertiary and pre-primary education.\(^{28}\) However, although private education can account for a significant proportion of overall educational expenditure, the existence of such a sector does not impact the qualitative result laid out above – that elite control of the polity leads to lower public expenditure on education. Rather, it provides a slightly altered trade-off - instead of citizens facing a trade-off of private consumption for public education they trade off private education for public education. In both cases, public provision favors the poor vis-à-vis the elite.

To formalize this relationship, imagine that we introduce a private educational sector into a state with pre-existing public education. How might this affect public educational expenditure? The answer is, surprisingly, very little, as long as the median voter cannot afford private education. The intuition lies in the fact that as long as public education exists, any individual purchasing private education for their children must also pay for public education for their child through the tax system. Because taxation is

\(^{28}\) We will deal with the question of privately funded higher education in the OECD in the trilemma formal model of Chapter Eight.
compulsory but private education is voluntary individuals cannot opt out of the public system. Thus, the very existence of public education makes private education more costly. Formally, in a world without public education individuals would choose to educate their children privately if:

\[ \beta(q_i + w_j) \geq c \]

\( \beta \) is the proportion of income individuals are willing to devote to the purchase of education. Parents will only buy private education when the amount of income they can devote to private education exceeds the cost of skilling their child.\(^{29}\) Since only richer individuals can meet this inequality, the unsurprising result obtains that the wealthy purchase private education and those who cannot afford to do so do not. It is worth noting that if the inequality above holds for the median voter as it may do in an autocracy,\(^{30}\) the entire educational sector will be private. Thus in the absence of a public education sector, we expect autocracies to refrain from developing public education, whereas democracies, where the median voter cannot meet the inequality above, will develop public education.

In a situation where a public educational sector already exists, the trade-off changes somewhat. Now purchasers of private education are also paying for a public education. Thus, individuals will only choose to purchase private education if \( \beta(w_j + q_i) \geq c + t^*\bar{y}_0 / S_1 \). Parents’ incomes will have to be substantially larger than in the previous scenario because they will also be paying for an unused public education for their child. Moreover, as the tax rate set by the median voter rises, fewer and fewer

---

\(^{29}\) We are assuming here that the uniform marginal cost of public education, \( c \), is a generic cost of education in both the public and private sectors. Where private education is more costly than \( c \) we will see even fewer citizens opt to spend on private education.

\(^{30}\) This inequality could also hold in a scenario where all citizens can afford private education (either \( \beta \) is very high or \( c \) very low) or if we look at an educational sector with a limited intake biased toward the wealthy like the tertiary sector or pre-primary education.
parents can afford this double expenditure. Thus, the private educational sector will become smaller if a public education sector exists. Figure 2.2, below, demonstrates this intuition. The top row shows the proportion of privately educated and non-educated citizens in a country without public education (an autocracy), whereas the bottom row shows the proportions of privately educated, publicly educated, and non-educated citizens in a country with public education and a democratic median voter.

Figure 2.2: Private Education in the Absence and Presence of Public Education

The figure above shows two key implications. Firstly, in situations where the ‘median voter’ is relatively poor like democracy (the bottom row), private education provision tends to be smaller. Secondly, that public education and private education are substitutes – that is, as public education expands, private education provision decreases. This provides Propositions 2.3 (a) and (b):
Proposition 2.3(a): Democracies will have a smaller level of private spending on education than autocracies.

Proposition 2.3(b): Public and Private education should be substitutes at the aggregate level.

The final simple extension to the baseline model is an analysis of public education spending relative to other forms of government consumption. In this section we will analyze this problem using a median voter framework; in the next section we alter this by allowing coalitional politics in a multidimensional policy space. We approach this task in two ways: firstly, by adding a simple cash transfer to the baseline model and secondly, by developing a ‘lottery’ model of education provision and comparing this to other public goods. We begin with the addition of the cash transfer to the baseline model. We assume that tax revenues can be split between education, as defined above, and a simple transfer payment \( m \), received by parents in round zero. We can thus rephrase the budget constraint and the generic utility function:

\[
I = \frac{m + cS}{\bar{y}_0}
\]  

(38)

\[
U_i = \left(1 - \frac{m + cS}{\bar{y}_0}\right)y_{i0} + m + \delta g_{i1} + w_{ji}(S_i) + g(S_i)
\]

(39)

In order to analyze how a change in political control from the elite to the middle class affects relative education spending, we need to compare the derivatives of this expression with respect to the money transfer, \( m \), versus education provision \( S \) for a fixed tax level \( t^* \). Note that, the total effects of \( m \) are felt through its indirect effects on \( S \) – since spending on \( S \) must be reduced if \( m \) is increased for a fixed tax rate. The implicit
derivative of education supply with respect to the money transfer is \(-1/c\). Equations (40) through (42), below, show the total effects of expanding the cash transfer for a constant tax rate for each of the three groups:

\[
\frac{dU_H}{dm}\bigg|_{r^*_i} = 1 - \frac{\delta}{c} \left[ \frac{\partial g(S_1)}{\partial S_1} - b \right] \tag{40}
\]

\[
\frac{dU_M}{dm}\bigg|_{r^*_i} = 1 - \frac{\delta}{c} \left[ (\sigma_s - bS_1) - (\sigma_u + aS_1) + \frac{\partial g(S_1)}{S_1} \right] \tag{41}
\]

\[
\frac{dU_P}{dm}\bigg|_{r^*_i} = 1 - \frac{\delta}{c} \left[ a + \frac{\partial g(S_1)}{\partial S_1} \right] \tag{42}
\]

If we start from a position where the high income group are fully skilled and that their children alone will receive skills in round one (that is, \(S_0 = 1/3\) on the assumption of equal sized groups), we can see that the elite would prefer taxes to be spent on the cash transfer provided that externalities are not extraordinarily large. The elite prefer to slant government spending away from education expansion for two reasons – firstly because their children are already guaranteed education under the current system, and secondly, because expansion diminishes the scarcity rents of education. The middle class, conversely, think differently. In their case, it is likely that the combined effect of the wage increase and externalities outweigh the simple cash transfer. They would, hence, prefer that government spending be slanted towards education. Thus, we should expect that a transition of political control from the high-income group to the middle-income group would lead to an increase in relative education spending.

There is, however, one caveat to this assertion. The preferences of the poor, who may not actually receive education under democratization (depending on the size of externalities) are less equivocally for education over cash transfers than are those of the
middle class. If scarcity effects are fairly weak, or externalities low, the poor may prefer a simple cash transfer to education spending. The elite, then, might be able to form an alliance with the working-class against the middle-group by 'bribing' the poor with cash transfers. Generally we should expect that democratic electoral politics will lead to convergence to the median voter, and hence bequeath power to the middle class. However, if ‘ends against the middle’ coalitions are possible, we might see a reduction in relative education spending, as we will in the next section.

We now briefly turn to an examination of ‘lottery effects’ as a further justification for the assertion that democracy leads to increased relative education spending. So far we have made life easier for the elite by assuming that education provision expands from rich to poor. Indeed, this assumption is more closely matched by historical evidence than an assumption that education expands uniformly throughout society (as we shall see in the case histories in Chapter Six; for example, Spain). However, what the current set-up does not emphasize is the meritocratic risk that the wealthy face when education provision is expanded. Not only might the scarcity rents of their skills be competed away, but their actual receipt of these skilled wages might also be competed away. We can conceive of education as a potential ‘equalizer’, which divides up the future population into workers receiving skilled and unskilled wages purely on the basis of ‘merit’, with merit assumed to be equally distributed throughout society. Instead of concentrating on scarcity effects and externalities as in the baseline, let us briefly consider a model where public spending either goes on a simple cash transfer, \( m \) as before, or into education which increases the probability, \( p \), of children receiving wages based on merit as opposed to parental income.
\[ U_j = (1 - t)y_j + m + \delta \left[p(S)\frac{1}{3}(y_H + y_M + y_P) + (1 - p(S))y_J \right] \]  \hspace{1cm} (43)

Notice that with a probability \( p \), dependent on education spending, children enter a lottery, with expected income equaling mean income, and with probability \( 1-p \), they receive their parents’ income. We can take derivatives of this expression with respect to education spending and the cash transfer (note, we are not fixing tax levels):

\[
\frac{\partial U_j}{\partial S} = \delta \frac{\partial p}{\partial S} \left[ \frac{1}{3}(y_H + y_M + y_P) - y_J \right] - \left[ 1 + \frac{y_J}{\bar{y}} \right] \hspace{1cm} (44)
\]

\[
\frac{\partial U_j}{\partial m} = 1 - \frac{y_J}{\bar{y}} - \delta \frac{\partial p}{\partial S} \left[ \frac{1}{3}(y_H + y_M + y_P) - y_J \right] \hspace{1cm} (45)
\]

Putting these equations together, education spending is preferred to the cash transfer if:

\[ \delta \frac{\partial p}{\partial S} [\bar{y} - y_J] > 1 \]  \hspace{1cm} (46)

This inequality is more likely to hold, the lower was round zero income and the greater is the effect of increased education spending on the probability of entering the lottery. Note also that the poor are the most likely to prefer education spending to cash transfers in this setup because their gains from entering the lottery are largest. The middle class, too, may favor education spending if high-income, medium-income inequality is particularly high – as it is likely to be during a transition out of autocracy. Thus the lottery model provides a simpler picture of relative education spending, one where the poor are particularly favorable to education. Since scarcity effects, lottery effects, externalities, and varying degrees of inequality in the beneficiaries of expanding education all vary across contexts, it is likely that both the baseline model and the lottery model are picking up important characteristics of relative spending. The degree to which the baseline or the lottery model predominates affects the chances of a middle-class /
poor rift, exploitable by the elite. Nonetheless, both the baseline and the lottery model suggest Proposition Four, below, is likely to hold in most transitions to democracy:

**Proposition Four:** Transitions to democracy will lead to higher levels of spending on education relative to other government consumption.

**Section 2.4: Coalitional Politics**

The results above regarding relative education spending were dealt with in the constrained political environment of the median voter theorem. However, democratic institutions do not necessarily produce the optimal policy choices of the median voter. In multidimensional policy spaces, policy outcomes can cycle between several competing coalitions without a single equilibrium outcome (see Mueller, 2003 for several examples). Since the poor can be excluded from education spending, there is reason to believe that they might prefer to be granted other public goods under certain conditions. The wealthy, who are harmed by education provision both fiscally and through scarcity effects, may offer the poor lump sum subsidies in order to convince them not to ally with the middle class in expanding education. In this section, we provide a spatial model of potential coalitions over relative education spending, highlighting the existence of an ‘ends against the middle’ coalition which could reduce relative education spending. Furthermore, we demonstrate that the likelihood of this coalition is affected by both the marginal costs of education and by the size of scarcity effects in the economy.

Figure 2.3 below demonstrates three potential coalitions among the three groups (high income, middle income, and poor)\(^{31}\) under democracy in a multidimensional voting space, where voters are trading off education spending \(S\) and a simple lump sum good \(m\).

\(^{31}\) In this section, we assume that all three groups are equally sized.
We assume that total possible tax take $T$ is derived from the incomes of the high income and middle income group and we assume, without loss of generality, that the poor have no taxable income. We also assume that the unskilled scarcity effect $a$ is small, so that the poor benefit more greatly from generic public spending than they do from providing education to the middle class. As in Equations (40) through (42), the budget constraint implies a trade-off between education and other public spending at a rate of constant marginal cost $c$. We assume that the total possible tax take $T$ can pay for all citizens in the economy to be educated, with a residue left over for other spending in the form of $m$.

**Figure 2.3: Coalition Politics and Relative Education Spending**

Within this framework we begin by considering the ideal points of the three groups. The high-income group would prefer taxes to be as low as possible, within the
constraint that their children are educated, requiring public education spending of $S_H$, and a minimum amount of the public good $m_H$. The middle income group would, instead, like to expand education spending to include all members of their group, leading to a preference for $S_M$, and would like a somewhat higher level of the public good, $m_M$, than that preferred by the high income group because they suffer less from taxation. The indifference curves of both the middle income group and the high income group are vertically elliptical rather than spherical because expansion of education affects the utility of both groups more than does expansion of the simple public good. For the middle income group this is because receiving education means a large jump up in income because of the skill premium, thus they prefer education spending over other spending, as discussed in the previous section. The high income group, conversely, suffer disproportionately from education spending since above and beyond its fiscal cost, scarcity effects weaken the rents that the high income group earn from their education.

Finally, the poor have somewhat complex preferences that are worth dealing with at greater length. In the event that the poor receive some education (i.e. $S > S_M$), they would prefer to have full education provision $S_P$ and are willing to accept a slightly lower level of public goods, $m_{P1}$ in order to achieve it. Note that the poor ideally would prefer to secure overall spending meeting the total possible tax take $T$ since they pay no tax. However, if this level of education is not attainable, the poor would prefer to be given a large amount of public goods $m_{P2} > m_M$ and to have no education spending at all. This

32 We abstract away from private education spending in this model. Its incorporation does not fundamentally change results since the high income group’s preferences just become $(0, m_H)$. However, it is not feasible to use this level to graphically display the change in relative education spending, since there is no public education to begin with.

33 We can treat any level of $S$ between $S_H$ and $S_M$ as entering members of the middle income group into a lottery with the probability of receiving education defined as $(S_S - S_M)/(S_H - S_M)$. 
results from the fact that while the middle class benefit from any education spending $S > S_H$, the poor barely benefit from any $S < S_M$ since the scarcity effect $a$ is small. The poor thus have two ideal points $P_1$, which is $(S_P, m_{P1})$ and $P_2$, which is $(S_H, m_{P2})$. Furthermore, the shape of the poor’s indifference curves differ depending on which ideal point we are considering. For $P_1$ where the poor receive some education, like the middle class group they prefer increased education spending over public goods because of the jump up in income from the skill premium; therefore they have vertical elliptical indifference curves. However, if the poor receive no education and, consequently, their ideal point is at $P_2$ they prefer to receive public goods rather than education, since the latter only benefits them to the degree that unskilled scarcity effects are in play. Thus the indifference curves around $P_2$ are horizontally elliptical.

We now turn to discussing the potential two-group coalitions that can emerge given these ideal points over education $S$ and the simple public good $m$. In equilibrium each group should be indifferent between the coalition offers made by the two other groups. We begin by considering the choice set available to the middle income group, who are indifferent between an alliance with the poor $PM$ and with the high income group $MH$. The position of $PM$ lies between the ideal point of the middle income group $M$ and the ideal point of the poor if they receive education, $P_1$. The middle class are unwilling to make an alliance where their indifference curve meets that of $P_2$, because this lies at a point of lower utility. In order for the middle class to be indifferent between alliances, $MH$ must lie between $M$ and $H$ on the same indifference curve as $PM$, halfway between $M$ and $H$. For the poor group, $PM$ must lie on the same indifference curve as $PH$. However, the indifference curves of $H$ and $P_1$ meet at a point of significantly lower utility.
for the poor than $PM$. Instead, $PH$ lies at the intersection of the indifference curves of $H$ and $P_2$. Finally, the high income group must be indifferent between $MH$ and $PH$, which can only occur with at the intersection between the curves of $H$ and $P_2$.

We can now analyze the different policy outcomes associated with each coalition. The lines in Figure 2.3 connecting to each coalition to the origin represent the level of relative education spending, with steeper slopes reflecting lower levels of relative spending. In each case, we are comparing the coalitional policy outcome with that produced by median voter politics, $M$. Since the poor have two ideal points, the high income group may be able to circumvent relying on middle class support in a coalition and ally directly with the poor in an anti-middle class coalition $PH$ that keeps education spending low and increases other government spending. However, if the poor choose to ally with the middle-class at $PM$, education spending will expand to include a large number of the poor and exceed its level under the median voter framework. Finally, if the middle income and the high income group ally at $MH$, education spending expands from its level under autocracy but will be lower than in the median voter framework.

The pertinent political question is when these different coalitions will emerge. In the equilibrium of Figure 2.3, since all groups are indifferent between the coalitions that they are members of, there is no single equilibrium outcome. Unless one group is made formateur of a post-election coalition, we will see cycling between all three outcomes. Even if one group is given this role, we will still see a split between the two potential coalitions that they are indifferent between. If we assume that, on average, each coalition has a probability of occurring of one third, the equilibrium expected outcome would occur in the central point $x$ of the triangle connecting all three coalitions. Note that $x$ has a
lower level of relative spending than the median voter democratic outcome $M$ but higher relative spending than is the case under autocracy $H$. Thus, we see that even when we allow coalitional politics, relative education spending in democracy on average is still higher than under autocracy. However, the existence of the high-income / poor coalition (the ‘ends against the middle’ outcome) drags down relative spending as compared to the median voter outcome.

Whether this high-income / poor coalition can occur depends on a number of factors not explicitly dealt with in Figure 2.3. In particular, its existence as an equilibrium outcome depends on the shape of the high-income group’s indifference curves. In Figure 2.3 these are vertical elliptical because of the negative scarcity effect on the high income group’s wages of supplying education. However, if scarcity effects are reduced to zero, the high income group’s indifference curves will become spherical (or possible horizontally elliptical depending on externalities) and thus drag downwards the $PH$ coalition ideal point to $PH'$ in Figure 2.4. However, $PH'$ produces lower utility for the poor group than does $PM$, which remains unchanged. Thus, if scarcity effects disappear, the $PH$ coalition becomes untenable and the middle-income group becomes the de facto decision maker since no ‘ends against the middle’ coalition can emerge. Thus relative education spending should be higher in states that are highly open, since scarcity effects are small, meaning the populist $PH$ coalition cannot emerge. This formulation explains why relative education spending rises under openness, as discussed in Chapter Five.

In contrast, it is also possible to conceive of a situation wherein the $PM$ coalition becomes untenable and the $PH$ coalition dominates. We discussed earlier the possibility that marginal costs might be linearly related to education expansion, with the per student
cost rising as education expands to the poor. At the extreme, if this pattern holds, the total tax take $T'$ may not be adequate to fully educate the poor, or even to expand much beyond $S_M$. In this scenario, since the poor cannot directly gain from education they uniquely favor the $PH$ coalition. The high income group now become the deal-maker in any coalition and, depending on the degree to which the poor and middle-income group strategically converge to the high income group’s favored point $H$, the outcome will be a point $y$ between $H$ and the midpoint of $PH$ and $MH$, as demonstrated in Figure 2.4. In situations of high inequality, or where education expansion is highly costly for geographical reasons, such an outcome is quite likely. Thus, if the middle class and poor cannot make a deal over education spending, coalitional politics could lead to the ‘ends against the middle outcome in countries where educating the poor is very costly.

**Figure 2.4: Extensions to Coalitional Politics Model**
CHAPTER THREE: DEMOCRACY, AUTOCRACY, AND EDUCATION SPENDING

3.1 Introduction

3.2 Theoretical Development

3.3 Measures of Democracy

3.4 Time Series Analysis of Democracy and Absolute Education Spending

3.5 Time Series Analysis of Democracy and Relative Education Spending

3.6 Cross-sectional Analysis

3.7 Dummy versus Continuous Measures of Democracy

3.8 Conclusion

3.1 Introduction

Since John Stuart Mill, political economists have puzzled over the precise relationship between democracy and education. For Mill (1856) democracy was itself an education – by participating in political action, individuals would learn how to become citizens. Many other authors have viewed education as a prerequisite for democracy. Lipset (1959), for example, saw education as a precondition for the development of a pro-democratic middle class that would hasten modernization. In more contemporary work, Carles Boix (2003) views education as hastening democracy but not because of any inherent ‘democratizing’ nature of education itself but through its effect of compressing the income distribution. Still other authors actually elide the distinction between democracy and education - Michael Ross’s (2002) analysis of whether oil inhibits democracy also questions whether oil inhibits public education. Education and
democracy thus have a long-standing relationship in political economy. But the direction of the relationship is unclear. Those authors with an interest in explaining democracy, like Boix (2003), use education as an independent variable. Others view education as inherent in the process of democratization itself – seeing democracy as political education and education as enabling political participation – with these patterns developing at a social-psychological level (Dewey, 1916).

Yet, few of these works actually address the reverse issue of how aggregate education funding is affected by this most basic of political institutions. This chapter demonstrates that the process of democratization leads to substantial increases in public spending on education. When countries liberalize their political regimes they tend not only to spend absolutely more on public education but also to slant the budget towards education spending and away from other government expenditures. This pattern holds up both dynamically - we see that democratizing states, for example the Iberian countries in the 1970s (see Chapter Six), often have remarkable surges in education spending - and cross-sectionally, for example the much higher rates of education spending in democratic Lesotho as compared to autocratic Swaziland, two states similar on many other measures.

The finding that democracies systematically spend more on public education than autocracies is noteworthy. Economists estimate that economic growth is firmly tied to educational abundance, approximately a one percent increase in the growth rate for every extra percentage of the population who attends primary school (Van Reenen and Sianesi, 2003). Following this line of thought, many international institutions have focused their statistical resources on ‘human development indicators’ like education and, over the past decade, have switched their development mantra away from fiscal rectitude towards
encouraging education spending (Pritchett, 2004).\textsuperscript{34} However, education spending remains highly variable cross-nationally. In many states, the collective action problem of providing a public education system has not been resolved, and this failure has been caused by political forces. As detailed in the previous chapter, education has strong negative redistributive effects for the wealthy; hence, it is unsurprising that autocracies and oligarchies the world over are less convinced of the merits of mass education than are development economists.

Even though the proximate cause of educational under-spending is political, within political science there has been relatively little heed paid to the topic of education spending. There is a small developing literature that has examined the effects of democracy on educational outcome variables like secondary school enrolments and literacy rates (Lake and Baum, 2001). Few authors have, however, directly addressed actual public spending – that is, inputs into education as driven by the political process – and those studies that have examined this effect on spending tend to be limited to particular regions or types of states: e.g. developing nations (Rudra and Haggard, 2005), Africa (Stasavage, 2005), Latin America (Hunter and Brown, 2004), and developed states in the nineteenth century (Lindert, 2004). This chapter moves beyond these largely regional studies to examine the effects of democracy and of democratization\textsuperscript{35} on education spending across 120 states from 1960 to 2000. The chapter focuses on

\textsuperscript{34} It is worth noting that the fact that this change has been so recent means that the effects of aid on education spending are essentially null in the sample used in this chapter, which runs from 1960 to 2000.

\textsuperscript{35} This difference between static and dynamic effects is an important theme of the chapter. We might expect these effects only to equal one another over the very long run – that is, over several decades. When examining democratization the short-term pattern of education spending may be more important than long-run outcomes - particularly if transitions to democracy are unstable - since fluctuations in the level of democracy will generally not show up in long-run averages.
aggregate measures of education and democracy, with the analysis of disaggregated measures of both taken up in the following chapter.

This chapter begins in Section 3.2 by revisiting the *theoretical implications* drawn from the formal model of education spending presented in Chapter Two. The model suggests that the extent of the political franchise and the identity of the ‘representative voter’ determine the chosen level of education spending. As states democratize, all else equal, it is expected that education spending will rise. The assumptions and implications of this model are contrasted with those developed in the extant literature on democracy and education. With the theoretical set-up of the chapter established, we move to the operationalization of democracy. Many *measures of democracy* are used in the political science literature and Section 3.3 discusses their relative merits and flaws.

The econometric evidence relating democracy to *absolute education spending* – that is, public spending on education as a proportion of national income – is then examined in Section 3.4. A variety of dynamic statistical techniques are developed, analyzed, and then implemented in order to check the robustness of the relationship given concerns about sample selection and endogeneity. We find a strong and robust relationship between democracy and education across techniques and samples, even when controlling for the potential endogeneity of democracy. The key finding is that the long term (around a decade) impact of moving from a Polity score of negative ten (full autocracy) to a Polity score of positive ten (full democracy) is estimated to be an increase in education spending of around one percent of GDP. This roughly translates into a twenty-five percent increase in the average education budget. Following the analysis of absolute spending, we move to an examination of *relative spending* in Section 3.5 – that
is, public spending on education vis-à-vis spending on other public goods and services. Again we find a robust relationship between democracy and education spending: moving between minus ten and positive ten on the Polity scale increases by a quarter the proportion of government spending devoted to education. Thus, as implied by the model in Chapter Two, as political power is granted to the masses we see a pronounced shift in the composition of public spending towards education: prima facie evidence that education is fundamentally more redistributive than other forms of government spending.

We then move from the dynamic specifications developed above to cross-sectional analysis in Section 3.6, which shows that average differences between different countries, some of whom are democracies and others autocracies, conforms closely to the results in the time-series analysis. The final part of the baseline econometric evidence, in Section 3.7, examines whether a dummy variable operationalization of democracy alters our findings. Section 3.8 concludes the chapter.

3.2 Theoretical Development

The objective of this chapter is to present empirical evidence on how the level of democracy of a state’s political institutions affects various aspects of public education spending. Before undertaking this statistical analysis, it is worth reminding ourselves of the theoretical connection drawn between democracy and education in the formal model in Chapter Two. The formal model argued that preferences over public education spending are negatively related to income – the argument being that in any progressive taxation system the wealthy will pay more in absolute terms than they receive in terms of uniformly provided public education. Any political system that tilts representation toward
the wealthier members of society should have lower public spending on education. Thus, we should expect that countries with property franchises for voting (the United Kingdom before 1918), those that systematically exclude poorer ethnic groups from political participation (South Africa under apartheid), or those that reflect the preferences only of the ruling elite or family (e.g. the Swazi or Saudi monarchies) to have lower public education spending. Thus the effective franchise, or the size of the ‘selectorate’ is the key determinant of how democracy affects education spending.

The precise translation of the franchise into policy outcomes is mediated by both the representativeness of the legislature and the responsiveness of the executive to this legislature. We discuss representativeness and responsiveness in greater detail in the following chapter, where we examine disaggregated measures of democracy and extend the formal model to incorporate these features. However, at this stage we can set out our basic theory of democracy as the degree to which the redistributive preferences of the full population are faithfully translated into policy outcomes. This process is dependent on how many citizens are represented (the franchise); the degree of bias in representation (representativeness); and the faithfulness of the executive in enacting policy choices (responsiveness). It is useful to compare the conceptualization of democracy developed in this project to those used in other well-known studies of the effects of democracy on public policies. These alternate theories can be divided into three main categories: the monopolistic theory of democracy; the stability of succession theory of democracy; and the contestation model.36

---

36 A further strand of literature is the large correlational literature that expects macro-correlation between democracy and various strands of public spending but does not provide explicit theoretical micro-mechanisms. In much of this literature it is difficult to tell precisely what aspect of democracy is affecting
The ‘monopolistic theory’ of democracy examines the state through the economic model of the firm. According to this theory, autocracies are able to carve out large monopoly rents in their provision of public services because barriers to political entry are high. This implies that autocracies are systematically restricting the supply of public goods like education with a view to bidding up taxes and favors by citizens who want access to these scarce commodities (Shleifer and Vishny, 1992; Lake and Baum, 2001). The difficulty with ascertaining the validity of this theory is that it requires data on the autocracy’s gains from monopolization and it is hard to imagine precisely how such data should be collected. Certainly, measures of corruption would help in this matter but these are notoriously unreliable because of collection problems, due to the obvious reluctance of corrupt politicians and bureaucrats to self-report. Moreover, it is rarely the case that nominal tax rates are particularly high in autocracies. Finally, those people able to bid up taxes or bribes for scarce resources tend to be those who could already access education – not the poorest members of society. Rather, than a rent-seeking model of autocracy where education is scarce *in order* to blackmail citizens for resources, why not assume that the elite in control of autocracies simply *prefer* not to fund education publicly because of the negative fiscal, scarcity, and lottery effects of provision?

The ‘stability theory’ of public good provision bears some resemblance to the monopolistic theory since it relies on a theory of the predatory state. However, rather than the static level of contestability, this theory relies on the stability of succession as a guide

---

37 Although see Gingerich (2005) for an innovative method of ascertaining the extent of public sector corruption.

38 With the exception of the Communist states who, in any case, had particularly high spending for autocracies – see Section 3.8.
to public good provision, particularly the supply of investment goods like education. Put simply, these authors (for example, Olson 1993) argue that in regimes with highly unstable succession the ruler is likely to prefer short term predation to skimming rents off long-term investment. Despotic rule is thus likely to under-invest in public goods like education. Democracies, conversely allow both stability of succession and the promise of a potential return to office, through re-election - thus leading to higher provision of public goods. This theory differs in implications from the monopolistic model in that it implies that monarchies, because they permit stable succession, should have higher investment in public goods vis-à-vis other autocracies.39 As we shall see in Chapter Four, however, the stability of succession has no apparent impact on education spending. Even if monarchs are long-sighted, they behave myopically with regard to education.

The ‘contestation model’ is proposed by Stasavage (2005) in his analysis of African education spending. Stasavage essentially reverses Bates’ (1981) well-known model of African urban-rural politics. Bates argued that autocratic states, facing greater threat of removal by urban workers than by rural masses, would distort the agricultural market to benefit the former at the expense of the latter. Stasavage notes that this favoritism should be reversed as states democratize and rulers become more reliant on the voting mass in rural areas. Since education spending – particularly at the primary level – benefits these rural citizens disproportionately, we should see democracies expand education spending and target it towards universal provision. Stasavage’s model is the closest to that developed in Chapter Two in that it focuses on responses to an increased selectorate. Yet it is not obvious that the logic of rural-urban politics is appropriate outside of the African context. Moreover, the example of states like India, which are

39 This is also an implication of Kellerman’s (2005) formal analysis of the stability of monarchical rule.
democratic and yet have failed to extend education to rural areas effectively, rather belies Stasavage’s argument.\textsuperscript{40} Furthermore, empirical analysis of changes in the degree of factionalism within democracies in Chapter Four, an analog of Stasavage’s mechanism, shows no strong effect on education spending.

Most of the theories above essentially assume a binary structure of politics: the state versus society, urban versus poor. The model developed in Chapter Two, however, took a more continuous approach, allowing for gradations in democracy to expand political representation step-by-step.\textsuperscript{41} Rather than viewing the state as necessarily predatory, the model depicts it as the embodiment of the economic preferences of its own ‘selectorate’. Where the selectorate’s preferences vary from the masses’ preferred policies, political institutions will fail to represent the democratic consensus on education spending. As we turn to the empirical section of this chapter, this tight relationship between the size of the selectorate and the extent of education provision will become increasingly clear.

### 3.3 Measures of Democracy

The previous section laid out how the theoretical mechanisms implied by the formal model in Chapter Two lead to a set of empirical hypotheses about a positive relationship between democracy and education. However, to test these hypotheses it does not suffice to merely show a correlation between aggregate measures of democracy and education and then assume that the mechanisms specified in the formal model have

\textsuperscript{40} On the Indian paradox see Chapter Six and Weiner (1990).

\textsuperscript{41} An approach also followed in Lindert (2003) which concerns itself with the incremental expansion of democracy in nineteenth century Europe and the consequent effect on public education.
passed the empirical test. Democracy is a multi-faceted and much-debated concept – as Orwell (1946) wrote, ‘not only is there no agreed definition, but the attempt to make one is resisted from all sides’. Thus, solely using aggregate measures of democracy may elide important distinctions between democratic regimes and impose a false certainty over any estimated relationship. On the other hand, data availability problems combined with the debate about whether there truly are ‘degrees of democracy’ mean that well-intentioned attempts to fully disaggregate democracy into the elements we find most theoretically convincing, may run up against real difficulties of operationalization. Consequently, this project examines both aggregate and disaggregated measures of democracy. This chapter focuses on the aggregate measures of democracy, testing the macro-relationships between democracy and education. The following chapter breaks apart the Polity measure in order to pry into the micro-mechanisms developed by the formal model.

How to effectively operationalize democracy has been a subject of extended debate in political science ever since the start of cross-national statistical analysis of the causes and effects of democracy (e.g., Lipset, 1953; Alvarez et al, 2000).42 The debate, at its core, often appears to be centered around whether democracy can be viewed as a continuum, or whether autocracies and democracies are essentially qualitatively different and therefore conceivable only in a minimalist manner as a simple dummy variable. The concept of democracy as a continuum finds its modern antecedent in Dahl’s (1971) concept of polyarchy, which measured the degree to which individual citizens could fully participate in political decision-making. As Jackman and Treier (2004) note, this approach essentially considers democracy to be a ‘latent, continuous quantity with an (as

42 As noted above, part of the problem is that there is considerable disagreement over defining democracy both as a concept and as a variable (Collier and Levitsky, 1997; Collier and Adcock, 1999).
yet) unreached upper bound’. If one can decide upon verifiable institutional or behavioral characteristics of regimes that relate to participation in political decision-making, one can aggregate these characteristics in some manner to produce an ordinal, or indeed interval, level scale. The well-known Polity index takes this continuum approach, combining institutional characteristics of autocracy and democracy into an aggregated scale. This measure is particularly popular among political scientists who wish to use the level of a state’s democracy as an independent variable for explaining topics from government spending (Lake and Baum, 2004; Hunter and Brown, 2004; Rudra, 2005), to international and internal conflict (Russett and O’Neal, 2003; Hegre et al, 2004).

Many other authors have conceptualized democracy as a dummy variable, including Lipset (1960) and Powell (1982) but perhaps the most important recent work adhering to this approach is the well-known argument of Alvarez, Cheibub, Limongi, and Przeworski (1996, henceforth ACLP) that democracy is like ‘the proverbial pregnancy’ – you are either democratic or not – there can be no ‘degrees of democracy’. ACLP assembled an extended dataset for the postwar era coding states as either autocratic or democratic.\footnote{This scale was recently extended by Boix and Rosato (2001) back to the 1850s – unfortunately, data on public education before 1960 is not available for more than a very few states, although Peter Lindert (2003) has examined several European states in the late nineteenth and early twentieth century and found that political liberalization appears to have had a positive effect on education spending.} Of course such analyses obscure the distinction between illiberal democracies like Pakistan in the early 1990s and liberal democracies like the United States of America, or between corporatist and fairly benign autocracies like Mexico before 2000 and tyrannies like that subjected on Zaire since independence. Generally, the use of the dummy conceptualization of democracy is most common among those scholars seeking to understand the determinants of democracy as a dependent variable, as in
ACL (1996) and Boix (2004). In terms of analyzing the dynamic effects of democracy, the dummy conceptualization often provides a similar picture to the continuous variables, since democratizations tend to involve both large scale shifts on the continuous scales and switches of state in the dummy conceptualization. The advantage for the dummy advocates is that they are making the fewest possible assumptions about precisely how democratic transitions differ from one another. However, as we shall see in Section 3.7, using a dummy variable in cross-sectional analysis of the effects of democracy on state behavior may mean omitting important differences between autocracies that impact government policy (for example social spending in Mexico versus Zaire).

In line with most studies of the effects of democracy on government behavior, this study mostly utilizes the Polity continuous measure of democratization, which provides extensive within-state and between-state variation.\textsuperscript{44} In particular, we examine the effects on education spending of countries undergoing ‘full democratization’ – this implies moving from minus ten to positive ten on the Polity index. As noted above, the use of the Polity scale leaves one open to criticism that the scale is ill-defined - that it aggregates different concepts of democracy that may have more or less relevance to the theoretical links drawn between democracy and education in this study. In order to ascertain whether such criticism is well-founded, Chapter Four tests the robustness of the association between democracy and education to the use of different variables and to the disaggregated components of the Polity scale. Moreover, Chapter Four takes the further

\textsuperscript{44} The Polity variable is taken from the Polity IV dataset as developed by Jaggers and Gurr (2003). The precise variable used in this analysis is the POLITY2 variable from that dataset, which provides extra data for interregna between regimes, which had previously been coded as missing data. The Polity index ranges from negative ten to positive ten and is constructed from a series of sub-variables, examined in greater depth in Section 3.7.
step of examining differences between types of autocracy, in order to establish whether communist states, or oil-exporters, behave differently from other autocracies.

A set of control variables is also included in the regressions in the following sections in order to counter the potential problem of omitted variables biasing the coefficient estimates obtained for the Polity variable. The first variable is a measure of demographic forces that might increase the demand for education spending: the proportion of the population under fifteen. Countries with very youthful populations will need to spend more of their national income on education than those with much older populations. The regressions also control for the log of population, the log of national income and then the square of logged national income. Using the extra quadratic form allows us to control for the potentially nonlinear effect of growth on education spending – Wagner’s Law implies growing countries will demand higher levels of public services but they may do so at a diminishing rate. Government spending other than on public education is also controlled for to ascertain if public education spending is rising separate from other government consumption. Moreover, in Section 3.4 we will examine relative spending on education – that is, education spending as a proportion of overall government consumption. Finally all regressions control for a linear time trend in order to take account of any secular trends in education spending. A linear time trend is

---

45 One important caveat, discussed at greater length in Chapter Five, is that a control variable for economic openness is excluded from the regressions in this chapter. This is essentially a presentational decision since the Chapter Five focuses on that variable. It can be noted at this point that the coefficient estimates for the Polity variable, and indeed the other controls, are only marginally affected by this omission (a maximum effect of around ten percent) and always remain statistically robust when openness is controlled for.
appropriate given that the insertion of time dummies into the analysis show a linear effect in their coefficient estimates.46

3.4 Time Series Analysis of Democracy and Absolute Education Spending

This section provides baseline empirical tests of the hypothesized relationship between democracy and aggregate public education spending. Using a variety of panel data techniques I find that ‘full democratization’ - moving from minus ten to positive ten on the Polity scale - is associated with a long-run (after a decade) increase in public education spending of around twenty-five percent. This relationship is robust to controlling for the potential endogeneity of democracy and to the use of different sub-samples of data. Importantly, we find that this positive relationship between democracy and education spending holds not only across states but when one examines only changes in democracy within states, which allows us to directly test the dynamic mechanism developed in the formal model in Chapter Two.

The first test of the theoretical relationship relating democracy to education, as implied by the model in Chapter Two, is conducted using a 115 state dataset from 1960 to 2000. The key dependent variable in this section47 is the percentage of national income devoted to public education, referred to in the analysis as absolute public education spending. This variable comes from the World Bank’s World Development Indicators and covers all state expenditure on primary, secondary, and tertiary education. Across the

46 The models have all been tested using a variety of specifications for time, including quadratic terms, as well as with time dummies. Results remain largely unaffected — likely a result of essentially linear pattern produced when the dummies are used. The linear time trend is chosen in order to maximize degrees of freedom and to avoid the dilemmas of over-specification (see Achen, 2002; Braumoeller, 2004).

47 And indeed, throughout much of this project - see Chapter One’s discussion of the dependent variable.
sample this variable has a mean of 4.2 and a standard deviation of 1.9. The variable has a number of advantages recommending its usage in this study. Firstly, it has been widely used in the economic literature examining the causes of cross-national variation in growth.\(^{48}\) Secondly, because it is a ratio it is comparable across states of different sizes and incomes in a way that absolute expenditure figures are not. Finally, it allows easy comparison with the percentage of income devoted to overall government expenditure, which demonstrates the relative significance of human capital expenditure vis-à-vis other options open to governments, which we will examine in the next section.\(^{49}\)

The list of countries included in the dataset is laid out in Appendix 3A. A couple of potential restrictions on the dataset should, however, be noted. Firstly, the countries included are all sized over one million in population. It is not obvious that the kind of logic that makes sense for a country of median size in the dataset (7.14 million) will be true when one examines microstates, who often tend to be essentially dependent on the resources of outside states. For example, most children from micro-states like Liechtenstein and Luxembourg will seek higher education outside of these small states. Secondly, this is an unbalanced dataset. While some countries have twenty-five data-points for the absolute public education spending variable, others have just one observation – with an average number of observations per state of 13.4. As with any

\(^{48}\) For example, Barro and Lee (1994) and Hall and Jones (2000).

\(^{49}\) However, this measure is hardly flawless, since it fails to indicate the intensity of educational expenditure. States with high population growth have extremely young populations; thus, a given percentage of national income devoted to education will lead to a smaller amount per student in a country with a high proportion of young educated people. Thus, as previously noted, the analysis controls for the proportion of population below fifteen years of age as noted above. All regressions have also been conducted using educational intensity as the dependent variable (absolute education spending divided by the proportion of the population under fifteen) – a variable used by Boix (1998) in previous analysis – with similar substantive and robust effects to the absolute education spending variable. However, the educational intensity variable is problematic in that it fluctuates with demographic shocks as well as policy choices.
situation where an analyst faces an unbalanced dataset, it is imperative to test a variety of sub-samples in order to make sure that countries who are ‘over-represented’ in the sample in terms of their observation count do not dominate the regression. To deal with this dilemma, after conducting analysis with the full unbalanced dataset in Table 3.1, I replicate the baseline regressions using a dataset with only five yearly observations and a further dataset including only those states with eight five-year observations in Table 3.2.

The data analysis uses a variety of cross-sectional time-series models in order to test the robustness of the suggested relationship between democracy and education spending. The first test uses a simple pooled OLS regression with Beck-Katz panel corrected standard errors (PCSE). The PCSE technique essentially adapts standard ordinary least squares (OLS) regression to take account of the potential temporal autocorrelation and cross-national contemporary correlation that bedevils panel data. By incorporating a lagged dependent variable and adjusting standard errors for contemporaneous correlation, the PCSE method permits standard OLS regression to be utilized. Thus, the basic PCSE model is:

$$Y_{i,t} = \beta_0 + \beta_1 Y_{i,t-1} + \beta_2 X_{i,t} + \gamma Z_{i,t} + \epsilon_{i,t},$$

The PCSE method then adjusts the resulting standard errors for contemporaneous correlation. The major advantage of this method is that it enables the analyst to account for the whole range of temporal and cross-national variation in the dataset, while

---

50 Fortunately, this issue will not dog us when we turn to the purely cross-sectional analysis later. Moreover, the problem of overrepresentation is less acute in fixed effect analysis since we are dealing purely with within-state deviations. Thus, countries that are long-run outliers and are also over-represented have their outlying means subtracted out of the regression and thus lose influence over coefficient estimates.

51 The classic statement of panel-corrected standard error regression was developed in Beck and Katz (1995). This was implemented in the following regressions using Stata 9’s ‘xtpcse’ command.
reducing the types of serial correlation problems endemic in panel data. The PCSE method is used in Model A in Table 3.1.

The second test is the classic fixed effects panel data method—another standard approach for cross-country analyses of this type. Unlike standard OLS regression, fixed effects models permit each state to have a different time-invariant error term (or, put differently, a different constant in the regression). This method thus controls for the fact that all time periods for one state share the same value on one measure—they belong to a specific state with possibly idiosyncratic educational expenditure. The model used is:

\[ Y_{i,t} = \beta_0 + \beta_1 Y_{i,t-1} + \beta_2 X_{i,t} + \gamma Z_{i,t} + u_i + e_{i,t} \]

\( Y \) is the dependent variable, \( Y_{(t-1)} \) is a one-period lag of the dependent variable, \( X \) is the key independent variable of interest (the Polity score), \( Z \) is a vector of control variables, \( u_i \) is the country-specific error term (or ‘fixed effect’), and \( e_{i,t} \) is the observation-specific error term.\(^{52}\) The downside of fixed effects regressions is that because of the country-specific intercepts, they solely measure deviations from group means, rather than the differences between group means; that is, they are within-groups estimators rather than between-groups estimators. This means that while fixed effects regression is an effective way to examine how changes in democracy affect educational expenditure in a given state, differences are brushed over between states that are always

---

\(^{52}\) It is worth noting that some scholars recommend caution when using both fixed effects and a lagged dependent variable because the process of demeaning the lagged dependent variable and the error term requires using all information on these variables for that state at other points in time. In particular, the error term for time \( t-1 \) is contained in both the demeaned lagged dependent variable and in the demeaned error term, introducing a small degree of bias (inversely proportional to the number of time periods, see Nickell, 1981). However, although some bias-correction techniques - for example, the Anderson-Hsiao (1982) and Kiviet (1995) approaches – exist, they tend to trade off a small degree of bias for a large amount of efficiency, as simulations in Beck and Katz (2004) demonstrate. Hence, the decision in this project is to retain the lagged dependent variable. However to check for possible bias, all regressions were run excluding the lagged dependent variable and Arellano-Bond (1991) techniques (an adjustment of the Anderson-Hsiao process) were also employed. In all cases, the substantial results remain robust and the bias on the coefficient estimate is minimal.
highly democratic and high spenders on education and those that are always autocratic and low spenders. However, because the model in Chapter Two is developed with regard to changes in the level of democracy within a state, rather than as a comparison of two different states, the fixed effects model appears to be the most appropriate tool for examining the purported mechanisms developed in the model. Given the desire to relate empirical tests to theoretical mechanisms, the fixed effects model is the baseline model of choice throughout this chapter and is used in Model B in Table 3.1.

The final two models deal with a potential bugbear in the analysis: the possibility of reverse causation. It is quite possible that education itself could lead to democratization, a theme touched upon in many works of modernization theory. If this effect is real, then the resulting endogeneity of our the Polity variable will seriously bias our coefficient estimates because it will correlate with the error term. Thus, it is imperative to adjust the empirical work to take account of this potential criticism. To do so, I develop two instruments for democracy, used in Models C and D. The classic theory of instrumental variables, as developed in Greene (2004), advises that an appropriate instrument is a variable that correlates closely with the potentially endogenous variable (in our case, the Polity score), cannot be endogenous (that is, cannot be correlated with the error term), and affects the dependent variable only through the potentially endogenous variable (otherwise it would be an omitted variable from the original regression). Traditionally, political economists have used either randomized variables as

53 Lipset (1959) provides the original development of this argument, later updated in Alvarez, et al. (2000) and Boix (2004).

54 However, this endogeneity problem may not be quite the empirical threat it appears to be – Acemoglu, et al. (2004) have recently demonstrated that the purported causal effect from education to democracy is an artifact of between country correlations and is not apparent in fixed effects models.
instruments (e.g. Angrist and Krueger, 1996) or variables that could be considered to be
natural experiments (famously, Acemoglu et al, (2002) use rates of tropical disease in the
sixteenth century as their instrument for democratic institutions).

However, developing instruments for usage in fixed effects models can be
challenging since it requires finding measures that co-vary with the potentially
endogenous variable across time rather than space. Thus, we cannot use common
instruments for democracy like colonial origins or religion. The first instrument I employ
is the five year lag of the Polity score, used in Model C. This has the advantage of a high
correlation with the Polity measure (0.86). However, there are a number of serious
problems with using lags as instruments, the chief being that any serial correlation in the
error term will retain the bias (Arrelano and Bond, 1998). In the case of the five year lag
this is true only if serial correlation extends back five years but it is nonetheless a major
concern. Moreover, there is rarely ever any substantive justification for using lags as
instruments. Instead, Model D uses the average Polity score in a country’s region as the
instrument (correlation of 0.74). This has some substantive import, since there is a well-
known diffusion effect in democratization (e.g., Huntington, 1991), and it is not prone to
the lag autocorrelation problem. Moreover, it is substantively exogenous—we have no
reason to expect that the level of democracy in a region is caused by one particular state’s
education policy. Both Models C and D perform two-stage least squares regression using
these instruments and incorporate country-fixed effects.
Table 3.1: Democracy and Absolute Spending on Public Education

<table>
<thead>
<tr>
<th></th>
<th>MODEL A PCSE</th>
<th>MODEL B FIXED EFFECTS</th>
<th>MODEL C IV LAG 5 DV</th>
<th>MODEL D IV REGION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LAGGED DV</strong></td>
<td>.828***</td>
<td>.615***</td>
<td>.625***</td>
<td>.620***</td>
</tr>
<tr>
<td></td>
<td>(.013)***</td>
<td>(.017)***</td>
<td>(.021)***</td>
<td>(.020)***</td>
</tr>
<tr>
<td><strong>POLITY</strong></td>
<td>.007**</td>
<td>.014**</td>
<td>.023***</td>
<td>.021**</td>
</tr>
<tr>
<td></td>
<td>(.004)**</td>
<td>(.005)**</td>
<td>(.008)***</td>
<td>(.010)**</td>
</tr>
<tr>
<td><strong>POP &lt;15</strong></td>
<td>-.000</td>
<td>-.013</td>
<td>.005</td>
<td>-.002</td>
</tr>
<tr>
<td></td>
<td>(.004)</td>
<td>(.011)</td>
<td>(.012)</td>
<td>(.013)</td>
</tr>
<tr>
<td><strong>LOG (GDP)</strong></td>
<td>-.116**</td>
<td>2.095**</td>
<td>2.008**</td>
<td>2.238**</td>
</tr>
<tr>
<td></td>
<td>(.205)</td>
<td>(.822)**</td>
<td>(.954)**</td>
<td>(.885)**</td>
</tr>
<tr>
<td><strong>LOG (GDP) SQ</strong></td>
<td>.003**</td>
<td>-.038</td>
<td>-.038</td>
<td>-.041**</td>
</tr>
<tr>
<td></td>
<td>(.004)</td>
<td>(.017)**</td>
<td>(.019)**</td>
<td>(.019)**</td>
</tr>
<tr>
<td><strong>LOG (POP)</strong></td>
<td>-.093***</td>
<td>-.049</td>
<td>.052</td>
<td>-.090**</td>
</tr>
<tr>
<td></td>
<td>(.026)***</td>
<td>(.225)</td>
<td>(.249)</td>
<td>(.246)</td>
</tr>
<tr>
<td><strong>GOVT EXP</strong></td>
<td>.013***</td>
<td>.004</td>
<td>.002</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>(.004)***</td>
<td>(.006)</td>
<td>(.007)</td>
<td>(.007)</td>
</tr>
<tr>
<td><strong>YEAR</strong></td>
<td>-.013***</td>
<td>-.016</td>
<td>-.016</td>
<td>-.015**</td>
</tr>
<tr>
<td></td>
<td>(.003)***</td>
<td>(.006)**</td>
<td>(.007)**</td>
<td>(.007)**</td>
</tr>
<tr>
<td><strong>CONSTANT</strong></td>
<td>29.738***</td>
<td>7.342</td>
<td>4.439</td>
<td>3.988</td>
</tr>
<tr>
<td></td>
<td>(5.476)***</td>
<td>(14.324)</td>
<td>(16.106)</td>
<td>(15.280)</td>
</tr>
<tr>
<td><strong>N / STATES</strong></td>
<td>1526 / 115</td>
<td>1526 / 115</td>
<td>1465/112</td>
<td>1526 / 115</td>
</tr>
<tr>
<td><strong>ADJ. R SQ</strong></td>
<td>.826</td>
<td>.894</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Short run Δ</strong></td>
<td>+ 0.14**</td>
<td>+ 0.28***</td>
<td>+ 0.46***</td>
<td>+ 0.42**</td>
</tr>
<tr>
<td><strong>Long run Δ</strong></td>
<td>+ 0.81**</td>
<td>+ 0.73***</td>
<td>+ 1.23***</td>
<td>+ 1.11**</td>
</tr>
</tbody>
</table>

Dependent Variable is public spending on education as a % of GDP. Standard errors in parentheses
* = p < 0.1, ** = p < 0.05, *** = p < 0.01

Table 3.1 reports results of estimating the effects of democratization on absolute spending on public education. Across all of the models, including the instrumental variables models, the coefficient relating the Polity score to public education is statistically significant at the $p < 0.05$ level. The purported magnitude of the coefficient varies between 0.007 and 0.023. In order to interpret this coefficient, it is most useful to
examine short run and long run first differences. Short run differences are the estimated year-on-year change in the dependent variable. Long run differences are those that accrue through the operation of the lagged dependent variable – that is, they are permanent effects that only become fully realized after around one decade. If we imagine a state converting from a full autocracy to a full democracy in a given period, this implies a change of twenty points in the Polity variable.\(^{55}\) The short run impact of this democratization would be to increase the amount spent on public education by 0.14% to 0.46% of national income. This would amount to an increase of between four and twelve percent in the educational expenditure of the average state in the dataset.

The long run effects are much more dramatic. To calculate these effects I use the following formula: \(\frac{\beta}{1 - \gamma}\), where \(\beta\) is the coefficient on the Polity score and \(\gamma\) is the coefficient on the lagged dependent variable.\(^{56}\) This index is then multiplied by twenty points in order to show the long run effects of moving between a total autocracy (minus ten on the Polity score) and a full democracy (plus ten on the Polity score). As Table 3.1 shows, the estimated long run effect of full democratization is an increase in educational expenditure of between 0.81% and 1.23% of GDP. This would amount to between a twenty and thirty percent increase in the education budget of the average state in the dataset. Furthermore, as we shall see in the cross-sectional regressions in Section 3.6, since autocracies typically spend less on education than do democracies, the estimated within state effects of democratization will lead to an even higher percentage change in previous

\(^{55}\) This is a range similar in magnitude to the Portuguese democratization discussed in Chapter Five, which moved from a -9 score to a +10 score in the 1970s.

\(^{56}\) This equation provides the ‘infinite horizon’ long-run effect - however, the difference between a ten-year effect and the infinite effect is negligible, hence we can conceive of long-run effects as essentially reflecting the change over ten years.
education spending for autocracies than for the ‘average’ state. Thus, for states like China, which in 1998 spent just two percent of its budget on education, full democratization (in China’s case from a score of -7 to 10) is predicted to lead to a between thirty and fifty-six percent increase in the educational budget—a shift of truly serious proportions. Figure One presents the estimated dynamic path using the coefficients taken from Model D (regional democracy instrument) if the average country were to undergo a full democratization. Note that by six years most of the impact is predicted to have been realized and from ten years onwards there is negligible change.

Figure 3.1: The Predicted Dynamic Impact of Full Democratization on the Average State’s Absolute Education Spending

The other control variables vary considerably in their magnitudes and statistical significance across the models, largely as a consequence of the differences in cross-sectional analysis between fixed effects models and OLS type models. GDP growth is
positively related to educational expenditure, albeit with decreasing returns (a negative coefficient on the squared log GDP variable) in the fixed effects models but insignificant in the PCSE model. This implies that economic growth is a major explanatory effect behind educational expenditure within states, but different levels of development between states explain surprisingly little. The exact reverse results are obtained with regards to population, which is insignificant in the fixed effects models but statistically significant and negative in direction in the PCSE model. This in turn implies that population growth has little effect on educational expenditures once the proportion of under-fifteens is controlled for. However, large states appear to spend less proportionally on education than small states in a cross-national analysis—this seems likely to be a result of returns to scale in the provision of public goods, which we will revisit in Section 3.6. Government expenditure outside of education is generally insignificant, although positive in magnitude when it does obtain statistical significance.
Table 3.2: Absolute Education Spending with Balanced Dataset

<table>
<thead>
<tr>
<th></th>
<th>MODEL A 5 YEAR FE</th>
<th>MODEL B 5 YEAR IV</th>
<th>MODEL C 5 YEAR BALANCED FE</th>
<th>MODEL D 5 YEAR BALANCED IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAGGED DV</td>
<td>0.287 (.050)***</td>
<td>0.285 (.052)***</td>
<td>0.284 (.058)***</td>
<td>0.283 (.060)***</td>
</tr>
<tr>
<td>POLITY</td>
<td>0.030 (.119)**</td>
<td>0.090 (.028)***</td>
<td>0.027 (.014)***</td>
<td>0.078 (.032)**</td>
</tr>
<tr>
<td>POP &lt;15</td>
<td>0.038 (.023)*</td>
<td>0.043 (.024)*</td>
<td>0.069 (.026)***</td>
<td>0.063 (.027)**</td>
</tr>
<tr>
<td>LOG (GDP)</td>
<td>2.588 (1.948)</td>
<td>2.110 (2.030)</td>
<td>4.137 (2.483)*</td>
<td>3.081 (2.627)</td>
</tr>
<tr>
<td>LOG (GDP) SQ</td>
<td>0.039 (.039)</td>
<td>0.025 (.042)</td>
<td>-0.0731 (.050)</td>
<td>-0.049 (.053)</td>
</tr>
<tr>
<td>LOG (POP)</td>
<td>-0.053 (.495)</td>
<td>-0.527 (.514)</td>
<td>-0.811 (.556)</td>
<td>-0.750 (.574)</td>
</tr>
<tr>
<td>GOVT EXP</td>
<td>0.092 (.019)***</td>
<td>0.106 (.022)***</td>
<td>0.074 (.023)***</td>
<td>0.085 (.017)***</td>
</tr>
<tr>
<td>YEAR</td>
<td>-0.003 (.013)</td>
<td>-0.019 (.015)</td>
<td>0.023 (.014)*</td>
<td>0.008 (.017)</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>-23.771 (32.363)</td>
<td>9.591 (36.354)</td>
<td>-89.797 (40.441)**</td>
<td>-48.968 (47.597)</td>
</tr>
</tbody>
</table>

N / STATES: 451 / 95 451 / 95 282 / 41 282 / 41

Short run Δ: + 0.60** + 1.80*** + 0.54** + 1.56**
Long run Δ: + 0.84** + 2.52*** + 0.76** + 2.18**

Table 3.2 uses the reduced datasets to test the robustness of the results to adjusting the dataset to five year lags and a balanced panel. Fixed effects and instrumental variable analysis are both used. Models A and B are unbalanced in terms of country year but use only five year periods. Models C and D are balanced and incorporate only those states with eight observations on the dependent variable. Noticeable in both datasets are the much stronger substantive results obtained in the instrumental variable...
models, which use the five year lag instrument, and the far lower coefficients on the lagged dependent variable. This latter phenomenon is a result of a much lower five-year correlation in education spending than the one-year correlation seen in Table 3.1. This means that the gap between estimated short-run and long-run effects is much lower. This is unsurprising because long-run really means long-run now (perhaps fifty years). We saw in Figure 3.1 that most of the estimated effect of democracy on absolute public education spending has been achieved after around six years. Despite the reduction in substantive importance of the lags in these models, we still see long-run effects very similar to those obtained in Table 3.1. The coefficient estimates we have obtained for the effect of democratization on education spending thus appear to be robust to a variety of different samples. We can conclude this section, then, by asserting with a strong degree of confidence that democratization has proven to be a key determinant of education spending over the past four decades – so much so that for many autocracies, democratization could increase their spending by over fifty percent – a massive substantive effect.

3.5 Time Series Analysis of Democracy and Relative Education Spending

The previous section demonstrated a clear and statistically significant of democracy - as measured by the Polity variable - on the proportion of national income that governments spend on public education. However, it is not obvious how much this tells us about government preferences over education per se vis-à-vis general government spending. Even controlling for other government spending, as in the above regressions, does not provide the whole picture on the relative importance of education vis-à-vis other
services or goods that the government might choose to purchase under different levels of
democracy. This section examines whether spending on education is in any important
sense different from more general funding of public goods. The results will show that the
impact of democratization on relative education spending is of similar magnitude to that
we found when analyzing absolute spending. There appears to be a significant shift of
government priority towards education: full democratization leading to a long-run change
of around one quarter in the average ratio of education to other government consumption.
Interestingly, education appears to be the only major element of government spending to
actually expand following democratization – it appears other public goods are cut back.
This concurs with the inference in the model that, for a given amount of public spending,
the extension of political representation to masses will lead to a shift away from other
public goods to education.

Chapter Two argued that education is fundamentally more redistributive than
other forms of government spending because it is not only a progressive redistribution of
tax revenues but it also increases lottery effects that weaken the intergenerational transfer
of wealth. We should thus expect that the ratio of public education spending to other
public spending will rise following democratization since the expansion of political rights
to a greater share of the citizenry increases demand for education spending. The
disenfranchised will demand education rather than other public goods (at least in relative
terms) once enfranchised. Analyzing the estimated impact of democratization on this kind

57 Controlling for other government spending does allow us to distinguish increased spending on education as distinct from a generalized rise in all public spending. As such it permits a more robust estimate of the effects of democratization on absolute spending, the explanandum of the previous section.

58 Section 2.4 noted that an ‘ends against the middle’ coalition could emerge under democracy and lead to lower relative education spending. However, on average, even the coalitional politics model shows that democracy leads to higher relative education spending than autocracy.
of relative education spending allows us to determine whether the alleged redistributive impact of democracy is at its sharpest through the channel of education.

Table 3.3 provides a first cut at establishing the relationship between democracy and relative education spending, using the Polity variable as in the previous two tables. Relative education spending is measured as public education spending over government consumption, as taken from the *World Development Indicators* dataset. The government consumption variable has been used widely in the political economy literature, for example Rodrik (2000), and represents the full range of government purchases, including education, health, defense, transport, and other public goods. It does not include tax revenues spent purely through transfers since these are not spent on *final goods* and thus do not count as part of national income.

The choice of models is very similar to those in Table 3.1, and the analysis uses the full dataset as in that table. Model A, a pooled OLS analysis with panel corrected standard errors, produces a small estimate of just a one percent point change in the relative education variable. However, this smaller effect is partly countered by a greater dynamic impact because of a stronger effect of the lagged dependent variable in this model. Thus the long term effect is 2.5 percent points of overall government consumption – around one third of a standard deviation. Models B, C, and D all use fixed effects, with model C using a five year lag instrument and model D using the regional average of democracy as an instrument. The short run effects of full democratization in these models vary between four and twelve percent points of government consumption. To get an idea of how substantive such shifts would be consider that the within-country standard deviation of the relative education spending variable is 8.6 percent points of overall...
government consumption.\textsuperscript{59} Thus the immediate estimated impact of full democratization is an increase of between fifty and one hundred and fifty percent of a standard deviation. In terms of the ratio of education spending to government consumption, this implies an increase from 28\% to between 32 \% and 40\%.

Table 3.3: Democracy and Relative Spending on Education

<table>
<thead>
<tr>
<th></th>
<th>MODEL A FIXED EFFECTS</th>
<th>MODEL B PCSE</th>
<th>MODEL C IV 5 YR LAG</th>
<th>MODEL D IV REGION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAG OF DV</td>
<td>.585</td>
<td>.390</td>
<td>.370</td>
<td>.389</td>
</tr>
<tr>
<td>(0.013)***</td>
<td>(0.014)***</td>
<td>(0.015)***</td>
<td>(0.014)***</td>
<td></td>
</tr>
<tr>
<td>POLITY</td>
<td>.051</td>
<td>.203</td>
<td>.588</td>
<td>.228</td>
</tr>
<tr>
<td>(0.026)**</td>
<td>(0.038)***</td>
<td>(0.103)***</td>
<td>(0.074)***</td>
<td></td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>-0.035</td>
<td>-0.082</td>
<td>-0.055</td>
<td>-0.081</td>
</tr>
<tr>
<td>(0.026)</td>
<td>(0.086)</td>
<td>(0.088)</td>
<td>(0.086)</td>
<td></td>
</tr>
<tr>
<td>LOG GDP</td>
<td>1.861</td>
<td>19.633</td>
<td>16.250</td>
<td>19.265</td>
</tr>
<tr>
<td>-1.509</td>
<td>(6.515)***</td>
<td>(7.366)***</td>
<td>(6.580)***</td>
<td></td>
</tr>
<tr>
<td>LOG GDP SQ.</td>
<td>-0.041</td>
<td>-0.324</td>
<td>-0.247</td>
<td>-0.314</td>
</tr>
<tr>
<td>(0.031)</td>
<td>(0.134)**</td>
<td>(0.151)</td>
<td>(0.136)**</td>
<td></td>
</tr>
<tr>
<td>LOG POP</td>
<td>-0.051</td>
<td>.925</td>
<td>1.130</td>
<td>.934</td>
</tr>
<tr>
<td>(0.163)</td>
<td>(1.793)</td>
<td>(1.882)</td>
<td>(1.794)</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>.001</td>
<td>-1.162</td>
<td>.233</td>
<td>-1.169</td>
</tr>
<tr>
<td>-0.019</td>
<td>(0.047)***</td>
<td>(0.057)***</td>
<td>(0.050)***</td>
<td></td>
</tr>
<tr>
<td>CONSTANT</td>
<td>-8.894</td>
<td>43.388</td>
<td>215.82</td>
<td>60.993</td>
</tr>
<tr>
<td>-42.586</td>
<td>-112.553</td>
<td>-140.822</td>
<td>-120.758</td>
<td></td>
</tr>
<tr>
<td>SHORT RUN $\Delta$</td>
<td>+1.02 **</td>
<td>+ 4.06 ***</td>
<td>+ 11.76 ***</td>
<td>+ 4.56 ***</td>
</tr>
<tr>
<td>LONG RUN $\Delta$</td>
<td>+ 2.46 **</td>
<td>+ 7.31 ***</td>
<td>+ 18.67 ***</td>
<td>+ 7.46 ***</td>
</tr>
<tr>
<td>OBSERVATIONS</td>
<td>1515</td>
<td>1515</td>
<td>1456</td>
<td>1515</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>113</td>
<td>113</td>
<td>110</td>
<td>113</td>
</tr>
</tbody>
</table>

Dependent variable is education spending as a \% of overall government spending. Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01

\textsuperscript{59} Interestingly, and fairly unusually within the dataset, the between country standard deviation is almost identical to the within country standard deviation: 8.7 vs 8.6 percent points.
The long run effects are much larger in the fixed effects models than in the PCSE analysis in Model A. The long run effect in the fixed effects models is estimated to lie between 7.3 and 18.7 percent points of government consumption, amounting to a change of between one and two and a quarter standard deviations following democratization. Using the regional instrumental variable model (Model D) as our baseline, we can examine how the composition of government consumption changes following democratization. Figure 3.2 combines the coefficient estimates from the absolute and relative spending models (i.e. Model D in Table 3.1 and Table 3.3) to present estimates of how the balance of government spending is affected by a range of possible changes on the Polity variable. It should be apparent from the figure that overall government spending does not seem to be highly affected by democratization – it shows just a very slight increase. Almost all the change occurs in education spending, which substitutes for other public goods once states have democratized. Here we see the long-run trade-off in political priorities that emerges in new democracies – even when government spending remains constant, education rises to the fore. This highlights the powerful redistributive impact of democracy – when poorer members of society finally acquire political control they will push the balance of public spending so far towards education that even other government spending may be significantly trimmed.
3.6 The Cross-Sectional Impact of Democracy on Education Spending

The analyses conducted in the previous two sections have focused on the dynamics of democratization and the consequent impact on education spending. While this analysis permitted us to ascertain how changes in the level of democracy in any one country might filter through into education policy, it obscures examination of how different states - some autocracies, others democracies – differ in terms of their education spending at any given point in time. Moreover, if the dynamic effects outlined in the previous sections are robust, we should expect them to be manifest over the long run in terms of differences in education spending between states. Cross-sectional analysis, then, allows us to accomplish a variety of goals that have been postponed to this point.
Firstly, as mentioned above, it permits us to establish whether dynamic effects accrue into cross-sectional differences in the long run. Secondly, cross-sectional analysis allows us to ‘put a face’ to our regressions: we can examine which particular countries appear to be outliers or to be particularly representative of the estimated relationships. Thirdly, cross-sectional analysis because it more closely resembles standard ordinary least squares (OLS) regression, allows us to test the robustness of the relationship between education and democracy, using a variety of statistical techniques developed for OLS usage. However, cross-sectional analysis has a variety of weaknesses in terms of inference. Firstly, we have the problem of the comparability of units and observations. Cross-sectional analysis forces us to answer whether China and Chile, Denmark and Djibouti, Namibia and New Zealand, really are substantively comparable, even controlling for size, income, and demographics. Secondly, the problems of omitted variable bias are generally more prevalent in cross-sectional analysis than in fixed effects panel analysis. There is a near-endless number of potential state-specific idiosyncrasies that might affect their ‘culture of education’ and could also be correlated with democracy.

Given the ample difficulties encountered when undertaking cross-sectional research it is imperative to view the results produced with some skepticism. Nonetheless this section, after conducting baseline regressions, exposes them to a broad variety of robustness checks in an attempt to minimize these problems. In order to minimize the problems of any particular year being unrepresentative of a state’s general experience and in order to ensure comparability with the previous analyses, the cross-sectional regressions are conducted using country means taken from the five-yearly dataset used in the previous section. Thus, technically, these are ‘between-effects’ regressions and
orthogonal to the fixed effects regressions used in the dynamics regressions. That is, whereas fixed-effects regressions subtract each country’s mean values from their observed values for each period – thereby forming a dataset of country-year deviations – the between-effect regressions use these country means as observations and thus remove all within-country deviations from analysis.

This reduces the dataset to 115 observations – one for each state – and the same control variables are used as in the dynamic regressions with the exclusion of the lagged dependent variable and the time controls. A further addition not present in the fixed effects regressions (because they are constant) is the inclusion of dummies for each major global region and a dummy for whether a state had a communist legacy.\(^{60}\) The other key difference from the dynamic analysis is that no instrumental variables are included. The regressions are then conducted on this set of country means as a standard OLS regression with Huber-White heteroskedasticity adjusted standard errors. Seven sets of regressions are performed so as to check for the robustness of the results and a variety of diagnostic figures are presented for interpretation of these results.

\(^{60}\) The regions used are Sub-Saharan Africa, North Africa and the Mid-East, West Europe, East Europe, North and Central America, South America, East Asia, South Asia, Central Asia, and Oceania. The communist dummy will be explored in greater detail in Chapter Four. Prior to that fuller explanation, it is worth noting that this dummy covers multiple regions and average levels of democracy (because of the post-1989 period) and has a robust positive effect on education spending.
Table 3.4: Cross-sectional Analysis of Education Spending

<table>
<thead>
<tr>
<th>MODEL</th>
<th>POLITY</th>
<th>POP&lt;15</th>
<th>GDP</th>
<th>GDP SQ</th>
<th>LOG POP</th>
<th>GOVEX</th>
<th>CONSTANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.105</td>
<td>.053</td>
<td>-2.816</td>
<td>.067</td>
<td>-5.55</td>
<td>.106</td>
<td>37.994</td>
</tr>
<tr>
<td>B</td>
<td>.105</td>
<td>.053</td>
<td>-2.816</td>
<td>.067</td>
<td>-5.55</td>
<td>.106</td>
<td>37.994</td>
</tr>
<tr>
<td>C</td>
<td>.097</td>
<td>.061</td>
<td>-2.267</td>
<td>.057</td>
<td>-5.44</td>
<td>.193</td>
<td>32.704</td>
</tr>
<tr>
<td>D</td>
<td>.083</td>
<td>.015</td>
<td>-1.829</td>
<td>.047</td>
<td>-.585</td>
<td>.077</td>
<td>27.888</td>
</tr>
<tr>
<td>E</td>
<td>.102</td>
<td>.054</td>
<td>-1.964</td>
<td>.050</td>
<td>-.544</td>
<td>.123</td>
<td>27.285</td>
</tr>
<tr>
<td>F</td>
<td>.096</td>
<td>.047</td>
<td>-2.426</td>
<td>.060</td>
<td>-.568</td>
<td>.117</td>
<td>33.547</td>
</tr>
<tr>
<td>G</td>
<td>.111</td>
<td>.033</td>
<td>-1.291</td>
<td>.069</td>
<td>-.447</td>
<td>.089</td>
<td>20.546</td>
</tr>
</tbody>
</table>

ROBUST S.E.s: .031*** .024*** .029*** .025*** .024*** .030*** .038***
REGION CLUSTER: .043 (.049) (.041) (.035) (.035) (.038) (.065)
EX. HAT: (1.307)** (1.373)* (1.390) (1.110) (1.203) (1.346)* (2.176)
EX. STUDRES: (1.307)** (1.373)* (1.390) (1.110) (1.203) (1.346)* (2.176)
EX. COOKS D: (1.307)** (1.373)* (1.390) (1.110) (1.203) (1.346)* (2.176)
ROBUST REGRESS: .031*** .024*** .029*** .025*** .024*** .030*** .038***
MIDIAN REGRESS: (.031)***. (0.024)***. (.029)***. (.025)***. (.024)***. (.030)***. (.038)***. 

Dependent variable is public spending on education as a % of GDP. All regressions contain regional dummies plus a dummy for communist legacy. Standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%. Result of Breusch-Pagan test for heteroskedasticity on non-adjusted regression gives a chi-squared of 8.36, producing a probability of 0.0038 for the null hypothesis of no heteroskedasticity. R-squared for median regression is a median pseudo R-squared.

The baseline regression is presented in Model A in Table 3.4. The estimated coefficient of .105 translates into an estimated first difference of 2.1% of GDP when one compares a full autocracy (-10 on the Polity variable) with a full democracy (+10 on the Polity variable). Figure 3.3, an added-variable plot, represents the estimated regression slope for this relationship. The x-axis shows the Polity score controlling for other covariates – that is, the degree to which the Polity score is unexpectedly high or low given a state’s demographic and economic characteristics. The y-axis represents education spending controlling for the other independent variables. Thus a country in the
top-left quadrant like Mongolia (coded “MNG”) is both ‘unexpectedly’ democratic and an ‘unexpectedly’ high spender on education. Conversely, countries in the bottom right quadrant like Croatia (“HRV”), Gabon (“GAB”), and Oman (“OMN”) are unexpectedly autocratic and miserly in terms of education spending. The plot as a whole shows fairly strong fit across the range of the independent variable with fairly few obvious outliers and perhaps only one particularly ill-fitting observation in Turkey (“TUR”).

Figure 3.3: Added Variable Plot of the Effects of the Polity Score on Education

Before moving on to the robustness checks it is worth discussing Model A in slightly greater detail. The impact of democracy is highly significant both statistically (at

---

Another way of thinking about added variable plots is that they plot the residuals of each variable when it is regressed on all the other independent variables. This technique is employed for both the independent and dependent variables, leaving us with the ‘partial’ regression of education on democracy (conversely, a bi-variate scatter plot would show the total, rather than partial, derivative of education with respect to democracy, including the indirect effects of democracy on education through economic growth, population, etc). The line in the added variable plot therefore has the same slope as the regression line.
the $p < .01$ level) and substantively (at around two percent of GDP for the full Polity first difference). This latter magnitude is worth dwelling on momentarily. Using the same five-yearly dataset, the dynamic analysis in Table 3.2 estimated that long-run impacts of full democratization would be between .84 and 2.52 percent points of GDP (for the simple and the instrumental variables regressions respectively). The estimate produced from the cross-sectional analysis (2 percent points) suggests that the latter estimate of 2.52 percent points, which attempts to control for potential endogeneity, is more reliable.

Finally, it is instructive to look at the estimated effects of the control variables. Although the proportion of the population under fifteen is not a statistically significant predictor, it is positive as one would expect. The remaining variables do produce significant estimates but with a differing pattern to those produced in the dynamic analyses. Whereas income took an increasing concave pattern in its effects on education in the dynamic analyses (the ‘Wagner’s Law’ effect), in the cross-sectional analysis this flips to being convex, indicating that developed countries spend an order of magnitude more on education than do developing nations. The results for population are negative – larger states, all else equal, spend less on education. This should not surprise us particularly if larger states can obtain some economies of scale in providing education.62 Finally, government spending on other public goods and services is positively related to education spending – there is no apparent crowding out effect of government spending –

---

62. This could also be a function of the relatively autarkic economies of large states, as we shall see in Chapter Five. In fact, once we control for openness and area, the significance of population is reduced to borderline levels, although it remains negatively signed. Area is positively related to spending. This implies that small but densely populated states can spend proportionally less on education (for a given level of openness – although this is also likely to be higher) and large, low density states will spend proportionally more – this seems a good candidate explanation for the Mongolia’s status as a positive outlier, along with its surprisingly high level of democracy.
indeed, countries with a large public sector also appear to have high education spending.\footnote{Note though, the earlier finding that democratization led to increased education spending at the expense of other public goods. What we find in the cross-sectional analysis is that over the very long run states with high spending on other public goods also have high spending on education.}

The next step in terms of examining the cross-sectional analysis is to probe the regression conducted in Model A for robustness. I firstly conduct a series of specification checks on the model before adjusting standard errors for potential regional clustering, testing whether influential observations are driving the result, and conducting robust regression. The first robustness check is a simple Breusch-Pagan / Cook-Weisberg test for heteroskedasticity, which rejects the null hypothesis of constant variance in the error term with a p-value of 0.0038. Given this apparent heteroskedasticity it appears the use of Huber-White heteroskedasticity-adjusted standard errors is well-advised.\footnote{It is worth noting that the null of homoskedasticity cannot be rejected if one uses White’s original test for heteroskedasticity, so the use of robust standard errors may not be absolutely necessary. Nonetheless, the results from the Breusch-Pagan test suggest that caution be employed.} It should be noted that as the fitted values rise, so does heteroskedasticity.\footnote{This pattern may, of course, be a function of the fact that the public education spending variable is truncated downwards at zero, since negative spending is not possible (or at least present in the dataset).} I next conduct a Ramsey RESET test to test whether the problem of omitted variables that plagues cross-sectional analysis (e.g. differing ‘cultures of education’) affects Model A. Fortunately, the null hypothesis of no omitted variables is not rejected (p-value of 0.37).

Model B takes the adjustment of standard errors one further step by adjusting for regional clustering. This adjustment has the effect of reducing the size of the standard error for the Polity variable – increasing our confidence in the estimate, although the standard errors are slightly inflated for the income variables. Models C through E attempt to robustness check the regression for the influence of particularly important observations
to investigate whether the estimated relationship between democracy and education is being driven by one or two outliers. In each model, ten cases are omitted. These ten cases are, respectively, the ten with the highest leverage (Model C), the ten with the highest studentized residuals (Model D), and the ten with the highest Cook’s distance scores (Model E). In each case, the coefficient estimates for democracy are similarly substantively and statistically significant to those produced by the full sample in Model A: outliers are clearly not driving our results.

The final set of robustness checks are undertaken using entirely different regression techniques. Model F uses ‘iterated robust regression’, which differs significantly from the techniques used in OLS regression. Iterated robust regression weights each observation inversely proportionally to its Cook’s Distance – that is, influential observations are down-weighted in the regression. Rather than removing suspect observations as in the previous three models, we retain them, but with less statistical heft. The advantage of this technique is that it allows us to respectively down-weight all observations with regard to their influence, not just the top ten troublemakers. Model F shows very similar coefficients and standard errors to the baseline estimates.

Model G uses a different form of robust regression: median regression. Although median regression is generally very inefficient, it is highly resistant to outliers because instead of minimizing the sum of the squared error terms it simply minimizes the median squared error term. We see in Model G’s estimates the general problem associated with this form of regression: the standard errors all inflate considerably from the baseline models. Indeed, all of the control variables lose statistical significance once we use the median squared error term rather than trying to reduce the residual for all observations.
However, because median regression has a break-down point (the smallest fraction that can be changed to arbitrarily affect the coefficient estimates) of 0.5 – far higher than most methods – we can be sure any statistically significant coefficients that we do obtain are unaffected by arbitrary changes in sample composition. Model G shows that our estimate for the effects of democracy remains statistically significant, despite all other coefficients including the constant losing statistical robustness. Indeed, the estimated coefficient is actually slightly higher than that obtained in any of the other models.

3.7: Dummy versus Continuous Measures of Democracy

To this point the statistical analysis of the effects of democracy on education spending has relied exclusively on the Polity measure. While, as noted above, there is good reason to believe that this is the most appropriate aggregate measure to employ, because of its coverage, use in comparable studies, and its aggregation of a number of key concepts relating to democratization, it is important to examine whether other aggregate measures also produce similar estimates. In this section we examine how a dummy measure of democracy substitutes for the Polity score in the dynamic and cross-national regressions. We find broadly that this measure still displays a robust relationship to education spending but that it appears more suited to dynamic regression than cross-sectional regression.

The most popular dummy democracy variable used in the political science and economic literature, other than the Polity score is the measure developed by Alvarez, Cheibub, Limongi, and Pzreworski (2000) (henceforth ACLP). The ACLP measure has the potential disadvantage of minimizing potential variation between types of autocracy
(or indeed between liberal and illiberal democracies). Given the extreme difficulty in developing any satisfactory nominal scale of democracy, this may in fact be well-placed conservatism, but it clearly reduces within-state variation, which will register only states that see large transitions, rather than those that see smaller shifts within regime type. The ACLP does, however, have excellent country coverage, matching the Polity measure’s coverage fully: thus we are comparing identical samples.

Table 3.5 compares the estimated effects of the ACLP measure and the Polity score on education spending, using both the dynamic fixed effects analysis from Section 3.3, and the cross-sectional between effects analysis from Section 3.5. As in Table 3.2 (Models A and B), I use the five yearly dataset in order to compare the obtained results with both the dynamic and cross-sectional results from previous sections. The dynamic fixed effects results show that the ACLP measure has a statistically and substantively significant impact on education spending. The simple short term impact of moving from autocracy to democracy is estimated to be an increase of .27 percent points of national income devoted to public education, which is almost identical to the predicted short-run effect of a twenty point shift in the Polity scale in Model B in Table 3.1, albeit somewhat smaller than the same shift in the five-yearly dataset. The long run effect is estimated to be an increase of .63 percent points. Thus the ACLP measure provides us with similar, if marginally smaller, purported effects of democratization to those produced when the Polity variable is used. This is an encouraging result because, since the data coverage for both variables is near identical, it implies that a simpler operationalization of democracy still retains value in terms of analyzing within state differences in education spending.

66 This reverses the coding of the ACLP measure in the original dataset where one stands for autocracies.
<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FIXED</td>
<td>FIXED</td>
<td>BETWEEN</td>
<td>BETWEEN</td>
</tr>
<tr>
<td>LAG DV</td>
<td>.561</td>
<td>.565</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.042)**</td>
<td>(.042)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLITY</td>
<td>.028</td>
<td>.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.010)**</td>
<td>(.299)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACLP</td>
<td></td>
<td>.273</td>
<td>.648</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.133)**</td>
<td>(.486)</td>
<td></td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>.029</td>
<td>.026</td>
<td>.022</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td>(.019)</td>
<td>(.019)</td>
<td>(.036)</td>
<td>(.038)</td>
</tr>
<tr>
<td>LOG POP</td>
<td>-.461</td>
<td>-.518</td>
<td>-.404</td>
<td>-.464</td>
</tr>
<tr>
<td></td>
<td>(.395)</td>
<td>(.397)</td>
<td>(.182)**</td>
<td>(.187)**</td>
</tr>
<tr>
<td>LOG GDP</td>
<td>2.534</td>
<td>2.683</td>
<td>-2.525</td>
<td>-2.562</td>
</tr>
<tr>
<td></td>
<td>(1.377)*</td>
<td>(1.385)*</td>
<td>(1.287)*</td>
<td>(1.350)*</td>
</tr>
<tr>
<td>LOG GDP SQ</td>
<td>-.040</td>
<td>-.044</td>
<td>.058</td>
<td>.061</td>
</tr>
<tr>
<td></td>
<td>(.028)</td>
<td>(.028)</td>
<td>(.027)**</td>
<td>(.028)**</td>
</tr>
<tr>
<td>GOVEX</td>
<td>.028</td>
<td>.025</td>
<td>.105</td>
<td>.114</td>
</tr>
<tr>
<td></td>
<td>(.016)*</td>
<td>(.016)</td>
<td>(.032)**</td>
<td>(.034)**</td>
</tr>
<tr>
<td>YEAR</td>
<td>-.014</td>
<td>-.011</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.011)</td>
<td>(.011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTANT</td>
<td>-.905</td>
<td>-7.028</td>
<td>35.361</td>
<td>36.316</td>
</tr>
<tr>
<td>SHORT RUN Δ</td>
<td>.560 ***</td>
<td>.273 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LONG RUN Δ</td>
<td>1.276 ***</td>
<td>.628 **</td>
<td>2.220 ***</td>
<td>.648</td>
</tr>
<tr>
<td>N</td>
<td>480</td>
<td>480</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STATES</td>
<td>107</td>
<td>108</td>
<td>115</td>
<td>118</td>
</tr>
<tr>
<td>R-SQ</td>
<td>0.47</td>
<td>0.46</td>
<td>0.50</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01
However, the coefficient for the dummy measure in the between-effects analysis is considerably less robust. Model D shows the between state analysis for the ACLP variable. While this variable displays the expected directionality and a fairly sizeable substantive estimated effect, the standard error is fairly large and the coefficient is only statistically differentiable from zero at the $p < 0.20$ level. This lack of robustness in the cross-sectional analysis as compared to the dynamic analysis is likely to reflect the crudeness of using a dummy variable to differentiate between states of varying degrees of democracy. While within any particular state the ACLP variable picks up key changes from dictatorship to democracy, it fails to distinguish between different types of democracy across different states. Still, the purported effect is fairly large, and at .65 it nearly matches the long-run estimate of .63 percent points from the within state model. Overall, the results from using the dummy measure are encouraging, though not as robust as the Polity measure. What does seem clear is that changes in our understanding of precisely how democracy should be both conceptualized and operationalized have strong effects on the estimates we obtain. While the relationship between democracy and education holds up fairly strongly, these results highlight the difficulty of accurately measuring what is tantamount to a latent variable with debatable observed characteristics. The next Chapter will attempt to dig into these characteristics in order to examine those aspects of democracy that the formal model holds to be most critical in determining education spending.

---

67 A point developed at length in Jackman and Treier (2005).
3.8: Conclusion

This chapter has demonstrated a highly robust and substantively significant effect of democracy on aggregate education spending, robust to different measures of democracy. The dynamic analysis conducted above suggested that a switch from full autocracy to full democracy would be associated with a rise in education spending of one full percentage point of national income. These results matched closely with those pertaining in cross-sectional analysis, suggesting that over the very long run the dynamic effects translate into marked differences between states. Education spending relative to other government consumption also increased markedly under democratization, increasing by around eight percent points of total government spending. We saw that the increase in education spending might, in fact, substitute for other forms of government spending following democratization. These results confirm the suggestion in the formal model that, unlike other public goods, the political logic of education extends far beyond the simple resolution of a collective action problem to a fierce redistributive battle between rich and poor. Autocracies block education spending, even when overall economic growth might benefit from it, because it harms the elite. Democratization, conversely, permits the eventual rise of mass education.
CHAPTER FOUR: DEMOCRACY EXTENSIONS

4.1 Introduction

Democracy and education appear to be close allies at the most aggregate level. But how do we know exactly what aspects of democracy have this estimated positive effect on education spending? And do these patterns apply for all forms of education? What, for example, is the impact of democracy on private education spending, or education spending that can be targeted towards particular groups? This chapter pries apart the aggregate measures of democracy and education used in the previous chapter in order to uncover the precise mechanisms relating these concepts. The formal model in Chapter Two suggested that education policy outcomes would be reliant on the untrammeled passage of popular preferences into policy. In this chapter we alter the model to examine how flaws in representation and responsiveness can undermine this process. Furthermore we follow the suggestion in the formal model that redistributive patterns would be altered where education is offered privately or where it can be targeted towards specific groups.
The chapter begins by examining different elements of democracy in Section 4.2. This section demonstrates that the key elements of democracy in terms of increasing education spending are the level of representation given to citizens and the responsiveness of the executive to their preferences. Where political competition is open to all citizens and where executives are both elected by and responsible to the public, we see substantially higher education spending both dynamically and cross-sectionally. However, other institutional characteristics of democracy like the stability of succession or the dampening of factionalism appear to matter significantly less in explaining educational outcomes. Section 4.3, by contrast, distinguishes between different varieties of autocracy, noting that a range of autocracies exists from the most tyrannical (often resource-dependent regimes) to the more socialist (in particular, communist regimes) with the latter regimes systematically spending larger amounts on education.

The second half of the chapter focuses on the decomposition of education policy itself. Section 4.4 starts with an analysis of the composition of education spending between public and private sources, showing that these forms of spending appear to be functional substitutes and that democracies have a far higher public / private mix than autocracies, reflecting the preferences of the enfranchised masses for public over private education. Section 4.5 turns to the composition of education provision, demonstrating that autocracies tend to target spending towards elite levels of education (e.g., tertiary versus primary) whereas democracies push toward more universalistic spending. The section concludes by examining the composition of the education input mix in terms of labor and capital – showing that teacher salaries appear to rise under democratization. Section 4.6 concludes the chapter.
4.2 Disaggregating Democracy

What exactly is it about democracy that so favors the expansion of education? To provide a more precise answer to this question this section takes apart the Polity measure into its components. The aim of this section is to extend the formal model from Chapter Two to examine the key elements of the causal chain between democracy and education and to match these theoretical claims against the empirical evidence provided by analyzing how separate elements of the Polity index relate to education spending. We find that the Polity subvariables that deal with the stability of succession and the degree of factionalism have little impact on education spending. However, the subvariables that operationalize whether executives are responsive to popular demands and whether political participation is spread throughout the citizenry do have a strong impact. We thus have convincing evidence that education provision is not the result of the long time horizons engendered by stable succession - as the ‘stability theory’ (Olson, 1993) implies - nor of homogenous non-factional political systems - as implied by the contestational model (Miguel, 2004; Stasavage 2005). Instead, the core mechanism underlying democracy’s effect on education spending appears to be the thread linking popular preferences to policy outcomes via a responsive executive. We now develop this argument formally by extending the baseline model from Chapter Two.

We begin with a formal analysis of generic issues of representation and responsiveness, examining how distorted representation of different groups in democracy alters the likely level of education spending. We then examine the effect of a poorly responsive executive to changes in policy preferences among the population, as represented by the legislature. In both cases we find that distortions from the baseline of a

68 The ‘stability’ and ‘contestational’ model of democracy are addressed in Section 3.2.
perfectly representative legislature and a controllable executive leads to reduced education spending.

We begin by thinking about how group preferences are channeled through representative political bodies. At present we assume that there is no executive charged with implementing policy and thus no principal-agent dilemma in terms of controlling this executive. Instead, the representative body – which we loosely term a ‘legislature’ – acts as an ‘averaging’ mechanism, weighting the policy preferences of the three different groups in the baseline model by each group’s size and also by a weighting ‘bias’ parameter $r_i$. If this bias equals one for each group, then the legislature is unbiased and each group’s policy preferences are weighed according to the group’s size.

Before we can ascertain how far changes in the $r_i$ parameters alter education policy outcomes, we need to settle on a means of converting the composition of the legislature – including these bias parameters – into specific policies. Since we are working with an abstract legislature here, two particular policy decision mechanisms suggest themselves. Firstly, we could presume a non-strategic outcome, where the policy outcome is simply the bias-weighted average of policy preferences – as if, a social optimizer were to select a policy producing the highest overall utility. Secondly, we could presume a strategic model, where parties converge to the median legislative voter and enact his or her preferred policy. The impact of bias and population parameters here will be to define which group this voter belongs to. We will explore each of these setups in turn, starting with an analysis of a perfectly representative legislature: $r_H = r_M = r_P = 1$. 
Under the weighted average formula, we find that the size of each group directly increases the share of the final policy outcome that represents their preferences. If the size of the rich group increases, education spending is decreased; if the middle and / or poor groups increase in size, education spending expands, as argued in the baseline Chapter Two. The median voter legislature has a very different outcome. The size of each group matters only in as much as they become larger than fifty percent of the legislature and thus absorb the median. Otherwise, the medium income group always sets policy.\(^{69}\) The weighted average and median models will only produce the same result to the extent that the preferences of the rich and poor directly balance one another. If we now introduce the possibility of biased representation, we can alter Equations (47) and (48), as follows:

\[
\text{Weighted Average} : \quad S_{wa}^* = S_H^* n_H + S_M^* n_M + S_p^* n_p
\]  

\[
\text{Median Voter} : \quad n_H \geq 1/2 \Rightarrow S_{mv}^* = S_H^*
\]

\[
 n_H < 1/2 \text{ and } n_p < 1/2 \Rightarrow S_{mv}^* = S_M^*
\]

\[
 n_p \geq 1/2 \Rightarrow S_{mv}^* = S_p^*
\]  

Note that under both representative systems, changes in the bias parameters can alter policy outcomes. In the weighted average case, changes in these parameters will

\(^{69}\) Note, we are abstracting away here from some of the ends-against-middle dynamics we saw in earlier analysis. This simplification is being made in order to clarify the impact of representativeness in the legislature. To the extent that policy is multidimensional, the median voter framework may not hold – although the weighted average model would reflect such patterns, generally producing a level of education spending lower than the median voter model.
almost surely lead to a change in policy outcomes. As above, the median voter case is less continuous. However, if the political system biases towards representation of the rich (or the poor) significantly enough, the medium-income group may lose control of political decision-making. Given equal-sized populations, this would occur if the rich are weighted twice as heavily as the other two groups – a hardly unimaginable state of affairs if turnout rates are particularly poor among the poor, or if gerrymandering favors the wealthy (Franzese, 1998). Since biases in representative institutions tend to favor the wealthy rather than the poor, we should expect that seriously unrepresentative institutions will lead to the high-income group securing their favored policy outcome - lower education spending - leading to Proposition 4.1:

**Proposition 4.1:** As legislative institutions become less representative of the population sizes of different groups, education spending is lower.

We now move from an analysis of how effectively individuals’ preferences over education are translated into policy decisions to how these policy decisions are actually enacted. We assume that whatever policy the legislature chooses has to be implemented by an executive, who is not a perfect agent. Specifically, the executive can recoup some of the tax revenues intended for education spending as personal rents: reaping a share \( \omega \). We assume that the policy outcome from the legislature follows the typical outcome of the median voter model, that is, \( S_{M}^* \), originally defined in Chapter Two, Equation (30’):

\[
S_{IM}^* = \frac{1}{b + a} \left[ g'(S_i) + (\sigma_s - \sigma_a) - a \left( \frac{y_{M0}}{\delta \bar{y}_0} \right) \right]
\]  (30’)**
The executive thus chooses to skim off a share $\omega$ of this level of provision, leading to the final policy outcome of:

$$S_{EX}^* = \frac{(1 - \omega)}{b + a} \left[ g'(S_i) + (\sigma_s - \sigma_u) - c \left(\frac{y_{M0}}{\delta y_0}\right)\right]$$

Equation (51) is unequivocally smaller than Equation (30') given strictly positive rent-seeking. This result on its own is obvious. Less intuitive is the effect that increased rent-seeking might have on the utility of the different groups. In order to examine these effects we first need to define the effect of the size of rent-seeking on education provision:

$$\frac{\partial S_{EX}^*}{\partial \omega} = -\frac{1}{b + a} \left[ g'(S_i) + (\sigma_s - \sigma_u) - c \left(\frac{y_{M0}}{\delta y_0}\right)\right] = -S_{1M}^*$$

We then rephrase the generic utility function as follows:

$$U_i = \left(1 - \frac{cS_{1M}^*}{y_{i0}}\right)y_{i0} + \delta \left[q_{ii} + w_{ji}(S_{EX}^*(\omega)) + g(S_{EX}^*(\omega))\right]$$

Note that the effects of rent-seeking only enter the terms in the second expression, dealing with changes to round one wages and externalities. The term in the first expression is not dependent on the rent-seeking parameter because this is the full cost of paying for both education and the rents skimmed off by the executive. If we take the derivative of this expression with respect to the level of rent-seeking for each group, we obtain the following equations:

$$\frac{\partial U_M}{\partial \omega} = \delta S_{1M}^* \left[ b - g'(S_{EX}^*) \right]$$

$$\frac{\partial U_M}{\partial \omega} = \delta S_{1M}^* \left[ b - g'(S_{EX}^*) \right] \text{ if } S_{EX}^* > n_M$$

$$\frac{\partial U_M}{\partial \omega} = -\delta S_{1M}^* \left[ (\sigma_s - S_{EX}^*) - (\sigma_u + aS_{EX}^*) + a + g'(S_{EX}^*) \right] \text{ if } S_{EX}^* \leq n_M < S_{1M}^*$$
\[
\frac{\partial U_p}{\partial \omega} = -\delta S^*_m \left[ a + g\left(S^*_{EX}\right) \right]
\] (57)

The equations above show an interesting pattern. In Equation (54) we see that the richest group is the most favorable to increased rent-seeking by the executive. This is because increased rent-seeking reduces education provision and hence also prevents the loss of scarcity rents accruing to the already educated elite. In Equation (57), conversely, we see that the poor are always negatively affected by rent-seeking since it reduces both the positive scarcity effects (on unskilled labor) and externalities produced by education provision. For the middle class the situation is more complex. If rent-seeking prevents expansion of education beyond the middle class, as in Equation (55), the middle-class might benefit from rent-seeking in a similar manner to the rich. However, if the effect of rent-seeking is to prevent the middle class from receiving education, as in Equation (56), they experience completely negative consequences: they fail to receive the skill premium, the scarcity benefits they might have received from remaining unskilled, like the poor, also decrease, as do externalities.

Thus, we see that even though rent-seeking wastes some of the rich group’s income through rent-seeking by the executive, it may nonetheless be in the rich’s interest to support such a rapacious entity if it prevents them being hurt by the scarcity effects of education. This argument helps to explain why the rich often support predatory rulers, even though such leaders fritter away public resources on personal pleasures. Despite this ostensible waste of resources, it prevents the education of the masses, an even less desirable outcome for the wealthy than straightforward taxation. This analysis of the responsiveness of the executive produces Proposition (4.2)
Proposition 4.2: Where the executive has the ability to act at its own discretion, and to rent-seek, education spending will be lower.

We now turn to an empirical investigation of the propositions produced by the modeling of representation and responsiveness. The Polity IV coding schemata divides the underlying institutional framework of democracy into three key ‘concepts’ – executive recruitment, executive constraints, and political competition – each of which itself is assembled from several sub-variables which measure particular institutional phenomena. These sub-variables are divided into the regulation of executive recruitment; the competitiveness of executive recruitment; the openness of executive recruitment; constraints on the executive; the regulation of political participation; and the competitiveness of political participation. The three concept variables are arrayed like the Polity measure itself – they are intended to serve as interval level variables with higher values reflecting more ‘democratic’ institutions. However, the six sub-variables are not ordered similarly and thus may reflect nonlinear effects or institutions that are not of themselves democratic or autocratic but interact with other measures. This is particularly true for the regulation of executive recruitment and political participation variables, where high levels of regulation might mean an established electoral system in a multiparty democracy or a clear line of succession to the throne in a tyrannical monarchy. On the other hand, some of the other measures have a clearer relationship to traditional understandings of democracy and autocracy: for example, the competitiveness of political participation sub-variable.

70 See Appendix 3B for the precise manner by which the sub-variables are aggregated into the concept indices and the final Polity score.
Table 4.1: Components of the Polity Measure

<table>
<thead>
<tr>
<th></th>
<th>FIXED EFFECTS</th>
<th>FIXED S-TERM 1º DIFF.</th>
<th>BETWEEN EFFECTS</th>
<th>BETWEEN 1º DIFF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POLITY</strong></td>
<td>.028</td>
<td>+ .560 ***</td>
<td>.105</td>
<td>+ 2.100 ***</td>
</tr>
<tr>
<td></td>
<td>(.010)***</td>
<td>( .030)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB: Regulation of executive recruitment</strong></td>
<td>.144</td>
<td>+ .288</td>
<td>.506</td>
<td>+ 1.120</td>
</tr>
<tr>
<td></td>
<td>(.092)</td>
<td>( .362)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB: Competitiveness of executive recruitment</strong></td>
<td>.230</td>
<td>+ .460 ***</td>
<td>.583</td>
<td>+ 1.166 **</td>
</tr>
<tr>
<td></td>
<td>(.089)***</td>
<td>( .251)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB: Openness of executive recruitment</strong></td>
<td>.154</td>
<td>+ .462</td>
<td>.516</td>
<td>+ 1.548 *</td>
</tr>
<tr>
<td></td>
<td>(.273)</td>
<td>( .287)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB: Regulation of political participation</strong></td>
<td>-.008</td>
<td>-.032</td>
<td>-.118</td>
<td>-.472</td>
</tr>
<tr>
<td></td>
<td>(.066)</td>
<td>( .179)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB: Competitiveness of political participation</strong></td>
<td>.127</td>
<td>+ .508 **</td>
<td>.519</td>
<td>+ 2.076 ***</td>
</tr>
<tr>
<td></td>
<td>(.053)**</td>
<td>( .155)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CONCEPT: Executive recruitment</strong></td>
<td>.080</td>
<td>+ .560 ***</td>
<td>.284</td>
<td>+ 1.988 ***</td>
</tr>
<tr>
<td></td>
<td>(.029)***</td>
<td>( .090)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB / CONCEPT: Executive constraints</strong></td>
<td>.073</td>
<td>+ .438 **</td>
<td>.298</td>
<td>+ 1.788 ***</td>
</tr>
<tr>
<td></td>
<td>(.030)**</td>
<td>( .094)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CONCEPT: Political competition</strong></td>
<td>.049</td>
<td>+ .441 **</td>
<td>.192</td>
<td>+ 1.728 ***</td>
</tr>
<tr>
<td></td>
<td>(.021)**</td>
<td>( .060)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>472</td>
<td></td>
<td>551</td>
<td></td>
</tr>
<tr>
<td>STATES</td>
<td>107</td>
<td></td>
<td>115</td>
<td></td>
</tr>
</tbody>
</table>

Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01
Table 4.1 examines these sub-variables and the concept variables in both the dynamic and cross-sectional set-ups. In each case the standard controls from Chapter Three are employed but their coefficient estimates are excluded from the table for ease of interpretation. Thus the rows in the table show the varying estimates for the concept variables and sub-variables when they replace the standard Polity score in the regression analysis. Before analyzing its components, it is worth reminding ourselves of the Polity variable’s predicted effects in the dynamic model (using the five-year dataset) and in the between model, so as to compare predicted first differences. ‘Full democratization’ on the Polity variable is estimated to lead to a short-run (five-year) dynamic impact of an increase of .56 of a percent point of national income on public education. The cross-sectional between effects model produces the higher estimate of 2.1 percent points of GDP. This cross-sectional pattern can be viewed in Figure 4.1a, which displays the predicted values and 95 percent confidence intervals for various scores on the Polity index. We will compare this pattern with those produced by the alternative sub-measures.

We begin with the sub-variables underlying executive recruitment. The first of these sub-variables measures the regulation of executive recruitment in a three point scale, from unregulated to regulated, that is, from power transferring purely through coup to regulated power transfer. Very few states in the dataset had entirely unregulated power transfer (and those that did tend to be states in protracted civil war like Sierra Leone and Uganda), however, many states scored in the transitional level for this coding, including states as diverse as Latvia, Mexico, and Singapore. Finally, a large number of states from

---

71 This graph and those following it in this section were created by using the CLARIFY program to produce one thousand simulations of each coefficient estimate in the regression and then taking the average predicted confidence interval. See King, Tomz, and Wittenburg (2000).
democracies (Finland and United States) to autocratic monarchies (Morocco and Swaziland) score the highest value on this coding. It is not obvious that this ordering of states speaks to the concerns set out in earlier in this chapter on the theoretical relationship between democracy and education. Rather, this measure focuses on the stability of rule and succession. In as much as education can be thought of as a long-term investment chosen only by rulers sure of future succession (democracies and monarchies but not revolving tyrannies) we might expect a weakly positive relationship between this variable and education spending. Indeed, we do find a positive effect but its estimated standard errors are large and the coefficient does not reach statistical significance at accepted levels. This pattern is portrayed graphically in Figure 4.1b. Thus it appears that the security of transition between regimes that is fostered by democracy is not the key force behind the relationship between democracy as measured by the Polity score and education spending.

The next sub-variable – the competitiveness of executive recruitment – does appear to have substantively and statistically significant effects on education spending. This is also a three value variable, where the lower value stands for selection, the higher for election, and the intermediate value for dual systems. Thus, monarchies, dictators with designated successors, and military regimes will count as the former selection-based system, whereas democracies fit in the election-based rubric. This formulation is much closer to our theoretical depiction of democracies as increasing the responsiveness of the executive to the demands of political representatives. And indeed, the estimated effect of moving from a selection to an election based system of executive recruitment are fairly similar to those predicted by a ‘full democratization’ on the Polity variable, as can be

---

72 This argument is alluded to in Olson (1993) and Kellerman (2004).
seen from analyzing Figure 4.1c. While the transition to election mechanisms does not appear to be the entire story of democratization, it is clear that this variable speaks cleanly to the formal mechanisms set up in Chapter Two.

The openness of executive recruitment does not have similarly robust effects. This variable measures the extent to which the politically active population has the ability to contest leadership. However, this variable is coded in the following non-interval manner: closed; dual executive with hereditary succession of leader and designation of effective chief minister; dual executive with hereditary succession of leader and elected chief minister; open. Again, this variable, like that for executive recruitment, has strange bedfellows for the extreme values. For example, both the Soviet Union and the United States had nominally ‘open’ systems of executive recruitment in that neither followed hereditary procedure. Thus, the usefulness of this sub-variable in reflecting our theoretical interest in the expansion of representation throughout the population is somewhat limited. This weakness can be seen in the large standard errors produced in estimating the coefficient, particularly apparent in Figure 4.1d. In fact, although the estimated coefficients are positive, their efficiency is weakened by the fact that relatively few states rely purely on hereditary succession for the leader (only ten states in the dataset – mostly oil states). A dummy variable conceptualization of this openness sub-variable does a better job in terms of producing more efficient estimates but it is not obvious that it is the reliance on hereditary forms of succession rather than the presence

73 It produces substantively similar first differences but at a level of statistical significance of $p < .05$. 
or not of a dictator, however they came to power, that matters in reflecting popular preferences over education spending.  

The final sub-variable relating to the executive is also used as a concept variable within the Polity coding: constraints on the executive. This sub-variable uses a seven-point scale, ranging from unlimited authority; to slight limitation on executive authority; to substantial limits; to executive parity or subordination to accountability groups. This variable provides a useful mirror to our conceptualization of democracy as moving from a dictator with unlimited authority to a democracy with an executive that is responsible to a popularly elected legislature. Nonetheless, this measure does not match our theoretical formulation perfectly, in that it gives France, for example, a six out of seven because of the high levels of executive power under the Fifth republic until the onset of cohabitation under Francois Mitterand. However, for the most part this sub-variable provides an intuitive way to understand a key difference between autocracy and democracy: the degree to which a leader must respond to popular pressure as represented through political mechanisms. Moving from the least to the most constraints on the executive for this sub-variable is estimated to lead similar, statistically significant results, albeit with slightly smaller magnitude, on education spending as those estimated in the Polity model, as can be seen in Figure 4.1f.

We turn now to the sub-variables measuring political competition. The first of these is the regulation of political participation, which is a five point scale running from unregulated, to multiple identity, to sectarian, to restricted, to regulated. This scale essentially measures the degree of factionalism in the political system. The lower values

---

74 However, this does provide further caution against the assumption that monarchies will necessarily spend more on public goods than other classically ‘tyrannical’ forms of autocracy.
represent systems where parties that obtain power have no common interests with those parties that fail to gain power. Participation is highly regulated in both advanced democracies and in one-party dictatorships. Factionalism, conversely, occurs in many democracies where ethnic allegiances trump national programmatic campaigns, as well as in autocracies with competing warlords. Thus, countries do not vary along this dimension in the manner in which vary along the Polity score. For example, relatively democratic states like India, Israel, and Poland are scored two out of five, whereas China, Libya, and Uzbekistan score four out of five. Given this lack of ordinality in terms of our more general conception of democracy, it is unsurprising that there is no statistically significant result obtained in using the degree of regulation of participation as our measure of democracy, portrayed in Figure 4.1g. What this suggests, though, is that theories that assert that public spending - especially education spending (e.g., Miguel, 2004) - is higher under more homogenous polities (whether democratic or autocratic) do not appear to hold up under empirical analysis.

However, the other political participation variable – the competitiveness of political participation – does produce stronger substantive results. This is a five-point scale measuring ‘the extent to which alternative preferences of policy and leadership can be pursued in the political arena’, which moves from repressed, to suppressed, to factional, to transitional, to competitive. The first value – repressed – deals with those states in which no organized opposition is permitted. The second value – suppressed – deals with those regimes which permit some opposition but still exclude substantial groups (20% or more of the adult population). Fractional competition, the third value, means such exclusion tends to be temporary and is associated with different factions
obtaining office and following their particular interests to the detriment of other groups but only while in office. Finally, competitive patterns (and those transitional regimes moving toward them) describe enduring secular opposition groups. In many ways this variable comes closest to our operationalization of democracy in the baseline model since it deals explicitly with the degree to which political preferences of the nation at large obtain actual or potential political representation. While this does not allow us to make a direct link between representation and policy (that link is manifest in the executive constraints variable), it does allow us to ascertain the extent of representation itself. Thus, in combination with the executive constraints variable, the competitiveness of participation variable most closely follows the mechanism laid out in the formal model. This close relationship between competitiveness and democracy is borne out by the extremely similar coefficient estimates for first differences between the competitiveness variable and the Polity variable, with almost the identical coefficient in the cross-sectional analysis, as can be seen in Figure 4.1h.

The concept variables used in the Polity dataset are created out of these component sub-variables (with the exception of the executive constraints concept variable which is identical to the executive constraints sub-variable). The first – executive recruitment – is created from different configurations of the executive recruitment regulation, competitiveness, and openness variables and is ordinal moving from purely ascriptive selection to competitive election on an eight point scale. The first differences obtained from using this variable are extremely similar to those from using the Polity variable, as can be seen in Figure 3.9e, and show that the executive recruitment concept variable is literally more than the sum of its parts – the regulation and openness
variables only match our monotonic understanding of democracy once they are interacted with the competitiveness variable. Thus the competitiveness variable, the only one that obtained statistical significance above, is very much the driving force behind this concept variable. The second concept variable – executive constraints – we dealt with earlier in its sub-variable form – as noted, its results are similar to the Polity results although somewhat smaller in magnitude. The third concept variable – political competition – is very much driven by the competitiveness of participation sub-variable rather than the regulation variable, which has a nonlinear pattern in terms of its relationship to the Polity score, as noted above. Again, this concept variable produces outcomes similar to those obtained by using the Polity score, although somewhat smaller in magnitude as can be seen in Figure 4.1i.

What are we to conclude from this extended analysis of the components of the Polity scoring system? The chief result has been that there are three main determinants of education spending as it relates to institutional forms of democracy. The first is whether executives are selected or elected, the second whether executives are constrained in their policymaking by other representative institutions, and the third whether political participation is extended throughout the citizenry in an established secular pattern. The degree of regulation to which political life is exposed does not appear to be a key determinant of education policy and this indicates that new democracies where patterns of representation are not long established can still see the expected increase in education spending. Moreover, this suggests that the common proposition that monarchies - with their long-time horizons - have similar preferences to democracies with regard to public good provision is, in fact, false. Monarchies appear to differ from more despotic regimes
only in regard to their degree of ceremony. Moreover, we have also seen that factionalist politics are not a barrier to high public good provision, at least with regard to education. Instead, what matters is the degree to which final policy outcomes reflect the political preferences for education spending of the masses. This translation of preferences into outcomes can, of course, be waylaid by imperfect representation of the citizenry and unresponsive executives. The three sub-variables that do produce robust estimates tell a story of democracy that closely matches this mechanism, suggested by the formal model in Chapter Two, with the proportion of population represented and the responsiveness of the executive to their preferences being the defining parameters of the optimal policy choice.

**Figure 4.1a: Predicted Confidence Intervals for the Polity Variable**

![Figure 4.1a: Predicted Confidence Intervals for the Polity Variable](image)
Figure 4.1b: Regulation of Executive Recruitment
Figure 4.1c: Competitiveness of Executive Recruitment

Figure 4.1d: Openness of Executive Recruitment
Figure 4.1e: Executive Recruitment Concept
4.2: Varieties of Autocracy

The previous section analyzed how different institutional components of democratic systems might affect public education spending. This section takes an alternative tack: is there an important distinction between qualitatively different forms of autocratic government? In particular, two idiosyncratic types of autocracy are examined: communist states (or states with a communist legacy) and states that are dependent on oil as their main export commodity. Since communist states were self-professedly
established as ‘dictatorships of the proletariat’, we might expect, in as much as communist governments did attempt to provide goods and services demanded by their population, that such governments might spend more on public education than comparably autocratic non-communist governments.

Conversely, main political scientists have characterized oil-exporter states as particularly rapacious and unresponsive to citizen demands (e.g. Boix, 2004; Morrison, 2005). Ross (2001) lists a number of potential reasons why oil states are likely to be anti-democratic. Firstly, income from oil exports may allow these states to buy off opposition with patronage or spending on large-scale public goods. Secondly, oil states might use these resources to repress their citizenry, by purchasing weapons or funding large secret police forces. The third reason Ross terms the ‘modernization effect’ – because oil dictators can grow rich solely off the income from primary good production, they fail to develop the capital or human capital stock that might lead to a more modern economy focused towards manufacturing or services. This last suggestion deals directly with the issue of education: perhaps the presence of oil itself leads states to invest less in education as they substitute funding towards resource extraction.

Putting this together, at the cross-sectional level we should expect those states which have, or recently had (given the relatively gradual adjustment rate of education spending), communist governments to spend significantly more on education than those which have never had a communist experience. Conversely, where states rely on oil as their main export good, we should expect them both to be more autocratic – and therefore spend less on education – and indeed, to spend less on education more generally because of the ‘modernization effect’.
Table 4.2: Cross-sectional Analysis of Types of Autocracy

<table>
<thead>
<tr>
<th>Model</th>
<th>POLITY</th>
<th>COMMUNIST</th>
<th>OIL</th>
<th>POP &lt; 15</th>
<th>LOG GDP</th>
<th>LOG GDP SQ</th>
<th>LOG POP</th>
<th>GOVEX</th>
<th>CONSTANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.105</td>
<td>2.047</td>
<td>-1.438</td>
<td>.055</td>
<td>-2.878</td>
<td>.069</td>
<td>-.554</td>
<td>.106</td>
<td>38.761</td>
</tr>
<tr>
<td></td>
<td>(.024)**</td>
<td>(.881)**</td>
<td>(.785)*</td>
<td>(.049)</td>
<td>(1.373)*</td>
<td>(.027)**</td>
<td>(.153)**</td>
<td>(.028)***</td>
<td>(17.019)**</td>
</tr>
<tr>
<td>B</td>
<td>.068</td>
<td>2.088</td>
<td>-1.491</td>
<td>.015</td>
<td>-1.527</td>
<td>.040</td>
<td>-.507</td>
<td>.136</td>
<td>24.993</td>
</tr>
<tr>
<td></td>
<td>(.030)**</td>
<td>(.903)**</td>
<td>(.613)**</td>
<td>(.042)</td>
<td>(1.804)</td>
<td>(.033)</td>
<td>(.234)*</td>
<td>(.041)***</td>
<td>(21.942)</td>
</tr>
<tr>
<td>C</td>
<td>.081</td>
<td></td>
<td></td>
<td>.060</td>
<td></td>
<td>.056</td>
<td>-  .706</td>
<td>.125</td>
<td>29.835</td>
</tr>
<tr>
<td></td>
<td>(.031)**</td>
<td></td>
<td></td>
<td>(.052)</td>
<td></td>
<td>(.029)*</td>
<td>(.194)***</td>
<td></td>
<td>(18.654)</td>
</tr>
<tr>
<td>D</td>
<td>.078</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.801</td>
</tr>
<tr>
<td></td>
<td>(.022)***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.157)***</td>
</tr>
<tr>
<td>E</td>
<td>.110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.178</td>
</tr>
<tr>
<td></td>
<td>(.065)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.455)***</td>
</tr>
<tr>
<td>F</td>
<td>.095</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.007</td>
</tr>
<tr>
<td></td>
<td>(.023)***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.171)***</td>
</tr>
<tr>
<td>G</td>
<td>-2.86</td>
<td></td>
<td></td>
<td></td>
<td>-2.117</td>
<td></td>
<td></td>
<td></td>
<td>1.595</td>
</tr>
<tr>
<td></td>
<td>(.115)**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.918)</td>
</tr>
</tbody>
</table>

All regressions include regional dummy variables. Dependent variable is spending on public education as a percentage of national income. All regressions have Huber-White standard errors adjusted for regional clustering. Models D through G are simple bivariate regressions conducted on samples split by their communist or oil exporter status. Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01

Table 4.2 lays out the cross-sectional results for the basic effects of communism and oil on education spending. Model A shows that communist and ex-communist states are estimated to have education spending that is two percent points of national income higher than non-communist states. This is an enormous gap – indeed, it is similar to the predicted effect of ‘full democratization’ on the Polity variable. As such, we could infer
that communist states were representative of the median voter’s education preferences in a manner similar to modern democracies.\textsuperscript{75} This estimate remains essentially unchanged once we also control for oil exporters and is statistically significant at the five percent level. In contrast to the communist states, oil exporting states are estimated to spend around one and a half percent points of national income less on public education. Again this is a statistically significant and substantively noteworthy finding. Even controlling for their tendency to be autocratic, oil exporters are true laggards in education spending. This is not merely a function of oil exporters tending to be from the North Africa / Mideast region, or from Western Africa as in Nigeria and Gabon, since we are controlling for region in the regression. This estimate is, however, only significant at the ten percent level in Model B, although once communism is controlled for the estimate becomes statistically significant at the five percent level in Model C. What of the estimated effects on the original Polity variable once we control for oil exporters?\textsuperscript{76} It appears that the estimated effect of democracy is slightly substantively smaller once one controls for the oil exporters. It remains, however, statistically significant at the five percent level.

We now turn to examining whether the effect of democracy, as measured by the Polity score, appears to be different for communist states and oil exporters. Models D through G split the sample of countries firstly by whether they have had a communist experience and secondly by whether they are oil exporters. Models D and E compare the results for non-communist and communist states and estimate the relationship between democracy and education spending in each sub-sample. This pattern is also displayed

\textsuperscript{75} Although, it is crucial to note that other preferences of the median voter were entirely ignored under communism.

\textsuperscript{76} Communism is controlled for in the original cross-sectional regressions in Section 3.6.
graphically in Figure 4.2a. An interesting pattern emerges – in both sub-samples democracy and education remain substantively and significantly correlated but the communist sub-sample differs from the non-communist sub-sample in three intriguing ways. Firstly, the effect of being a democracy is estimated to have a slightly higher impact on education spending in communist states as compared to non-communist ones. Thus, those communist states that have consistently remained autocratic across the period: for example, China, Vietnam, and Kazakhstan, have lower education spending than would be predicted in the non-communist sub-sample, whereas the Baltic and Eastern European states that have had strong records of post-transition democracy tend to have higher education spending than would be predicted in the non-communist sub-sample. Secondly, and perhaps more fundamentally, the estimate of the constant term is far higher in the communist sub-sample. Thus, a ‘full autocracy’ scoring minus ten on the Polity scale is predicted to spend 3.02% of their national income on public education amongst the non-communist states, whereas this translates to 4.08% for communist states.77

Models F and G are harder to interpret, however. While non-oil exporters retain a similar estimated effect of democracy on education spending as in the other cross-sectional models, Model G shows that in oil exporters democracies are expected to spend less on education than autocracies. However, a glance at Figure 4.2b, quickly demonstrates that this result is entirely the effect of Nigeria spending a particularly small amount on education despite being somewhat more democratic than the remaining exporters who are uniformly autocratic. The absence of numerous oil-dependent

77 This gap is smaller than the two percent predicted in the full statistical model because communist states are typically in regions with low education spending or are predicted to have lower spending because of lower incomes.
democracies makes it difficult to ascertain precisely what effect democratizing would have on oil-dependent autocracies – we simply do not have enough variation on the independent variables to address this question. However, we do know that even allowing for their regime type, states that rely on oil exports appear to be educational laggards. Where communist states famously made great play of their investments in both labor and education (Stakhanovism was as prevalent in the lab as in the mine), oil states appear to rely on their abundance of natural resources, with little impetus to invest in the resources of their citizenry.

**Figure 4.2a: Bivariate Regressions for Non-Communist and Communist States**
4.4: Private Spending on Education

We now turn away from the composition of regime type towards the composition of education spending. There are three fundamental questions in terms of how education is provided: Who pays? Who gets taught? Who receives payment? In this section we address the effect of democratization on the balance of public and private spending on education. We shall see that the results from earlier sections showing that democracies have significantly higher levels of public education spending than autocracies are reversed once one analyzes private spending. In fact, there is a dramatic symmetry to the pattern, as private spending is reduced by almost as much as public spending is increased when states democratize. In the next section we examine the latter two questions. Firstly, we examine the composition of education spending in terms of its users, examining whether such public spending is targeted towards primary, secondary, or tertiary
education, and the different groups that benefit from these particular forms of education. Secondly, we will look at the inputs of the education production process, examining the effects of democracy on the factor composition of education production in terms of teacher salaries.

We being, though, by concentrating on the baseline question – who pays for education? The concept of entirely publicly funded education is fairly new by world historical standards, although still antiquated when compared to most contemporary items of public spending. The United Kingdom, for example, did not introduce a national system of public funding for education until the 1870 Education Act. Most schools beforehand had run on a mixture of local school dues (which were essentially a form of localized public spending, like tithes) and private contributions from the parents of the children. In particular, public spending on education was largely reserved for orphans and the children of the poor, neither of whom would have had easy access to the necessary private contributions. Today most advanced industrial countries have guaranteed public education for at least twelve school years, with varying degrees of private provision for pre-school and tertiary education. Generally, the historical story behind the private / public education ratio has been one of modernizing states substituting national uniform public provision for existing fragmentary private spending. This section will move beyond the modernization story of an economic growth facilitating a transition

---

78 This reform is discussed in detail in Chapter Nine.

79 Lindert (2004) describes the previous patchwork process of education spending in Western Europe.

80 As well as a small private secondary sector for the children of the elite, which typically is less than five percent of students and thus a relatively minor part of the education sector.
from private to public spending to a more explicitly *political* story of the balance between private and public funding in democracies and autocracies.

Chapter Two outlined a suggestive theory about how democracy and private spending on education might interact. The formal model demonstrated how democracy and private spending are likely to follow a negative relationship because once a public system of education has been introduced, private education ‘doubles’ in cost as those who educate their children privately pay twice - once privately and once through taxation. Since we expect that democracy will increase the size of the public system we should expect some substitution effect between public and private education to take place and for this to be correlated with the onset of democratization.  

\[\text{Table 4.3: Correlations Between Democracy and Public and Private Education}\]

<table>
<thead>
<tr>
<th></th>
<th>PRIV ED / GDP</th>
<th>PUBED</th>
<th>POLITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIV ED / GDP</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUBED</td>
<td>-0.186</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>POLITY</td>
<td>-0.321</td>
<td>0.462</td>
<td>1</td>
</tr>
</tbody>
</table>

To get an idea of the basic empirical interrelationship between democracy and the private / public education funding ratio, Table 4.3 provides some simple bivariate

---

81 However, this does not tell us the complete story since the relationship between democracy and private funding of tertiary education is likely to be somewhat different. As we shall see in Section 4.5, tertiary education, even if publicly funded, is targeted towards the wealthier members of society. Thus a more progressive funding system for tertiary education would actually have higher amounts of private funding (unless the tertiary sector is large enough to cover more than half of the population). We will return to this peculiarity of tertiary education in Chapter Eight when we examine the OECD in greater detail. For now it is worth noting that overall spending on tertiary education is generally a much smaller percentage of national income than secondary and primary education (with the exception of a few very advanced states). Given this pattern we can assume that the negative relationship between democracy and private education is likely to hold across the vast majority of states under analysis, although weakening, perhaps reversing, among the very wealthiest states.
correlations between the variables. The private education variable, private education as a percentage of GDP, is taken from the World Bank’s Edstat database and is only available for 1990 to 1998 for 55 states. Thus, we should be careful in our interpretations of these coefficients since they are available for only a very limited period of our sample. Nonetheless they are indicative of the key relationships between private spending, public spending, and democracy. The first thing to note is that private and public education spending are weak substitutes within the sample – that is, in countries with higher spending on public education, overall private spending tends to be lower. However, this relationship is fairly weak – there are many states with both high levels of public and of private spending (the United States being paradigmatic) and many developing nations with extremely low levels of both. More intriguing is the stronger negative correlation between private education and democracy. We explore this relationship in greater detail through a series of regressions in Table 4.4.

82 Unfortunately, accurate data on private education is fairly scarce, which dramatically reduces the size of the dataset. Moreover, the availability of this data tends to be correlated with income (the average GDP per capita of the overall dataset in 1995 is $6,500, whereas this rises to $10,000 for the sub-sample for private education). Thus, given this poor data availability we should be somewhat skeptical about the results. Nonetheless there is a decent range of data along the independent variables of interest in the sub-sample (Polity ranges from minus seven to ten and GDP per capita from $200 per annum to $43,600) so we do have enough data availability to make fairly strong inferences, although to avoid extrapolating we will only do so with the Polity range of minus seven to plus ten. Finally, it should be noted that the poor time coverage of this data means that dynamic analysis is not possible with this dataset.
Table 4.4: The Effects of Democracy on Private Education

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
<th>MODEL E</th>
<th>MODEL F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIV ED / GDP</td>
<td>-0.88</td>
<td>-0.87</td>
<td>-1.31</td>
<td>-1.376</td>
<td>-1.383</td>
<td>-1.717</td>
</tr>
<tr>
<td></td>
<td>(0.037)**</td>
<td>(0.041)**</td>
<td>(0.044)**</td>
<td>(0.561)**</td>
<td>(0.646)**</td>
<td>(0.709)**</td>
</tr>
<tr>
<td>GDPCAP</td>
<td>0.01</td>
<td>-0.146</td>
<td>-</td>
<td>-0.026</td>
<td>-2.900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.068)**</td>
<td>(0.239)</td>
<td>(2.578)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POL*GDP</td>
<td>0.015</td>
<td></td>
<td></td>
<td>0.287</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.007)**</td>
<td></td>
<td></td>
<td>(0.257)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOG (POP)</td>
<td>0.003</td>
<td>-0.026</td>
<td>-</td>
<td>1.730</td>
<td>2.371</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.091)</td>
<td>(0.088)</td>
<td>(1.757)</td>
<td>(1.843)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTANT</td>
<td>2.255</td>
<td>2.315</td>
<td>3.101</td>
<td>28.668</td>
<td>1.082</td>
<td>-5.023</td>
</tr>
<tr>
<td></td>
<td>(0.550)**</td>
<td>(1.524)</td>
<td>(1.502)**</td>
<td>(8.483)**</td>
<td>(29.343)</td>
<td>(29.739)</td>
</tr>
<tr>
<td>FIRST DIFF.</td>
<td>-1.496**</td>
<td>-1.479**</td>
<td>-</td>
<td>-23.392</td>
<td>-23.511</td>
<td></td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>47</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>R SQ.</td>
<td>0.34</td>
<td>0.34</td>
<td>0.41</td>
<td>0.50</td>
<td>0.51</td>
<td>0.53</td>
</tr>
</tbody>
</table>

All regressions are on country means during 1990s and control for region and communist past. Weighted least squares adjustment made for heteroskedasticity. Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%. No regional dummies are significant in any regression.

Models A through C in Table 4.4 test the relationship between democracy and absolute (that is, as a percentage of national income) private education spending on a dataset of 55 states during the 1990s. Table 4.4 is a between-effects regression on country means, correcting for heteroskedasticity by using weighted least squares. We also replace the log GDP and log GDP squared variables with a simple measure of GDP per capita.\(^{83}\)

The key result in Models A and B in Table 4.4 is that democracy is negatively associated

---

\(^{83}\) We make this replacement because we want to examine whether the relationship between democracy and private education spending is interactive with average personal wealth (to test the possibility that private funding of tertiary education is increasing in the very richest countries).
with absolute private spending at a statistically significant and substantively sizeable level. Moving from minus seven (our lowest score on the Polity variable within the truncated dataset) to plus ten on the Polity index is associated with a 1.5 percent point reduction in the amount of national income spent on private education. Given that a similar seventeen-point move on the Polity index would be associated with a 1.8 percent point increase in the national income spent on public education, it is clear that democracies are seeing a fairly large amount of substitution occurring between private and public education – that is, as countries democratize, many individuals who previously paid for private education can no longer afford to do so as they are now paying for public education out of taxation.

Model C presents an adjustment to the model by introducing an interactive term which measures the effect of democracy, *conditional on income*, on private education spending. An interesting pattern emerges in this regression. Democracy retains its negative impact on education spending, vis-à-vis autocracy, but only below a certain income threshold. Because the interactive term is positive, wealthy democracies may end up spending more on private education than wealthy autocracies, all else equal. Figure 4.3 graphically demonstrates this intuition. Below around $9,000 GDP per capita, being autocratic (minus seven on the Polity index) is associated with a higher amount of private education spending than being democratic (plus ten on the Polity index). However, past this threshold point, the regression estimates that democracies might spend more on private education, all else equal, than autocracies. That is, were an autocracy with a GDP per capita of $10,000 to democratize, their private education spending might actually rise.

---

84 It is worth recalling here that we are estimating *absolute* private education spending, not the ratio of private spending to public spending. This does not directly imply that wealthy democracies skew their education funding mix to private sources vis-à-vis wealthy autocracies.
However, given that most of the autocracies in the dataset have a GDP per capita of under $9,000, what we are really looking at is a diminishing impact of regime type on private education spending as states converge on middle-income status. This pattern may represent a modernization effect: middle-income states no longer have the residual private education system that poor states without large public education systems require – hence their democratization would not greatly affect private education spending. Note also that income does not greatly affect democracies’ spending on private education – although there is a mild incline upwards. As we shall see in Chapter Eight, this relationship may be a consequence of the mass expansion of higher education in OECD countries leading to a greater share of private financing.

**Figure 4.3: Estimated Effects of Wealth and Level of Democracy on Absolute Private Education Spending**

![Graph showing estimated effects of wealth and level of democracy on absolute private education spending.](image)
Models D through F tell a similar picture with regard to the direct effect of democracy on private education spending relative to public education spending. It is estimated that the percentage of total education spending taken by private education would be reduced by 23.5 percent points following a seventeen point shift on the Polity scale. Given that the average percentage of total education spending taken by private spending for autocracies is 28.5%, this would amount to a decimation of private spending. As an example, this is similar magnitude to the difference between Indonesia (scoring minus seven on Polity and with 35.5% of its education spending private) and Iceland (scoring ten on polity and with 12.3% of its education spending private). Note, however, that this impact of democracy is not conditional on income in Model F. Thus, the earlier pattern of a narrowing difference between autocracies and democracies as income levels rise to $9,000 does not appear to hold with relative spending. Instead, what is likely happening is that as states grow they additionally spend even more on public education than they do on private education. Thus the income elasticity of public education appears to be somewhat larger than that for private education, even once the negative effect of democracy on private spending is controlled for.

4.5: Democracy and the Composition of Education Spending

Up to this point we have assumed that education is an entirely uniform good and that changes in education spending reflect one of three factors: the granting of this good to more individuals who previously would not have received it; the granting of more of this good to each individual (perhaps by increased investment per year of schooling, or perhaps by expanding the length of schooling); and the distribution of responsibility for payment between private individual contributions and progressive public provision.
While this simplification aids greatly in examining the broad sweep of education policy at the macro-level, it obscures the possibility of targeting of education policy to favored political groups. This section begins by looking at the targeting of publicly education to different groups through differential funding of primary, secondary, and tertiary education. Because the latter levels of education tend to have a student composition biased toward the middle and upper classes, public funding of such forms of education may be fiscally regressive. We find that as states democratize, and the elite lose control of the political process, the balance between targeted tertiary and universal primary education shifts towards the latter quite substantially. The section then turns to targeted inputs into the education production process by examining the relative salaries earned by teachers during periods of regime change. The results of this analysis show that, following democratization, there appears to be a large increase in teacher salaries, amounting to an increase in their real salaries of nearly thirty percent.

So far, our analysis of the provision of education has assumed that education is a uniform good – agents are either skilled or unskilled and education is the method of moving from the latter to the former state. However, what if education spending could increase without education provision expanding? That is, what would group preferences be over increasing per student education spending rather than expanding education to include new students? In this case the recipients of targeted forms of education like tertiary or upper secondary schooling might wish to confine increases in education spending to these areas, This section explores these questions of targeted spending at greater length, showing how different political regimes are likely to have varied preferences over the degree, and beneficiaries, of targeted spending.
We begin by altering the baseline model to permit increased education spending to be spent on greater ‘depth’ (more per student funding) rather than greater ‘breadth’ (increasing student enrolment).\textsuperscript{85} Since the baseline model assumes that education enrolment moves from rich to poor, increased ‘depth’ implies targeting resources towards the well-off. In order to model this, we use a new parameter $\pi$ to represent per-student funding (or ‘depth’). Governments can choose to expand depth, breadth, or both.\textsuperscript{86} The budget constraint can now be reframed as:

$$t = \frac{(c + \pi)S_i}{y_0}$$

(58)

The effect of increasing the level of depth on wages can be phrased as:

$$w_s(\pi) = \pi \alpha_s - bS$$
$$w_u(\pi) = \sigma_u + aS$$

(59)

Note that only skilled wages are directly affected by the depth parameter, which, pushes the productivity of skills upwards.\textsuperscript{87} We can now rephrase our generic utility function as:

$$U_i = \left(1 - \frac{[\pi + c]S_i}{y_0}\right)y_{i0} + \delta g_{ili} + w_{ji}[\pi, S_i] + g(S_i)$$

(60)

We consider the case where the breadth of education provision is fixed, or $S(\pi) = S$. We can express the derivatives of group utility with respect to the depth parameter as:

\textsuperscript{85} We re-examine this question in a slightly altered format in the formal analysis of OECD higher education spending in Chapter Eight, which also includes an examination of the effects of private funding, which we abstract from in this section.

\textsuperscript{86} We ignore cases with a fixed tax rate in this section, since expanding depth in these situations would mean reducing breadth – a situation I only likely under autocratization. Examining the case of a fixed tax rate reinforces the partisan pattern where the rich prefer targeted spending but also introduces the possibility that the middle class could lose their entitlement to education provision, thus increasing their dislike of targeted spending.

\textsuperscript{87} The assumption here is that increasing per student funding will lead to per worker increase in productivity and earnings once that student hits the labor force. In fact, increasing per student funding is likely to have diminishing marginal returns on productivity, which might end up limiting the extent of targeting beyond a certain point.
\[
\frac{dU_H}{d\pi} = -S_1 \frac{y_{H0}}{\bar{y}_0} + \delta \sigma_s \tag{61}
\]

\[
\frac{dU_p}{d\pi} = -S_1 \frac{y_{M0}}{\bar{y}_0} \text{ for } S_1 \leq n_H \text{ or } -S_1 \frac{y_{M0}}{\bar{y}_0} + \delta \sigma_s \text{ for } S_1 > n_H \tag{62}
\]

\[
\frac{dU_p}{d\pi} = -S_1 \frac{y_{P0}}{\bar{y}_0} \text{ for } S_1 \leq 1 - n_p \text{ or } -S_1 \frac{y_{P0}}{\bar{y}_0} + \delta \sigma_s \text{ for } S_1 > 1 - n_p \tag{63}
\]

Equations (62) and (63) are dependent on the relationship between the existing breadth of education provision and group sizes, \(n_H, n_M, \) and \(n_p,\) where \(n_H + n_M + n_p = 1.\) Equation (61) notes that increased depth of education spending is beneficial to the wealthy where the increased skill premium outweighs the tax costs of provision. Note, that for the wealthy, increasing the depth of spending is less preferable in situations where the breadth of coverage is already large, since less of this new spending will be targeted towards the elite. However, in a situation, as in an autocracy, where only the elite are provided with education (or a particular type of education) we see that only the elite stand to benefit from increased depth of funding. Both the middle classes and the poor, when shut out from education provision, unsurprisingly prefer not to increase the depth of funding. However, if education does cover the middle class, as in a democracy, we might see the middle class to prefer expanded depth of funding rather than expanding coverage. In fact, this outcome will hold provided:

\[
\left[\left(\pi + c\right) - (n_H + n_M)\right] \frac{y_{M0}}{\bar{y}_0} + \delta \left(\sigma_s + b\right) > \delta \left[g(1) - g(1 - n_p)\right] \tag{64}
\]

Unless the externalities produced by extending education to the poor are particularly high, the middle class might prefer to increase depth rather than breadth. Generally, the poor face a strictly negative effect of depth on their utility, except in the
extreme case where all citizens are provided with education. In this case, where education spending cannot actually be targeted, per student spending becomes progressive rather than regressive. Thus, the key implication behind the politics of targeted education spending is that where the target is narrow, it can be highly regressive, but as the targeted area widens in coverage, increased depth of funding may flip to being fiscally progressive and favored by the poor. This produces Propositions 4.3(a) and 4.3(b):

Proposition 4.3(a): Autocracies will favor higher degrees of targeted spending than democracies.

Proposition 4.3(b): As the targeted group becomes larger, preferences begin to reverse. Beyond a certain threshold, a previously targeted good (e.g. secondary education) becomes favored under democracy.

Table 4.5 tests these proposition on a dataset of country mean spending on each level of education during the 1990s. Because time series evidence on the composition of education spending is so fragmentary it is necessary to conduct a between effects analysis on the data rather than analyzing dynamic patterns. Fortunately, the cross-sectional availability of data on the composition of education spending is decent: we retain almost one hundred states when we look at primary and secondary spending and around ninety when tertiary education is also examined. Models A through D of Table 4.5 examine four different ratios of per student spending: tertiary / primary spending; tertiary / primary and secondary spending; secondary / primary spending; and tertiary / secondary spending.

---

88 This problem is avoided in Chapter Eight, which analyzes the composition of education spending within the OECD, where time series data is far better.
Table 4.5: The Effects of Democracy on Primary, Secondary, and Tertiary Spending

<table>
<thead>
<tr>
<th></th>
<th>TERTIARY / PRIMARY</th>
<th>TERTIARY / OTHER</th>
<th>SECONDARY / PRIMARY</th>
<th>TERTIARY / SECONDARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEMOCRACY</td>
<td>-.092</td>
<td>-.138</td>
<td>-.055</td>
<td>-.190</td>
</tr>
<tr>
<td>(0.331)***</td>
<td>(0.083)*</td>
<td>(0.018)***</td>
<td>(0.193)</td>
<td></td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>.348</td>
<td>.106</td>
<td>-.021</td>
<td>.182</td>
</tr>
<tr>
<td>(0.262)</td>
<td>(0.066)</td>
<td>(0.014)</td>
<td>(0.161)</td>
<td></td>
</tr>
<tr>
<td>GDP PER CAPITA</td>
<td>.066</td>
<td>.026</td>
<td>.004</td>
<td>.033</td>
</tr>
<tr>
<td>(0.137)</td>
<td>(0.034)</td>
<td>(0.007)</td>
<td>(0.083)</td>
<td></td>
</tr>
<tr>
<td>POPULATION</td>
<td>.004</td>
<td>.000</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>(0.011)</td>
<td>(0.003)</td>
<td>(0.001)</td>
<td>(0.004)</td>
<td></td>
</tr>
<tr>
<td>TERTIARY ENROLMENT</td>
<td>-.022</td>
<td>.003</td>
<td>-.003</td>
<td></td>
</tr>
<tr>
<td>(0.086)</td>
<td>(0.023)</td>
<td>(0.056)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SECONDARY ENROLMENT</td>
<td>-.017</td>
<td>-.011</td>
<td>-.011</td>
<td></td>
</tr>
<tr>
<td>(0.016)</td>
<td>(0.003)***</td>
<td>(0.038)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRIMARY ENROLMENT</td>
<td>-.122</td>
<td>.015</td>
<td>-.010</td>
<td></td>
</tr>
<tr>
<td>(0.081)</td>
<td>(0.022)</td>
<td>(0.004)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTANT</td>
<td>15.031</td>
<td>-.235</td>
<td>4.483</td>
<td>.413</td>
</tr>
<tr>
<td></td>
<td>15.603</td>
<td>(4.006)</td>
<td>(0.0835)**</td>
<td>(8.256)</td>
</tr>
<tr>
<td>N</td>
<td>271</td>
<td>260</td>
<td>301</td>
<td>262</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>90</td>
<td>90</td>
<td>99</td>
<td>91</td>
</tr>
<tr>
<td>R SQ.</td>
<td>.584</td>
<td>.540</td>
<td>.573</td>
<td>.322</td>
</tr>
<tr>
<td>ST. DEV of Yi</td>
<td>11.812</td>
<td>2.724</td>
<td>.699</td>
<td>5.463</td>
</tr>
<tr>
<td>ST DEV of ^Y</td>
<td>13.340</td>
<td>3.742</td>
<td>.836</td>
<td>8.393</td>
</tr>
<tr>
<td>ST DEV of ~Y</td>
<td>2.341</td>
<td>.500</td>
<td>.160</td>
<td>.764</td>
</tr>
<tr>
<td>Polity First Difference as a % of ST DEV of Yi</td>
<td>- 15.6 %</td>
<td>- 101.3 %</td>
<td>- 157.4 %</td>
<td>- 69.6 %</td>
</tr>
<tr>
<td>Polity First Difference as a % of ST DEV of ^Y</td>
<td>-13.8 %</td>
<td>- 73.8 %</td>
<td>- 131.6 %</td>
<td>- 45.3 %</td>
</tr>
<tr>
<td>Polity First Difference as a % of ST DEV of ~Y</td>
<td>-78.6 %</td>
<td>- 552 %</td>
<td>- 688 %</td>
<td>- 497 %</td>
</tr>
</tbody>
</table>

All models are between-effect, weighted least squares regressions conducted on country means during the 1990s. Regional dummies are included in the analysis but omitted from presentation. Standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Making the decision about precisely how to operationalize the composition of education spending is somewhat tricky. Democracies do not typically try to reduce the number of students in tertiary education, so the ratio of tertiary to primary enrolment, for
example, is not an appropriate measure to analyze. Democracies might however choose to freeze per student tertiary funding and increase the per student funding of primary education in order to bias funding towards more universalistic education. We want to be sure that we can separate these funding issues from enrolment issues that may not be in the government’s control (and are at least analytically separate from per student funding). As such, this analysis controls for gross enrolment rates at each level. Thus, Table 4.5 directly tests per student funding for a given level of enrolment.

Model A examines the ratio of per student spending between tertiary and primary levels of education. Democracy, as measured by the Polity score, is negatively related to this ratio, with a very high level of statistical significance. The estimated effect is relatively modest in this case. Moving from a full autocracy to a full democracy (twenty points on the Polity scale) is associated with a two point shift in this ratio, which amounts to around a fifteen percent of a between-state standard deviation in the average tertiary / primary ratio, although if one looks at the within-state standard deviation, such a change would amount to an effect of three quarters of a standard deviation. Regardless of the precise magnitude of the effect, this provides robust evidence supporting the hypothesis of democracies reducing the ratio of targeted tertiary to universal primary spending. The estimated effect is somewhat stronger when one analyses the effect of full democratization on the ratio of tertiary spending per student to primary and secondary per student spending in Model B: where the estimated first difference is a full between-state standard deviation. However, in this case the standard error is much larger and the estimate is only statistically significant at the ten percent level. Nonetheless the negative
direction conforms to theoretical expectations, particularly given the monotonic level of targeting as one moves from primary to secondary to tertiary spending.

Model C then turns to analyzing the secondary to primary spending ratio. As noted above, secondary education is far from universal in many developing states, so a similar pattern as in the previous two models should be evident. Indeed, we see a strong substantive and statistically significant effect of democratization, with an estimated impact of one and a half standard deviations. Thus, we have evidence that the pattern of targeting extends through to secondary education and thus, that it is specifically primary education spending loses out under autocracy. To confirm this hypothesis, Model D examines the tertiary / secondary spending ratio and while the direction is, as expected, negative, this estimate does not reach statistical significance at conventional levels. This result is presumably a function of the fact that we are now comparing two forms of targeted redistribution rather than a targeted to a universal form. The lack of significance of Model D dovetails with our weak result in Model B, suggesting that secondary education is better thought of as a targeted good at the global level despite its ubiquity within advanced industrial countries.

So far we have examined targeting to the recipients of education. However, governments can also choose to target education investment towards different factors of production in the education process. As labor economists have long noted, the provision of education can be analyzed using the same microeconomic production profile analysis used in the study of firms (Hanushek, 1986; Krueger, 1999). Education requires labor - teaching and administrative staff – and also requires capital investment – schools,
This chapter focuses on one element of the factor mix: the rate of return to teachers following democratization.

There are two reasons to believe that teacher might benefit following a transition to democracy. Firstly, if teachers are able to attain market power they may try to force their wages above their marginal education product. Where autocracies repressed the ability of teachers to unionize, teachers may have earned lower pay. Secondly, if teachers present a political threat to an autocratic regime, they may be underpaid in order to suppress them as a political force. Thus, there are at least two potential reasons to expect that teacher pay might rise following democratization: firstly, along with other public servants they may now be permitted to organize to bid up their wages and attain some market power; secondly, their wages will no longer be suppressed for political reasons – indeed, incipient democratic parties may try to win teachers on side as an important political support group during the consolidation period. So, we might expect within country changes towards democratization to raise teacher salaries, albeit through a number of different mechanisms.

---

89 To be precise, education requires three factors: unskilled labor (janitorial and other administrative services), skilled labor (teachers and school administrators), and capital investment. Given that the former group counts for a relatively small percentage of overall expenditure they can be safely removed from analysis.
Table 4.6: Democracy and Teacher Salaries

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAG DV</td>
<td>-.049</td>
<td>-.063</td>
<td>-.045</td>
<td>-.061</td>
</tr>
<tr>
<td></td>
<td>(.042)</td>
<td>(.041)</td>
<td>(.042)</td>
<td>(.041)</td>
</tr>
<tr>
<td>POLITY</td>
<td>4.821</td>
<td>3.821</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.889)**</td>
<td>(1.970)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACLP</td>
<td></td>
<td></td>
<td>58.461</td>
<td>59.141</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(25.176)**</td>
<td>(26.255)**</td>
</tr>
<tr>
<td></td>
<td>(41.667)**</td>
<td>(44.311)</td>
<td>(43.265)**</td>
<td>(46.297)</td>
</tr>
<tr>
<td>POP &lt; 15</td>
<td>-7.742</td>
<td>-10.332</td>
<td>-7.565</td>
<td>-10.064</td>
</tr>
<tr>
<td></td>
<td>(3.856)**</td>
<td>(3.809)***</td>
<td>(3.984)8</td>
<td>(3.943)**</td>
</tr>
<tr>
<td>LOG (POP)</td>
<td>-31.149</td>
<td>-132.287</td>
<td>-48.464</td>
<td>-141.370</td>
</tr>
<tr>
<td></td>
<td>(81.233)</td>
<td>(86.788)</td>
<td>(83.071)</td>
<td>(88.512)</td>
</tr>
<tr>
<td>GOVEX</td>
<td></td>
<td></td>
<td>5.656</td>
<td>6.369</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(3.166)*</td>
<td>(3.195)**</td>
</tr>
<tr>
<td>YEAR</td>
<td>-1.531</td>
<td>-3.558</td>
<td>-.980</td>
<td>-3.150</td>
</tr>
<tr>
<td></td>
<td>(2.180)</td>
<td>(2.188)*</td>
<td>(2.190)</td>
<td>(2.202)</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>6553.710</td>
<td>11280.840</td>
<td>5802.581</td>
<td>10718.010</td>
</tr>
<tr>
<td></td>
<td>(3396.787)*</td>
<td>(3475.262)***</td>
<td>(3428.950)*</td>
<td>(3513.547)***</td>
</tr>
<tr>
<td>FIRST DIFFERENCES</td>
<td>+ 96.420 **</td>
<td>+ 73.420 **</td>
<td>+ 58.461 **</td>
<td>+ 59.141 **</td>
</tr>
<tr>
<td>N</td>
<td>299</td>
<td>259</td>
<td>303</td>
<td>263</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>79</td>
<td>72</td>
<td>81</td>
<td>74</td>
</tr>
<tr>
<td>R SQ.</td>
<td>0.14</td>
<td>0.22</td>
<td>0.12</td>
<td>0.21</td>
</tr>
</tbody>
</table>

All regressions are fixed effects analyses on five yearly spaced data from 1960 to 1995. Standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.6 tests this proposition using cross-sectional time series data from 1960 to 1990, covering around eighty states at five yearly intervals. I use a fixed effects regression to examine the dynamic within-state effects of democratization on teacher salaries. The dependent variable is teacher salary as a percentage of GDP per capita,
which has a mean value of 357% in the dataset.\textsuperscript{90} I employ a lagged dependent variable in all the models (though the size of the coefficient is very small, demonstrating that long term effects of changes in variables of interest are unlikely to differ from short term changes), along with an array of economic and demographic controls. There are two main differences between the four models. Models A and B use the Polity score whereas Models C and D use the ACLP dummy variable for democracy. This dummy variable is used to check that changes in teacher salaries do reflect full transition rather than changes within autocracies or democracies. The second difference is that Models A and C omit the government spending variable. This is omitted to check if the effect of democracy on teacher salaries is part of an overall trend toward public sector pay increases (that is, democracies leading to an increase in the market power of public workers including teachers) or if teacher salaries rise independently of other government spending.

The effect of democracy on teacher salaries is consistently strong and statistically significant across the models. Models A and B estimate that teacher salaries would rise, following ‘full democratization’ on the Polity variable, by between seventy-five and one hundred percent of GDP per capita. It is worth noting, though, that the estimate for Model B is smaller in both magnitude and statistical significance that that in Model A, providing some support for the assertion that teacher salaries may rise as part of a general trend of increased market power for workers in the public sector, for example through unionization following democratization. Models C and D, which use the ACLP dummy measure, paint a similar picture of increased investment in teacher salaries following

\textsuperscript{90} This number may seem high but it is not the same as measuring the difference between teacher salaries and median income per worker, rather it includes all citizens including children, the unemployed, and the retired. Furthermore, this measure is appropriate for examining dynamic changes because what we care about are teacher salaries after democratization relative to before democratization, normalized to reflect overall economic trends.
democratization, albeit at a slightly lower level. The predicted first difference in these models is around 60% of GDP per capita. Note that in Model D, in contrast to the Polity models, government expenditure neither affects the statistical significance nor the estimated magnitude of the coefficient on the ACLP variable. In this case, the effect of democratization on teacher salaries appears to be detached from overall government spending. One possible resolution to this discrepancy is that when states liberalize but do not cross the ACLP threshold of democracy, workers in the public sector may find themselves with increased bargaining power. However, following the empirical analysis of Chapter Three, partial liberalization may mean that a mass expansion of education has not yet occurred. However, when democratic transition ushers in substantial increases in education spending (as we saw in previous sections), the demand for teachers pushes up their salaries considerably.

Thus, we have somewhat inconclusive results on whether pay increases are a result of general public sector unionization or direct increase in teacher salaries by democratic government. Nonetheless, the key message from this analysis is that democratization is a financial boon for teachers – raising their real salaries by twenty to thirty percent according to the first differences analyzed in the regressions in Models A through C. What is perhaps most intriguing is that cross-sectional analysis does not show a similar pattern – most democracies, in fact, appear to spend slightly less than autocracies on teacher’s relative wages. This is partially a function of higher GDP per capita for other citizens but also partly a product of the different industrial composition of advanced democracies and the budgetary problems introduced by cost creep in teacher salaries given the productivity differential between public and private sector workers in
advanced countries. Thus democratization may pad teachers’ pockets but in the very long run their pay and status decline.

4.6: Conclusion

This chapter has examined the relationship between democracy and education at a much finer grain than Chapter Three. Even at this much more refined level of analysis the key implications of the formal model have found significant and robust empirical backing. We saw that when the Polity index of democracy is disaggregated, those elements of democracy that most clearly impact on the transition of popular preferences to policy outcomes: the franchise, representativeness, and the responsiveness of the executive, are the factors that matter most in determining education spending. We also explored two different ‘varieties of autocracy’ showing that those autocracies which more responsive to mass demands for education – communist states – had far higher levels of spending than those autocracies that relied on natural rather than human resources. This chapter also examined the composition of education funding and spending. As suggested by the baseline model, public education substitutes for private spending and tends to almost entirely replace it in democracies as the mass tax the elite rather than pay for education individually. Furthermore, we also saw redistributive patterns in the ratio of tertiary to primary education spending, with the elite in autocracies using their political power to target education funding towards themselves. Thus, like a fractal, as we cut deeper into the relationship between education and democracy, at lower and lower levels of analysis, we see the same dramatic pattern emerge again and again.
CHAPTER FIVE: GLOBALIZATION AND EDUCATION SPENDING

5.1 Introduction

Few economic or political forces have taken on the multitude of myths that surround the concept of globalization. To some scholars, ‘globalization’ heralds a ‘race to the bottom’, as states facing globally footloose capital are unable to raise the necessary taxes to fund government social programs (Rodrik, 1994). Others see ‘globalization’ as an impotent foe, with governments still able to conduct policies according to their own partisan preferences (Garrett, 1998) and citizens’ wages largely unaffected by changes in openness to the global economy (Krugman, 2000; Iversen and Cusack, 2000). A smaller group avoids the depiction of globalization as harmful, noting that in some areas, particularly regulatory policy, globalization appears to be leading to a reversal of the ‘race to the bottom’: as Vogel (1995) puts it, states may, in fact, be ‘trading up’.

Perhaps the confusing back-and-forth of these arguments is a product of the slipperiness of the definition of ‘globalization’ itself. Different scholars operationalize

---

91 Which is not to say that political scientists and economists deny that changes have occurred in the types of partisan tradeoffs that governments face (Iversen and Wren, 1998) nor that there have not been great changes in wage inequality over the past three decades (Goldin and Katz, 1998). Rather, this group of scholars claims that such changes have been engendered by structural alterations in the domestic economy – largely the rise of the service sector and skill-biased technical change.
‘globalization’ in disparate ways, depending on the causal mechanisms they are attempting to capture. For some, globalization can be best considered as increasing the economic volatility to which states are exposed - fluctuations in prices require the state to engage in the construction of cycle-dampening Keynesian bulwarks (Rodrik, 2000), social actors to agree on stable wage-bargaining relationships (Katzenstein, 1984), or states to provide new social insurance mechanisms against increased personal risk (Cameron, 1979; Iversen and Soskice, 2001; Rehm, 2005). Others ignore this volatility and concentrate on the exit option for capital created by increasingly integrated markets (Goodman and Pauly, 1993; Rodrik, 1994; Boix, 2004). A further popular conceptualization of globalization is the neoclassical model of price convergence, popularized in political science by Rogowski (1988) – it is neither risk nor the threat of exit that matter, simply the changes in domestic prices produced by trading goods between countries that have different comparative advantage.

Since globalization can be conceptualized in such different manners, the degree of threat to which scholars believe political actors to be exposed varies considerably from analysis to analysis. The depiction of globalization as ‘threatening’ has taken on an unfortunate a priori status in much political economy. If you believe globalization increases economic volatility – and that volatility is by definition threatening to the domestic economy – then the scholarly debate devolves into a second-order question about whether states can effectively compensate against such a threat. The threat of capital’s exit option is also often taken a priori, with the second order question being how

---

92 This second-order question is exemplified by Garrett (1998).
states respond to this threat.\textsuperscript{93} Finally, Rogowski’s work is commonly interpreted as demonstrating how the price changes caused by globalization threaten the politically dominant position of scarce factors.

This emphasis on the ‘threatening’ nature of globalization distorts our analysis of how opening the economy affects economic outcomes and political preferences. There are, of course, winners and losers from any economic change if Pareto gains are not provided to the losers as compensation.\textsuperscript{94} However, globalization also permits economic and social policies that may not be viable under autarky, as the celebrated theory of comparative advantage indicates. This chapter conceives of globalization as expanding the policy opportunity set open to states, rather than as a threat to policy. This is not to deny that increases in openness can lead to fiscal contractions on occasion that force a reduction in education spending. States facing major international financial crises, even big education spenders like Malaysia and Korea during the Asian financial crisis of 1997, are likely to see temporary falls in public spending of all kinds.\textsuperscript{95}

However, I argue that for two reasons we should expect increased globalization, at least for the majority of states outside the richest group of the OECD, to lead to higher public spending on education. Firstly, globalization changes the effects of education supply on the returns to education. As domestic markets integrate with global markets,

\textsuperscript{93} It is worth noting that Boix’s use of the exit option to explain the likelihood of democratization actually views this threat as having a positive outcome – increasing the likelihood of democracy. Nonetheless, the ex post threat remains, it merely leads to ex ante changes in tax-setting by a potential median voter which then avoids the ex post problem.

\textsuperscript{94} This is the fundamental argument behind Rogowski (1988). If Pareto gains are redistributed as compensation, however, then a positive-sum outcome is possible following trade, as demonstrated in Ricardo (1824).

\textsuperscript{95} For example, shocks to openness in the OECD are unlikely to reflect direct changes in trade policy but financial crises – hence we might expect that changes in openness would be negatively correlated with government spending like education in advanced industrial countries, as we shall see in Section 5.6.
the effects of domestic supply on wages are overtaken by global supply. Thus, in the extreme case, a change in the number of educated workers in any one country should not lower skilled wages in that country. This permits higher levels of education spending without reducing the premium received by the educated. Secondly, globalization is also likely to lead to an increased demand for higher skills. When developing countries integrate with global markets they are exposed to technologies that were previously neither used nor supplied in their domestic markets. All technologies require a residual skilled workforce to engineer and implement in previously closed markets. But more importantly, the kinds of technologies that have been transferred from developed to developing countries over the past half-century have tended to be ‘skill-biased’ – that is, they are production technologies that require large amounts of educated human capital compared to unskilled labor. Thus, opening the economy will lead to a technology-driven demand for more skill provision.

This chapter begins by extending the formal model from Chapter Two to show how globalization interacts with the domestic economy, political preferences, and policy-making. In particular, I focus on how globalization alters the effects of skill supply on wages and how it affects demand for skills. I then turn to an analysis of how to measure globalization and the strengths and weaknesses of popular measures. The main empirical sections of the chapter follow. Firstly, in parallel to Sections 3.4 and 3.5 of Chapter Three, I analyze baseline dynamic models of absolute and relative education spending.96 Secondly, I turn to examining whether the effect of openness on education differs systematically between autocracies and democracies and between developed and

---

96 These regressions can be thought of as completing, rather than complementing, those in Chapter Three, since they include the previously omitted but statistically significant variable of globalization.
developing nations. Finally, I move to a similar form of cross-sectional analysis to that undertaken in Section 3.6 of Chapter Three. Again, I examine different levels of education spending between highly open and more closed economies, subjecting the estimates to a broad series of robustness checks.

5.2 Theoretical Development

Education policy and globalization might not appear to be obvious theoretical bedfellows. Education might seem to be the paradigmatic ‘domestic’ policy. Not only is education policy focused on domestic students and schools but typically states cannot directly export and import the service of education. However, education is not as immobile as it might superficially appear. Through the trade of goods and services that embody skilled labor, and through the transfer of technology, individuals can sell their education abroad and buy the education of foreigners. Global trade thus alters the returns to education in a manner as profound as its effects on the return to capital or on unskilled labor. In this section we extend the baseline model to connect openness to education spending through two channels. The first channel is through the effects of openness on the supply elasticity of factor returns and is directly implied by the Stolpe-Samuleson two-good two-factor trade model. The second channel is through the effects of openness on the demand for skills as represented by technology transfer and comes from advances in trade theory and growth economics, specifically those elaborated in Pissarides (1997) and Acemoglu (2001).

---

97 Ignoring the small trend amongst universities to establish foreign franchises or to rely on foreign students (Krickau-Richter, 1996).
The supply argument is a basic corollary of the ‘Factor Equalization Theory’ developed by Samuelson (1947).\footnote{Appendix 5A develops this formally using Jones (1969) algebra.} The argument claims that if countries trade goods with one another that are both in each country’s ‘zone of diversification’\footnote{The ‘zone of diversification’ is the set of goods that states will continue to produce under free trade. If this set just includes one good per state we have complete specialization.} then domestic prices for these goods will converge to global prices. With global prices and global production of all goods, all factors will be paid the same rate of return for their role in production. What is particularly important to note is that this rate is not determined by the domestic supply of factors. At the extreme, countries could have completely ‘unbalanced’ factor supplies (for example, a workforce where almost every member has a university degree) without any change in the rate of return to that factor. Changes in factor supply would only affect the composition of output (that is the mix of goods produced) rather than factor returns – an outcome known as the Rybczynski theorem (Rybczynski, 1955).

While such extreme price and wage convergence is rarely achieved when states trade, the fact that trade necessarily leads to some convergence in factor returns means a reduction in the factor supply elasticity of factor returns. As states become increasingly open, this elasticity converges to zero. In fact, near-zero elasticities have been measured in some of the most open trading systems in the world, for example between the states of the USA. Hanson and Slaughter (1998) found that changes in the supply of skilled and unskilled workers within US states had no effect on the relative wages of skilled and unskilled workers. If California absorbed scores of unskilled workers, instead of reducing the return to unskilled labor, industrial composition would simply shift towards low-cost production like agriculture. Similarly the relative skilled wage premium in Massachusetts
was found to be unaffected by the internal migration of college graduates to that state during the 1990s. While the US case in extreme, we see a similar pattern emerging in the negligible response of skilled wages to the mass expansion of higher education in Western Europe (Machin, 1998).

The stability of skilled wages with respect to skill supply implies that when states expand education in an open economy, the negative effects that are experienced by the holders of skill in autarkies do not occur. At the margin, then, education provision would be preferable in open economies vis-à-vis closed ones. Closed economies are unable to absorb the extra production of education-intensive goods, which bids down skilled wages, harming the already educated, who therefore block education spending. This negative impact of education provision is greatly reduced in open economies where the skilled can essentially sell their factor endowments to foreign bidders. This impact is likely to be most pronounced in states where the elite control political decision-making, that is, in autocracies. As we shall see in Section 5.6, there does appear to be a much stronger positive effect of openness on education spending in such states.

The demand-side story differs somewhat from the supply elasticity effect and is derived from the recent combination of new growth theory and trade economics, best represented in the work of Daron Acemoglu. Acemoglu (2001) argues, building off earlier work by Pissarides (1997), that globalization impacts wages through the mechanism of technology transfer. Economists disagree over whether the increase in the inequality between skilled and unskilled workers prevalent in developed countries reflects the neoclassical trade model (where unskilled wages are globally converging to levels between those of developed and developing nations; Wood, 1994) or a domestic
story of ‘skill-biased technical change’ (see Machin and Van Reenen, 1998). Acemoglu (2001) bridges this gap by offering a more nuanced story. The direct mechanism causing increases in inequality is skill-biased technical change but this technical change is itself diffused by globalization. As states globalize they are exposed to new technologies, which compete against indigenously developed technologies. On the assumption that the global technology is superior, businesses must adapt to these new technologies or become replaced. Adaptation to new technologies necessarily requires a small trained workforce who can implement changes in production.

So far, then, globalization is likely to be associated with increases in the demand for education at the margin – but largely confined to the very high skill engineering sectors. However, Acemoglu argues that the process of technological transfer is much more extensive than just the requirement for such technicians. Most new technologies, Acemoglu argues, tend to be those that are complementary with highly skilled labor (this argument is developed at length in Goldin and Katz’s (1998) seminal discussion of skill-biased technologies). For example, computers cannot be used in a production process merely by being turned on by unskilled workers – they require trained operators to use effectively (Autor, Levy, and Murnane, 2001). Much manufacturing requires workers who can manipulate and innovate processes on-the-go – a switch from labor-biased Fordist production to flexible specialization (Piore and Sabel, 1985). Such technologies, then, require a more educated labor force, thus increasing the demand for public education.\footnote{Note that we might expect this effect of globalization to be stronger in states where skill biased technical change increases the demand for education generally, it might also lead to an expansion in private education, particularly where the private sector is more quickly able to adapt to the new technologies. However, given the prohibitive cost of private education for the majority of citizens, its}
that were not previously exposed to such technologies, indicating that the effect of openness on education should be stronger in developing countries.

One final theoretical issue worth grappling with is the effect of increased openness on *relative* education spending. Chapter Three argued that democratization should lead to an increase in the proportion of government consumption devoted to education because education was fundamentally more redistributive than other public goods and hence would be preferred by the newly enfranchised masses to other spending. However, the arguments about openness do not rely on changes in the identity of the selectorate. Rather they hinge on changes in the sensitivity of wages to supply and on the increased demand for skills produced by technology transfer, neither of which appear to have an obvious theoretical implication of the ratio of education to other spending. Of course, following the supply and demand arguments from above, for a *fixed* level of other government spending, we would expect openness to lead to increased relative education spending. Furthermore, Section 2.4, which analyzed coalitional politics, implied that globalization lessens the chance of an anti-education alliance between the rich and poor. This occurs because the absence of scarcity effects under globalization means that the rich no longer willing to trade off a small amount of increased education for a large amount of other public goods for the poor. That is, the rich do not dislike education enough to be swayed by a rich-poor alliance against the middle. Thus, since globalization

---

relatively small size in most states, and the fact that the skills demanded by new technology may be as simple as literacy – the demand for public education is likely to be equally large in the medium run.
prevents this coalition from emerging, we should expect relative spending to be higher under openness.\textsuperscript{101}

However, there is ample reason to believe that this pattern may not be displayed in developed states. Many political economists – from Cameron (1978) to Garrett (1998) to Rodrik (2000) have argued that overall government consumption increases following the opening of the economy. Such arguments tend to assume that the volatility caused by openness will lead to a Keynesian compensatory response through public employment or social insurance. Since this pattern could occur in tandem with the arguments I suggest about the effects of openness on education, it is not obvious how the ratio between education and other government consumption will change. At root, this is a question about whether governments respond to globalization with a \textit{compensatory} strategy (as in Garrett, 1998) or a strategy that involves changing the \textit{composition} of the workforce through education.\textsuperscript{102} The compensational pattern, however, is only likely to occur in countries where unskilled workers are particularly threatened by globalization, that is, in developed states. Combining these implications, we expect relative education to rise generally under openness but to be pronounced more strongly in developing states. The above theoretical discussion implies four key hypotheses for this chapter:

\textit{Hypothesis One:} As states become more integrated with the international economy, their spending on public education should rise.

\textsuperscript{101} Since this proposition is examined formally in Section 2.4 it is not repeated in the following section on modeling globalization.

\textsuperscript{102} The Cameron-Garrett-Rodrik hypothesis may be most prevalent in political science but there is also an obvious alternative, expounded in Rodrik’s earlier work (1994) that globalization should lead to a race to the bottom in public spending. If this diminution of government spending occurred in all areas \textit{except} education we might expect the ratio of education to other spending to increase yet further under globalization.
Hypothesis Two: The effect of openness on education spending should be stronger in autocracies than in democracies.

Hypothesis Three: The effect of openness on education spending should be stronger in developing states rather than in developed states.

Hypothesis Four: Openness should have a positive effect on education spending relative to other government consumption and this effect should be most pronounced in developing states, possibly reversing in developed states.

Modeling Globalization’s Effects on Education Spending

We now begin a formal examination of the above arguments about globalization and, in particular, its effects on the supply-side and the demand-side of the labor market. We begin with an examination of supply-side effects. Appendix 5A shows that the assumptions of traditional neoclassical economics imply that, under full integration with the international economy, a country’s particular relative factor supply has no effect on relative factor returns. The ‘law of one price’ necessitates a ‘law of one wage’, provided a number of standard assumptions hold. What does this factor return convergence imply for our baseline model?

Scarcity effects were highlighted as a critical redistributive force in Chapter Two, with the scarcity parameters, $a$ and $b$, incorporated into the baseline model. We now examine how globalization affects these parameters. The ‘law of one wage’ presumes that, at the limit, as countries become fully integrated with the global economy, their own

---

103 These assumptions include constant returns to scale, competitive markets, and that countries’ production profiles exist in the ‘zone of diversification’, - that is, countries produce both skilled and unskilled goods. The basic Samuelson version of the model also assumes a two-good, two-factor economy, as followed in the baseline model. See Appendix 5A for further details and proof.
particular levels of supply of skilled and unskilled labor have no effect on the domestic returns to skill. These returns, instead, will be set by global supply, which no country can affect significantly. This, in turn, implies that the parameters $a$ and $b$ asymptote towards zero. Let us re-examine Equations (27) through (29) from Chapter Two – the effects of education expansion on group utility in a closed economy:

$$
\frac{dU_H}{dS_1} = -c \frac{q_H + w_{s0}}{\bar{y}_0} + \delta \left[ \frac{\partial g(S_1)}{\partial S_1} - b \right]
$$

(27')

$$
\frac{dU_M}{dS_1} = -c \frac{q_M + w_{s0}}{\bar{y}_0} + \delta \left[ \left( \sigma_s - bS_1 \right) - \left( \sigma_u + aS_1 \right) + \frac{\partial g(S_1)}{\partial S_1} \right]
$$

(28')

$$
\frac{dU_P}{dS_1} = -c \frac{q_P + w_{s0}}{\bar{y}_0} + \delta \left[ a + \frac{\partial g(S_1)}{\partial S_1} \right]
$$

(29')

Now we examine these equations under globalization, with $a$ and $b$ set to zero.

$$
\frac{dU_H}{dS_1} = -c \frac{q_H + w_{s0}}{\bar{y}_0} + \delta \left[ \frac{\partial g(S_1)}{\partial S_1} \right]
$$

(65)

$$
\frac{dU_M}{dS_1} = -c \frac{q_M + w_{s0}}{\bar{y}_0} + \delta \left[ \left( \sigma_s - \sigma_u \right) + \frac{\partial g(S_1)}{\partial S_1} \right]
$$

(66)

$$
\frac{dU_P}{dS_1} = -c \frac{q_P + w_{s0}}{\bar{y}_0} + \delta \left[ \frac{\partial g(S_1)}{\partial S_1} \right]
$$

(67)

What are the effects of removing the scarcity effects? For both the elite and for the middle class there are positive effects of integrating into the global economy on the impact of education expansion on their utility. Since the expansion of education no longer reduces skilled wages, the elite have one less reason to dislike further education provision and if externalities outweigh tax costs they may favor a limited expansion. For the middle class the impact is less direct, working through the change in the skill premium.
Nonetheless, the effect is still positive. However, for the poor, globalization actually weakens the positive effects of education expansion on utility. Since we are assuming in the equations above that the poor’s children will not receive education, the only benefit they now receive from expansion is through externalities: no longer will they obtain scarcity rents for their unskilled labor. However, the equations above assumed that only the elite were educated and the question was whether to extend education to the middle class. If instead, we move to a democratic setup where the elite and the middle class are educated, with the middle class in charge of political decision-making, the poor now stand to be the chief beneficiaries of any increased education spending. Again, in this case, globalization facilitates this expansion of education, since the middle class will be *less harmed* by an educated poor than in a closed economy. Thus, integration with the global economy should, on average, lead to an expansion in education provision under both autocracies and democracies, producing Proposition 5.1:

*Proposition 5.1: Increased integration with the global economy will lead to increased education spending in both democracies and autocracies.*

However, one nuance remains to the supply story. Is this positive effect of globalization stronger for the educated or for those yet to receive education? In order to answer this puzzle, we return to Equations (65) and (66) and take the cross derivative of utility with respect to both education spending and the size of the supply parameter, $b$.

\[
\frac{\partial^2 U_n}{\partial S_i \partial b} = -\delta 
\]

\[
\frac{\partial^2 U_m}{\partial S_i \partial b} = -\delta S_i 
\]
Note that global integration implies a decrease in $b$, thus reversing the sign of the cross-derivative. The implication is that a decrease in $b$, the sensitivity of skilled wages to domestic skill supply, following globalization will have a positive impact on the effect of skill expansion on the utility of both the elite and the middle-class. However, the elite gain more from this expansion than do the middle class by a positive factor ($1 - S$). This result obtains because the scarcity effects of education spending have a more concentrated effect on the elite than they do on the middle class. This, in turn, implies that the effect of globalization on skill provision, through this supply-side effect, should be stronger for the recipients of education than for those yet to receive it. Thus, where education provision is particularly limited and where the recipients of education control political power, as in autocracies, globalization should have a stronger impact on education spending, leading to Proposition 5.2:

*Proposition 5.2: Increased integration with the global economy has a larger positive supply-side effect on education spending in autocracies than in democracies.*

We now turn to the formalization of the demand-side effects of globalization on education spending. Following globalization, technology transfer from the most advanced countries increases the productivity of educated workers in the newly globalized state. Thus, skilled wages are now determined by $\hat{w}_s = \gamma(\bar{\sigma} - \sigma_s) + \sigma_s - bS_1$, where $\bar{\sigma}$ is the level of technological productivity in the most developed state, and $\gamma \in [0, 1]$ is the degree to which globalization leads a country to close the gap between domestic
productivity and that of the most developed state.\textsuperscript{104} The utility function is now changed to:

\[
U_i = \left(1 - \frac{cS_i}{\bar{y}_i}\right)y_{i0} + \delta \left[q_{i+1} + w_{i+1}(S_i, \gamma, \bar{c}) + g(S_i, \gamma, \bar{c})\right] \quad (70)
\]

In this formulation, round one wages (following globalization) depend on the degree to which skilled wages approach the productivity of the most developed state. Externalities also depend on these parameters, since technological adaptation requires a more broadly skilled workforce because of the importation of skill biased technical change.\textsuperscript{105} We can look at how the effect of education expansion on utility is affected by the technology transfer parameter $\gamma$ by examining their cross derivative.

\[
\frac{\partial^2 U_H}{\partial S_i \partial \gamma} = \delta \frac{\partial^2 g(S_i)}{\partial S_i \partial \gamma} \geq 0 \quad (71)
\]

\[
\frac{\partial^2 U_M}{\partial S_i \partial \gamma} = \delta \frac{\partial^2 g(S_i)}{\partial S_i \partial \gamma} + \delta \left[\gamma (\bar{c} - \sigma_s)\right] > 0 \quad (72)
\]

\[
\frac{\partial^2 U_P}{\partial S_i \partial \gamma} = \delta \frac{\partial^2 g(S_i)}{\partial S_i \partial \gamma} \geq 0 \quad (73)
\]

If there is a complementarity between the extent of education provision and the technology transfer parameter in terms of externalities, the RHS of Equations (71) and (73) will be positive, and all groups will desire higher levels of education spending following the demand impact of globalization. However, even if we cannot necessarily

\textsuperscript{104} Note that in this set-up we reintroduce the scarcity parameter $b$ in order to isolate the demand-side effect.

\textsuperscript{105} Phrased differently, globalization leads to technology transfer, which changes the production function of companies. Since production now requires increased skilled labor to meet optimal output, the ability of companies to meet this target, and of workers to benefit from their new education, depends on the number of other workers who become educated. Skill biased technical change requires a nationwide increase in education in order to maximize output.
assume such a complementarity, the middle group always prefers higher levels of education provision under the demand effects of globalization because of the boost in the skill premium. Note, though, that as the gap between developed and developing nations decreases, the RHS of Equation (72) is reduced. This implies that the demand-side impact of globalization on education spending decreases as countries get wealthier. Furthermore, this demand-side effect is likely to be stronger in democracies than in autocracies, since it is the middle group who benefit most. These results provide us with Proposition 5.3:

**Proposition 5.3:** Increased integration with the global economy has a larger positive demand-side effect on education spending in developing states than in developed states, and this effect is accentuated under democracy.

### 5.3 Measures of Globalization

In order to grapple with empirically testing the theoretical propositions from the previous section we need to think about how the diffuse concept of ‘globalization’ can be operationalized in a precise manner. The flurry of papers and books about globalization disguises a poverty of reliable measurements. In fact, most economists and political scientists rely on a few trusty variables that operate at a highly aggregated level of analysis, for example capital inflows as a proportion of national income, or total exports and imports.\(^{106}\) In terms of testing theoretical mechanisms, such aggregates may not always be appropriate: they are fairly blunt instruments to test the myriad of causal arguments suggested in the globalization literature, for example, price volatility, regulatory competition, import penetration, technology transfer, and factor price response. Unfortunately, more nuanced data on the composition of trade and on technology transfer is poorly available across the sample of this study. Because of this

---

\(^{106}\) See, for example Rodrik (2000), Boix (2004), Nooruddin and Simmons (2005).
data availability dilemma, this chapter uses two macro-measures of ‘globalization’ to examine the effects of openness on public spending but it is important to be aware of the limitations of aggregate variables.

The first measure used in this chapter is called ‘log openness’ and is calculated by taking the log of exports plus imports over GDP. This variable has been the standard measure for openness used throughout the political economy literature since Cameron (1978). It has the advantage of having a clear economic meaning since it deals directly with the national accounts. Furthermore, logging the variable means that a one point shift in log openness implies a doubling of openness, allowing us to compare substantively important shifts in trade within states, regardless of their typical level of openness. However, this measure is less useful in terms of cross-sectional analysis since very large states tend to have low levels of log openness because of their high levels of internal trade, even if they have nominally open borders. For example, if we were to split the United States into fifty separate countries, most would be world leaders in terms of openness – the fact that they trade with one another is ignored in the log openness variable. In terms of fixed effects analysis this problem matters somewhat less because in this case we are just examining deviations from country means. However, in terms of cross-sectional analysis we must control for area and population in order to try and standardize openness.

A further problem with the openness variable is that it does not directly reflect how sheltered domestic companies are from international competition – the mechanism underlying the technology-transfer skill demand argument outlined in the previous section. While changes in openness may reflect the degree to which countries are relying
on exports – and thus allowing wages to become set by international forces – they do not necessarily account for the imposition of implicit trade barriers that protect import-competitng sectors form international competition. Given these problems with the baseline openness variable, this study also uses a measure of ‘trade orientation’ developed by Michael Hiscox and Scott Kastner (2005). The Hiscox / Kastner measure, which comes in basic and adjusted forms, essentially measures the degree to which states deviate from the ‘optimal’ level of imports that they would be undertaking in a protection-free environment.\footnote{Hiscox and Kastner use the Netherlands in 1964 as their ideal type, against which other states’ trading patterns are measured. Since the measure is created using logs of the relevant variables (i.e. $ln \frac{M}{Y} = ln a + f(lnX) + e$ for a set of independent variables $X$ and country-year dummies $a$), Hiscox and Kastner describe the variable as measuring the ‘percentage reduction in imports due to the deviation of trade policy from the free-trade ‘benchmark’ of the Netherlands in 1964.’}

The measure is created by using a standard gravity model to predict a state’s level of imports from each trading partner but with a dummy variable for each country-year. This dummy variable measures the country-year deviation from the sample mean level of protectionism, once the distance to and income of each trading partner have been controlled for. These dummies are then subtracted from a free-trade benchmark (that is, the highest valued dummy variable: Holland in 1964) and, thus, increasing scores on the index represent greater degrees of implied protectionism. The basic version of the variable uses a simple gravity model incorporating just distance and the income of trading partners and the amended version also controls for the labor and capital ratio between each trading partner (to take comparative advantage more fully into account). The advantage of using the Hiscox / Kastner measure vis-à-vis the log openness measure should be clear. The Hiscox / Kastner measure focuses on the degree of implied protectionism rather than on exposure to trade, picking up policy changes more
effectively than the latter variable. It should also be less affected by the global business cycle than the log openness variable, since it measures deviations from the level of imports that would be predicted by the incomes of other states (plus distance and factor endowments). Fluctuations in the global business cycle that affect the incomes of trading partners should thus be controlled for in the Hiscox / Kastner model but are not explicitly controlled for in the log openness model. Finally, it is worth noting that there should be a direct relationship between the Hiscox / Kastner model and the demand-side formal model developed in the previous section. The demand-side story is one about import penetration leading to technological change, which appears to be more closely related to the Hiscox / Kastner model than the generic log openness model, since the former directly measures the degree to which imports are permitted to penetrate the domestic economy.

5.4 Time Series Analysis of Globalization and Absolute Education Spending

We begin the dynamic analysis of the effects of globalization on education spending by picking up from the analysis conducted in Section 3.4 in Chapter Three. The analysis conducted in that section was intended to focus on the estimated effects of democratization on education spending and for analytical simplicity globalization was not directly incorporated in the regression. Excluding globalization from the analysis in Chapter Three may seem to have been foolhardy. If globalization has a causal impact on public education spending and it is correlated with democracy, by excluding it we are opening ourselves up to the problems of omitted variable bias. With that caveat out of the way it is well worth noting that, in fact, the coefficient estimates for the impact of changes in the Polity variable on education spending are largely unchanged from those obtained in Chapter Three, which helps to justify the presentational decision to keep the tables apart. The estimates obtained in this section are slightly smaller, which is unsurprising considering the positive relationship between openness and democracy but the substantive magnitude of difference is negligible and moreover the standard errors obtained are similarly sized. Thus, we can focus instead in this chapter on the coefficient estimates we obtain for our
openness used in this analysis: the natural logarithm of exports plus imports divided by GDP (henceforth ‘log openness’) and the Hiscox/Kastner basic and adjusted trade orientation measures. Table 5.1 presents both measures with Models A through D using the log openness variable. The data availability for this measure is extremely good, we lose only twenty five observations (out of around fifteen hundred), which means that the dataset is almost identical to that produced in Table 3.1, easing our interpretation of any changes in coefficient estimates. The same set of control variables is included as in Table 3.1. Thus, the only important changes are the addition of the log openness variable and the consequent loss of twenty-five observations.

As in the previous chapter, for our baseline analysis we use a variety of panel data models in order to check for the robustness of our dynamic estimates. Model A uses panel corrected standard errors, as detailed in Section 3.4. In this model we are incorporating both within- and between-country differences in openness with the caveat that we are omitting country-specific idiosyncrasies and are thus open to biased coefficient estimates.\(^{109}\) As in our earlier analysis in Section 3.4 we see fairly moderate coefficient estimates for openness and the Polity variable but a large coefficient estimate for the lagged dependent variable, implying that long-run effects are much larger than short-run effects. The estimated effect of a doubling of openness is just .18 percent points of GDP in the short-run but a dramatic 1.28 percent points in the long-run. This effect is much larger than that produced in the following fixed effects analyses and may reflect cross-country differences in openness more than within-country changes. Since India

---

\(^{109}\) As noted in Green, Kim, and Yoon (2001).
cannot ‘become’ Malaysia in terms of its integration with the global economy because of its size, population, and location, we should expect long-run between country differences to be much more dramatic than within country differences.
Table 5.1: Openness and Absolute Education Spending

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
<th>MODEL E</th>
<th>MODEL F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PCSE</td>
<td>FIXED EFFECTS</td>
<td>IV. REGION</td>
<td>IVS. 5 YR LAGS</td>
<td>HK</td>
<td>HK</td>
</tr>
<tr>
<td>LAG DV</td>
<td>.862 (0.012)**</td>
<td>.608 (0.018)***</td>
<td>.607 (0.018)***</td>
<td>.607 (0.019)***</td>
<td>.648 (0.022)***</td>
<td>.648 (0.022)***</td>
</tr>
<tr>
<td>LOG (OPEN)</td>
<td>.176 (0.049)***</td>
<td>.232 (0.089)***</td>
<td>.224 (0.091)***</td>
<td>.767 (0.447)*</td>
<td>.015 (0.003)***</td>
<td>.015 (0.003)***</td>
</tr>
<tr>
<td>HK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.014 (.003)**</td>
<td>-.015 (.003)***</td>
</tr>
<tr>
<td>POLITY</td>
<td>.006 (.003)**</td>
<td>.012 (.005)**</td>
<td>.015 (.009)*</td>
<td>.030 (.014)**</td>
<td>.012 (.006)**</td>
<td>.012 (.006)**</td>
</tr>
<tr>
<td>POP&lt;15</td>
<td>.001 (.003)</td>
<td>-.015 (.011)</td>
<td>-.015 (.011)</td>
<td>-.012 (.012)</td>
<td>.016 (.013)</td>
<td>.017 (.013)</td>
</tr>
<tr>
<td>LOG (GDP)</td>
<td>-.158 (.180)</td>
<td>2.180 (.833)***</td>
<td>2.120 (.843)***</td>
<td>3.128 (1.011)***</td>
<td>1.531 (1.074)</td>
<td>1.565 (1.073)</td>
</tr>
<tr>
<td>LOG (GDP) SQ.</td>
<td>.004 (.004)</td>
<td>-.041 (.017)</td>
<td>-.040 (.017)**</td>
<td>-.065 (.023)***</td>
<td>-.030 (.021)</td>
<td>-.031 (.021)</td>
</tr>
<tr>
<td>LOG (POP)</td>
<td>-.048 (.023)***</td>
<td>-.012 (.225)***</td>
<td>-.011 (.225)***</td>
<td>-.175 (.241)</td>
<td>-.231 (.259)</td>
<td>-.222 (.258)</td>
</tr>
<tr>
<td>GOVT. EXP</td>
<td>.005 (.004)</td>
<td>.003 (.006)</td>
<td>.003 (.006)</td>
<td>-.001 (.007)</td>
<td>.006 (.009)</td>
<td>.006 (.009)</td>
</tr>
<tr>
<td>YEAR</td>
<td>-.015 (.002)***</td>
<td>-.016 (.006)***</td>
<td>-.017 (.006)***</td>
<td>-.017 (.008)**</td>
<td>-.001 (.007)</td>
<td>-.000 (.007)</td>
</tr>
</tbody>
</table>

**SHORT RUN Δ**

- + .176 *** + .232 *** + .224 ** + .767 * + .260 *** + .275 ***

**LONG RUN Δ**

- + 1.275 *** + .592 *** + .570 ** + 1.952 * + .740 *** + .780 ***

R SQ. 0.87 0.77 0.77 0.72 0.54 0.54
N 1501 1501 1501 1402 1022 1022
COUNTRIES 113 113 113 107 65 65

Standard errors in parentheses * = p < 0.1,  ** = p < 0.05,  *** = p < 0.01
Model B uses a fixed effects analysis, incorporating a dummy variable for each state and thus it measures only within-country changes. This type of analysis is particularly important for looking at openness since there are a number of country-fixed reasons why different states should have different ‘natural’ levels of openness, chief among them area and distance from world markets.\textsuperscript{110} By incorporating a dummy for each state we are essentially differencing out these idiosyncrasies and thus examining a country’s level of integration with the international economy relative to its own average. The results obtained in Model B demonstrate a substantively large and statistically significant effect of the log openness variable on absolute public education spending. The coefficient estimate for the log openness variable is .232, which is significant at the $p < 0.01$ level. A doubling of openness (a one point increase in log openness) is estimated to have the effect of increasing education spending by around a quarter of a percent point in the short-run. In the long run, using our equation for long-run effects\textsuperscript{111}, we estimate that doubling the level of openness in a given period would increase education spending by 0.6 percent points of national income. This is tantamount to an increase of fifteen percent in the average state’s education spending. This effect is similar to, if marginally smaller than, that obtained in Table 3.1 for the effects of full democratization. Put together, a state that fully democratized and doubled in openness would see its public education spending rise by around forty percent. This pattern can be seen in Figure 5.1, which demonstrates the predicted response of education spending to these various shocks.

\textsuperscript{110} As implied by the extensive ‘gravity model’ literature in trade econometrics, e.g. (Timbergen, 1962; Frankel and Romer, 1999).

\textsuperscript{111} $LR = \beta/(1 - \gamma)$, where $\beta$ is our coefficient estimate for openness (multiplied by one for the ‘doubling’ of openness effect) and $\gamma$ is the coefficient estimate for the lagged dependent variable.
A doubling of openness is not uncommon, particularly for states that dabbled in import substitution in the early postwar period. India, for example increased its export and import percentage of national income from eight percent in 1970 to sixteen percent by 1990, and then to thirty one percent by 2002. This quadrupling of Indian education spending would be predicted to lead to an increase in education spending of around 1.2% of national income. The actual outcome in India was not far off this estimate, with public education spending increasing from 2.45% of GDP in 1970 to 4.1% in 2000. While economic growth and the relaxation of political affairs from the Indira Gandhi era are also proximate causes, the pattern of openness tracks that of public education spending quite closely.\footnote{The Indian case is treated in greater detail in Chapter Six.}

Models C and D replicate the fixed effects instrumental variables analysis from Section 3.4, controlling for the potential endogeneity of democracy with respect to
education spending and with Model D also incorporating an instrument for log openness (the five-year lag since regional openness may be endogenous and thus is not an appropriate instrument). The size of the openness estimate in Model C is very similar to that in Model B but when we instrument for openness in Model D we find that the coefficient is dramatically larger, albeit somewhat reduced in statistical significance. The difficulties of finding an effective time-varying instrument for openness mean that the five-year lag may not be the most appropriate choice of instrument. However, we do at least see a large and sustained effect of openness on education spending when we apply it. Finally, the control variables in the baseline analyses have very similar coefficient estimates to those produced in Section 3.4. For example, the estimates for the effect of income growth on education spending remains concave and increasing with similar coefficient estimates and statistical significance.

We now move to an analysis of the Hiscox/Kastner trade orientation measures. Models E and F both use fixed effects regressions but include different versions of the Hiscox/Kastner variables. It is worth noting that the data availability for this measure is far more limited than that of the log openness variable in terms of countries covered. The number of countries under analysis drops precipitously from 113 to 65. Thus, we should, at the least, be cautious about interpreting coefficients on the Polity variable and our other control variables, since the composition of the dataset changes quite dramatically.

---

113 To be precise, we might expect some endogeneity between openness and education spending if increased education led to an expansion of exports in skilled goods. However, we cannot use the regional average of openness as our instrument as we have done for democracy since an expansion of openness in any one state will necessarily lead to an expansion of openness for other regional countries since most trade is regional. Thus regional openness could be directly affected by increased education spending in one country and hence is potentially endogenous.

114 This provides yet further evidence that the exclusion of the openness variable from the analyses in Chapter Three did not constitute serious omitted variable bias.
Nonetheless the countries included in the Hiscox/Kastner dataset are fairly reflective of the regional composition of those in the broader dataset. The countries included in the Hiscox/Kastner dataset are listed in Appendix 5B.

Model E uses the basic Hiscox/Kastner trade orientation variable as its measure of openness. This measure, as noted in Section 5.3, estimates how far from a basic gravity model prediction of trade (area, distance, and population) a state’s pattern of imports lies. This measure has an average of 39.32 in the dataset,\(^\text{115}\) a cross-sectional standard deviation of 14.1, and a within state deviation of 9.3, with larger values representing greater deviations from the optimal level of trade predicted by the basic gravity model (and hence higher implied protectionism). The estimated coefficient on this variable is \(-.014\), with a very high level of statistical significance (a \(t\)-score of 4.5). In terms of interpretation, a useful metric is to imagine a state moving two within-state standard deviations (that is, from the 5\(^{th}\) percentile to the median) or 18.6 points. This is estimated to result in a short-run effect of a .26 percent point of GDP decrease in education spending and a long run effect of .61 percent points of national income. It is worth noting that this first difference is almost identical to that produced by doubling openness. Thus, we have some fairly convincing evidence that the log openness and Hiscox/Kastner variables are measuring a similar phenomena, at least in terms of the estimated magnitude of their effects. Model F uses the Hiscox/Kastner adjusted trade orientation variable, which adjusts the previously used measure for the relative factor compositions of different states. As such, this variable provides a firmer ground for analysis since it measures what states should be trading given their actual endowments rather than the

\(^{115}\) This implies that the average observation is a state importing 39% less than it would do if it matched the ‘free-trade benchmark’ of the Netherlands in 1964, once distance and income measures have been controlled for.
potential endowments taken from a state’s area (much of which might be resource-free) or population. This variable has an almost identical standard deviation as compared to the basic variable so we can interpret the coefficient estimates similarly. In Model F we see that the adjusted model has a marginally higher coefficient, at -.034, leading to a short run effect of .29 percent points of GDP and a long-run impact of .65 percent points of national income.

Overall, the picture of how opening the global economy affects absolute public spending on education is surprisingly similar in magnitude to that of democracy, which we analyzed in Section 3.4. Massive expansions of openness are likely to lead to sustained investment in education – a move from the 5th to 95th percentile on these indices is associated with around 1.3 percent points increase in education spending, which mirrors our largest estimates for the effect of full democratization. Combining the two forces could lead to a doubling in education spending for many autocracies. However, such extreme events are relatively rare and the likely impact in most states is likely to be more incremental – increases of around one third in spending are quite likely: significantly more than a within-state standard deviation in spending. As we come to analyze pure between state effects in the coming sections we shall see even larger predicted effects. Before we do so, it is worthwhile considering if the purported effects of openness analyzed in this section also hold up when we turn to the analysis of relative education spending.
5.5 Time Series Analysis of Globalization and Relative Education Spending

Chapter Three showed a robust dynamic relationship between democratization and increases in the share of the government budget taken by education spending. These empirical results concurred with the theoretical hypothesis developed formally in Chapter Two, which stated that, at the margin, poorer individuals prefer education spending to other public good provision since education’s effect on incomes is fundamentally more redistributive than simple public good provision because of lottery and scarcity effects. However, thinking about the likely effects of greater openness on relative education spending is much more challenging. On the one hand, we saw in the previous section that, through demand and supply effects, integration with the global economy spurred on education spending for a fixed level of government spending. Furthermore, openness lessens the chance of an anti-education ‘ends against the middle’ coalition, where the rich and poor shift education funding into other public goods. Thus, we might expect openness to be associated with higher relative education spending. On the other hand, a substantial literature in political economy suggests that openness is also positively correlated with overall government spending (Cameron 1979, Katzenstein, 1985, Rodrik, 2000). In particular, it appears that advanced industrial nations have erected a variety of compensatory labor market policies that help offset volatility induced by economic openness (Garrett, 1998). Thus, we might expect that the empirical relationship between openness and relative education spending would depend on how far openness also spurs such compensatory policies vis-à-vis education spending.

116 To express this in statistical terms, openness and education spending are positively correlated, even when other government consumption is controlled for.
Education spending and compensatory spending differ fundamentally, both in the manner in which they are impact by openness and in their aims. Section 5.2 argued that the effect of globalization on education spending can be conceptualized as altering the demand for different types of worker and thus the composition of the future workforce. Through education spending the government can, in the long-run, shift the workforce towards a greater skill bias. Compensatory spending, conversely affects members of the current workforce. Thus, globalization could lead to policies for immediate compensation of the workforce (through job creation, protection, or insurance) or to policies that change the future skill composition of the workforce. Thus, this section explores whether the compensatory or compositional forces dominate when states open to the global economy. As we shall see in the following section, it is likely that states at various stages of development will have differing balances in this ratio, with developing states receiving greater levels of technology transfer and hence having greater demand for skills, and wealthier states likely to see greater demands for the compensation of a globally non-competitive unskilled labor force. However, we begin in this section with the baseline analysis of relative education spending examining the impact of globalization in the entire sample.
The empirical analysis in this section follows the same logic as the previous one.

We begin by analyzing the estimated effects of log openness on education spending before turning to the Hiscox / Kastner trade orientation variables. Table 5.2 shows that
the short term estimated effect of a doubling in openness is an increase in education’s share of government spending of around one and a half percent points, which is a very moderate five percent increase from the average of 28%. In the long run these effects increase moderately to between 2.5 and 3.3 percent points, or a change of around ten percent in the average of 28%. These estimated first differences are all statistically significant at the five percent level but substantially they are fairly moderate, especially in comparison to those we obtained in Section 3.5 for full democratization, which produced estimated effects around three times as large.\footnote{The estimated coefficients for democracy are almost identical to those produced in Section 3.5, which again buttresses the decision to analyze them separately.}

We now turn to analysis using the Hiscox / Kastner trade orientation variables. As in the previous section we obtain negatively signed coefficients with a very high level of statistical significance. In terms of their magnitude, a two standard deviation move on the basic and adjusted Hiscox / Kastner variables (in Models E and F) is associated with a short-term change of around one-and-a-half percent points and a long-term change of two-and-a-half percent points in relative education spending (a nine percent change in average relative education spending of 28%). These results are very close to those obtained with the log openness variable, suggesting that both variables are picking up similar effects over the aggregate sample. None of the results are dramatically large but they are confirmatory of the assertion that across the total sample governments appear to be pushing towards compositional rather than compensatory solutions to globalization.

Clearly, our theoretical expectation that the effects of globalization on relative spending should be less dramatic than the effects of democratization has been borne out. The reason for this is the well-known empirical finding, best represented in Rodrik
(2000), that open states have larger governments. Since much of the increase in the size of the government is occurring for compensatory reasons as well as for compositional reasons we should not be surprised that the ratio between these types of government spending does not alter dramatically. Nonetheless, at the margin it seems globalization is forcing governments to bias spending towards public education at the expense of compensation. This logic of globalization suggests that the activist state attempting to create a competitive workforce is edging out the compensatory state. Thus, the message from the empirical tests conducted in this section is that governments appear to have chosen, at the margin, to seize the opportunities proffered by globalization to re-design the factor composition of their workforce, rather than protecting their existing workforce. However, as we examine split samples in the next section, we shall see that this pattern varies considerably between developing and developed states.

5.6 Interaction between Democracy, Income, and Globalization

To this point, we have assumed that democracy and globalization can be examined separably. Certainly, the negligible magnitude of difference between the coefficients we obtain for the Polity variable when we exclude or include the openness variable indicates that this analytical separation is not misleading when we want to examine the individual effect of each variable. However, there may be reason to believe that the effects of democracy and globalization on education spending are more than additive, that they may instead be multiplicative. Might there be a complementarity effect, where only democratic states can absorb the skill-biased technology that follows
from globalization? Conversely, could there be a substitution effect, where openness does not have a further effect on education spending once countries have fully democratized?

Section 5.2 suggested that the openness effect should be considerably weaker in democracies and developed states than in autocracies and developing nations. The autocracy / democracy difference is a corollary of the supply-side argument. Autocracies should have a stronger effect of openness than democracies since it is in these states that the elite, whose wages are negatively affected by further education supply in autarkies, have control of the policymaking process. The developing / developed difference is a corollary of the demand-side argument in that the increased demand for skill generated by technology transfer only affects those states (mostly developing) which did not previously possess the technology. A final further difference is in the area of relative education spending, where we should expect democracies and developed states to be more likely to respond to demands for compensation following opening the economy than autocracies and developing states. Hence the effects of openness on relative spending should be stronger in the latter states than in the former.

In order to get a firmer understanding of these questions, this section breaks up the overall sample into democracies and autocracies and tests the effects of the different measures of openness on absolute and relative education spending. We then move to a slightly different analysis by examining whether the effects of openness are different for states that already have extremely high levels of skill - the advanced industrial nations of the OECD – as compared to the developing world. These analyses of complementary and

118 Furthermore the effect of openness in reducing the likelihood of a rich-poor alliance is more likely to matter in countries more susceptible to an ‘ends against the middle’ coalition: typically, poorer and less democratic states. Hence we should expect the positive impact of openness on relative education spending to be stronger in these states.
substitution effects are, rather aptly, are intended to complement rather than substitute for
the econometric regressions in the previous two sections, which should still be considered
as our baseline. Our theoretical expectations, as laid out above and in Section 5.2, for the
relationship between log openness or the Hiscox/Kastner measure and education
spending are set out below.\textsuperscript{119}

<table>
<thead>
<tr>
<th>LOG OPENNESS</th>
<th>HISCOX / KASTNER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OECD</td>
</tr>
<tr>
<td>Democracy</td>
<td>-</td>
</tr>
<tr>
<td>Autocracy</td>
<td>+</td>
</tr>
</tbody>
</table>

\textsuperscript{119} The predictions are the same for both absolute and relative education spending although the mechanisms
differ somewhat as explained below.
Table 5.3: Democracy Split Samples

<table>
<thead>
<tr>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
<th>MODEL E</th>
<th>MODEL F</th>
<th>MODEL G</th>
<th>MODEL H</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>ABS</td>
<td>ABS</td>
<td>ABS</td>
<td>REL</td>
<td>REL</td>
<td>REL</td>
<td>REL</td>
</tr>
<tr>
<td>AUTOC</td>
<td>DEMOC</td>
<td>AUTOC</td>
<td>DEMOC</td>
<td>AUTOC</td>
<td>DEMOC</td>
<td>AUTOC</td>
<td>DEMOC</td>
</tr>
<tr>
<td>LAG D.V.</td>
<td>.545</td>
<td>.617</td>
<td>.585</td>
<td>.681</td>
<td>.626</td>
<td>.296</td>
<td>.653</td>
</tr>
<tr>
<td></td>
<td>(.031)**</td>
<td>(.042)**</td>
<td>(.046)**</td>
<td>(.027)**</td>
<td>(.035)**</td>
<td>(.015)**</td>
<td>(.044)**</td>
</tr>
<tr>
<td>OPENNESS</td>
<td>.307</td>
<td>.078</td>
<td>1.886</td>
<td>.214</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.141)**</td>
<td>(.126)</td>
<td>(1.015)*</td>
<td>(1.047)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HISCOX</td>
<td>- .202</td>
<td>- .019</td>
<td></td>
<td></td>
<td>- .074</td>
<td>- .110</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.006)**</td>
<td>(.004)**</td>
<td></td>
<td></td>
<td>(.037)**</td>
<td>(.036)**</td>
<td></td>
</tr>
<tr>
<td>POP &lt; 15</td>
<td>-.040</td>
<td>.016</td>
<td>-.002</td>
<td>.018</td>
<td>-.079</td>
<td>.053</td>
<td>-.027</td>
</tr>
<tr>
<td></td>
<td>(.020)**</td>
<td>(.016)</td>
<td>(.024)</td>
<td>(.017)</td>
<td>(.136)</td>
<td>(.132)</td>
<td>(.165)</td>
</tr>
<tr>
<td>LOG GDP</td>
<td>2.912</td>
<td>2.731</td>
<td>2.033</td>
<td>1.959</td>
<td>8.097</td>
<td>37.740</td>
<td>4.836</td>
</tr>
<tr>
<td></td>
<td>(1.484)*</td>
<td>(1.125)**</td>
<td>(2.206)</td>
<td>(1.269)</td>
<td>(10.324)</td>
<td>(9.363)**</td>
<td>(15.177)</td>
</tr>
<tr>
<td>LOG GDP SQ</td>
<td>-.061</td>
<td>-.053</td>
<td>-.041</td>
<td>-.043</td>
<td>-.136</td>
<td>-.689</td>
<td>-.137</td>
</tr>
<tr>
<td></td>
<td>(.031)**</td>
<td>(.022)**</td>
<td>(.044)</td>
<td>(.024)*</td>
<td>(.215)</td>
<td>(.184)**</td>
<td>(.300)</td>
</tr>
<tr>
<td>LOG POP</td>
<td>.498</td>
<td>-.206</td>
<td>.495</td>
<td>-.406</td>
<td>2.294</td>
<td>-.739</td>
<td>-.434</td>
</tr>
<tr>
<td></td>
<td>(.529)</td>
<td>(.348)</td>
<td>(.767)</td>
<td>(.370)</td>
<td>(3.795)</td>
<td>(2.901)</td>
<td>(5.143)</td>
</tr>
<tr>
<td>GOVT. EXP.</td>
<td>-.000</td>
<td>.011</td>
<td>-.000</td>
<td>-.004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.011)</td>
<td>(.007)</td>
<td>(.017)</td>
<td>(.012)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>-.023</td>
<td>-.003</td>
<td>-.016</td>
<td>.009</td>
<td>-.112</td>
<td>-.053</td>
<td>.210</td>
</tr>
<tr>
<td></td>
<td>(.017)</td>
<td>(.008)</td>
<td>(.025)</td>
<td>(.009)</td>
<td>(.119)</td>
<td>(.062)</td>
<td>(.172)</td>
</tr>
<tr>
<td>SHORT RUN</td>
<td>(\Delta)</td>
<td>+ .307**</td>
<td>+ .078</td>
<td>+ .348***</td>
<td>+ .239***</td>
<td>+ 1.886*</td>
<td>+ .214</td>
</tr>
<tr>
<td>LONG RUN</td>
<td>(\Delta)</td>
<td>+ .675**</td>
<td>+ .204</td>
<td>+ .839***</td>
<td>+ .750***</td>
<td>+ 5.043*</td>
<td>+ .304</td>
</tr>
<tr>
<td>N</td>
<td>680</td>
<td>822</td>
<td>377</td>
<td>639</td>
<td>672</td>
<td>820</td>
<td>376</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>73</td>
<td>77</td>
<td>39</td>
<td>48</td>
<td>72</td>
<td>76</td>
<td>39</td>
</tr>
<tr>
<td>R-SQ</td>
<td>0.41</td>
<td>0.52</td>
<td>0.42</td>
<td>0.60</td>
<td>0.39</td>
<td>0.38</td>
<td>0.45</td>
</tr>
</tbody>
</table>

All regressions use country fixed effects. Models A through D measure absolute education spending as a proportion of national income. Models E through H measure relative education spending as a proportion of overall government spending. Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01.
Table 5.3 begins the analysis by splitting the sample into those states that score greater than seven on the Polity score and those that score seven or less. This split has been chosen because it closely mirrors that used by Alvarez et al (2000) in their dummy variable formulation while permitting us to retain the basic distinctions of the Polity variable. Models A through D at absolute education spending. Models A and C use the autocracy sub-sample, containing 73 states for log openness and 39 for the Hiscox / Kastner variable. Models B and D use the democracy subsample, containing 77 states for log openness and 48 for the Hiscox / Kastner variable. Models A and B use log openness and Models C and D use the Hiscox / Kastner variable. For each measure of openness the sub-samples are of similar size, although they are likely to differ on a variety of other important measures like income and government spending.

Beginning with the analysis of log openness, Models A and B differ greatly in their predicted impact. For the group of autocracies the estimated coefficient on log openness has increased around fifty percent from its full sample magnitude, whereas for democracies, although openness remains positive, its effect is weak and statistically insignificant. As we shall see, part of the reason for this is that many democracies are already highly open to trade and most important changes occur in terms of their level of

---

120 It should be noted that this split does not ‘preserve’ countries: that is, if a country democratizes it ‘moves’ from one sub-sample to the other. What we are testing here, then, is the effects of openness (plus the other control variables) for countries that are or are not democratic. These tables do not tell us anything about the process of democratization – rather they assume that Spain in 1960 and Spain in 1980 can be analyzed as different types of unit, with a different impact of globalization on education spending.

121 For each measure of openness the total countries in the two sub-samples is larger than the total number of countries in the earlier analyses because some countries are switching from autocracy to democracy and are thus included in both sub-samples.

122 Of course, these variables are controlled for in the analysis but it should be clear that we do not have a split samples that differ on only one variable, as in a quasi-experimental or matching analysis.
non-tariff protectionism, which will be picked up better by the Hiscox / Kastner variable. Nonetheless, this is a fairly dramatic picture. It appears that countries can crudely substitute openness for democracy in terms of education spending, in as much as openness does have a substantial impact on education spending for autocracies, and a far smaller perhaps negligible one for democracies. This is because autocracies, unlike democracies, permit the ‘elite’ to block the provision of education spending. Globalization reduces the incentives of the elite to block education, since scarcity effects on the elite’s children are reduced. However, this force only matters where the elite actually control political decision-making.

However, this possible argument for substitution is not replicated in the analysis in Models C and D which use the Hiscox / Kastner measures. In these models both democracies and autocracies see a positive impact from increasing their trade orientation (that is, lowering their scores on the Hiscox / Kastner variable). The effect is only marginally smaller for democracies, which indicates that the Hiscox / Kastner variables are picking up different interactive effects to the log openness variables. There is some reason to believe that the Hiscox / Kastner variables are more closely related to the demand-side argument about technology transfer since they measure the degree to which the import-competition sector is sheltered from competition. The supply argument is more closely related to overall openness of the economy, since it relies on both imports and exports equalizing good and factor prices (picked up better by the log openness variable). Thus, we have some evidence that distinguishing between democracies and autocracies in terms of the effects of openness seems to be playing out on the supply-side rather than demand-side of globalization, as suggested by the hypotheses in Section 5.2. It is
important to note though, that we see robust results linking the Hiscox / Kastner trade orientation index to education for both groups of countries. The demand-side effects of globalization through technology transfer appear to be strong in both democracies and autocracies.

Moving on to Models E through H, which analyses relative education spending instead we see a very similar pattern. Models E and F, which use the log openness variable again replicate the result of positive (if not especially robust) effects of openness on education for autocracies with a weak and insignificant effect for democracies. Part of the reason for this distinction is likely to be the supply-side effect noted earlier – that elite control in autocracies means that the supply-effects of globalization will have stronger effects on education spending than in democracies. A second reason, discussed in the previous section, is the possibility that democracies are more likely than autocracies to engage in compensatory strategies (that is, non-education spending) to globalization. However, with Models G and H, which use the Hiscox / Kastner variable we again see similar positive effects of trade orientation on education for both democracies and autocracies. Thus, it seems likely that the demand-side effect is manifest for both kinds of regime. Overall, this table provides suggestive evidence that the impact of openness may be stronger in autocracies than in democracies but it is not clear that this impact is conditional on being an autocracy but merely amplified. Moreover, it appears that the effect is only stronger for autocracies in terms of the supply-side effects of globalization rather than the demand-side, as suggested in Section 5.2.
Table 5.4: Income Split Samples

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
<th>MODEL E</th>
<th>MODEL F</th>
<th>MODEL G</th>
<th>MODEL H</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NON-OECD</td>
<td>.585</td>
<td>.706</td>
<td>.614</td>
<td>.685</td>
<td>.371</td>
<td>.666</td>
<td>.321</td>
<td>.662</td>
</tr>
<tr>
<td>OECD</td>
<td>(.022)***</td>
<td>(.034)***</td>
<td>(.030)***</td>
<td>(.035)***</td>
<td>(.016)***</td>
<td>(.035)***</td>
<td>(.018)***</td>
<td>(.035)***</td>
</tr>
<tr>
<td>REL</td>
<td>.310</td>
<td>-.791</td>
<td>1.499</td>
<td>-2.233</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NON-OECD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OECD</td>
<td>(.101)***</td>
<td>(.216)***</td>
<td></td>
<td>(.741)**</td>
<td></td>
<td>(.1040)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJUSTED HK</td>
<td>-.018</td>
<td>.008</td>
<td>-.085</td>
<td>.056</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.004)***</td>
<td>(.007)</td>
<td></td>
<td>(.032)***</td>
<td></td>
<td>(.036)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLITY</td>
<td>.011</td>
<td>.068</td>
<td>.009</td>
<td>.066</td>
<td>.191</td>
<td>.296</td>
<td>.220</td>
<td>.311</td>
</tr>
<tr>
<td></td>
<td>(.005)**</td>
<td>(.013)***</td>
<td>(.005)*</td>
<td>(.014)***</td>
<td>(.045)***</td>
<td>(.065)***</td>
<td>(.058)***</td>
<td>(0.068)***</td>
</tr>
<tr>
<td>POP &lt; 15</td>
<td>-.025</td>
<td>.052</td>
<td>.004</td>
<td>.049</td>
<td>-.178</td>
<td>.196</td>
<td>-.003</td>
<td>.179</td>
</tr>
<tr>
<td></td>
<td>(.013)*</td>
<td>(.021)**</td>
<td>(.016)</td>
<td>(.022)**</td>
<td>(.111)</td>
<td>(.101)*</td>
<td>(.139)</td>
<td>(1.02)*</td>
</tr>
<tr>
<td></td>
<td>(1.061)*</td>
<td>(1.797)*</td>
<td>(1.507)</td>
<td>(1.924)*</td>
<td>(8.770)*</td>
<td>(8.445)**</td>
<td>(13.150)</td>
<td>(8.883)**</td>
</tr>
<tr>
<td>LOG GDP SQ</td>
<td>-.037</td>
<td>-.068</td>
<td>-.007</td>
<td>-.081</td>
<td>-.218</td>
<td>-.607</td>
<td>-.153</td>
<td>-.680</td>
</tr>
<tr>
<td></td>
<td>(.022)*</td>
<td>(.034)*</td>
<td>(.030)</td>
<td>(.037)**</td>
<td>(.181)</td>
<td>(.161)**</td>
<td>(.260)</td>
<td>(.168)**</td>
</tr>
<tr>
<td>LOG POP</td>
<td>.483</td>
<td>-.310</td>
<td>.781</td>
<td>-.413</td>
<td>3.610</td>
<td>2.984</td>
<td>2.917</td>
<td>4.008</td>
</tr>
<tr>
<td></td>
<td>(.324)</td>
<td>(.806)</td>
<td>(.493)</td>
<td>(.872)</td>
<td>(2.751)</td>
<td>(3.857)</td>
<td>(4.233)</td>
<td>(4.100)</td>
</tr>
<tr>
<td>GOVT. EXP.</td>
<td>.006</td>
<td>-.026</td>
<td>.009</td>
<td>-.022</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.007)</td>
<td>(.018)</td>
<td>(.011)</td>
<td>(.018)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>-.032</td>
<td>.024</td>
<td>-.029</td>
<td>.018</td>
<td>-.251</td>
<td>.148</td>
<td>-.092</td>
<td>.102</td>
</tr>
<tr>
<td></td>
<td>(.010)***</td>
<td>(.010)**</td>
<td>(.015)*</td>
<td>(.012)</td>
<td>(.084)***</td>
<td>(.048)**</td>
<td>(.133)</td>
<td>(.056)*</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>30.951</td>
<td>-73.207</td>
<td>39.085</td>
<td>-68.512</td>
<td>240.500</td>
<td>-603.392</td>
<td>50.692</td>
<td>-587.998</td>
</tr>
<tr>
<td></td>
<td>(17.852)*</td>
<td>(30.467)**</td>
<td>(26.393)</td>
<td>(31.131)**</td>
<td>(149.238)</td>
<td>(140.2)***</td>
<td>(229.001)</td>
<td>(140.9)**</td>
</tr>
<tr>
<td>SHORT RUN</td>
<td>+.310 ***</td>
<td>-.791 ***</td>
<td>+.328 ***</td>
<td>-.088</td>
<td>+1.499 **</td>
<td>-2.233 **</td>
<td>+1.539***</td>
<td>-.616</td>
</tr>
<tr>
<td>LONG RUN</td>
<td>+.747 ***</td>
<td>-2.690 ***</td>
<td>+.844 ***</td>
<td>-.279</td>
<td>+2.383 **</td>
<td>-6.706 **</td>
<td>+2.281***</td>
<td>-1.822</td>
</tr>
<tr>
<td>N</td>
<td>1122</td>
<td>379</td>
<td>647</td>
<td>375</td>
<td>1113</td>
<td>378</td>
<td>648</td>
<td>374</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>92</td>
<td>21</td>
<td>45</td>
<td>20</td>
<td>90</td>
<td>21</td>
<td>45</td>
<td>20</td>
</tr>
<tr>
<td>R-SQ.</td>
<td>0.48</td>
<td>0.64</td>
<td>0.49</td>
<td>0.66</td>
<td>0.39</td>
<td>0.63</td>
<td>0.41</td>
<td>0.63</td>
</tr>
</tbody>
</table>

All regressions use country fixed effects. Models A through D measure absolute education spending as a proportion of national income. Models E through H measure relative education spending as a proportion of overall government spending. Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01.
Table 5.4 replicates the analysis in the previous table but divides the sample in a different manner. In this table the sub-samples are divided according to whether states are the original members of the OECD or not. This group includes most of the wealthy North American, Oceanian and European nations, as well as Japan, but excludes the wealthier ex-communist states, Turkey, Korea, and Mexico. These states all have a relative abundance of skilled labor in comparison to the developing non-OECD nations, with democratic governments and relatively high degrees of openness. In particular, we should expect that changes in log openness are likely to reflect economic shocks rather than direct trade policy decisions, since these states are generally highly open. This implies that the effects of log openness on education spending could be negative, if a sudden increase in trade reflects a collapse in the currency or some other macroeconomic shock.

We also saw in Table 5.3 that because these states are all democratic (excepting Southern Europe in before the 1980s, see Chapter Six) we should expect the supply-side effect of globalization to be unimportant, since the elite do not control decision-making. Moreover, now that we are splitting by income we should also expect the demand-side effects of globalization on education spending to be much weaker. High skill states do not experience the process of technology transfer experienced by developing states because they are the originators of that technology themselves. Thus, globalization will not lead to increased skill demand through technology transfer in advanced states. Finally, we should expect the impact of openness on relative spending to differ in developed states because of their greater propensity to engage in compensatory strategies to protect their unskilled workforce. Openness could thus see compensatory policies outweigh education spending.

123 These latter states are excluded because their workforce has not been fully high-skilled by international standards during the period of analysis.
Thus for these four reasons - existing openness, democracy, lack of technology transfer, and compensatory spending - we should expect that developed states will not experience positive effects of openness on education spending and that, if anything, the impact is likely to reverse.

Examining Models A and B in Table 5.4, we see this pattern emerge clearly. For non-OECD states the effect of openness increasing is strongly positive on absolute education spending but for the OECD states it is negative. In fact, this negative pattern for OECD states is significantly larger than the positive effect in developing states. It appears that the argument about changes in openness reflecting macroeconomic shocks in developed states is supported by the evidence here. It is worth noting that this does not appear to be a function of decreased overall government spending. Thus, it appears that when these shocks hit developed states they substitute other government spending for education spending, given a fixed budget (we shall also see this pattern in Table 4.7b). One cautionary note worth dwelling on is that the likely changes in log openness are smaller for the developed states than those for non-developed states (a standard deviation of 0.2 versus 0.3). Thus, we should not exaggerate the magnitude of the negative likely effect on education spending in developed states. However, it certainly appears that advanced countries have do not face the positive technological incentives to invest in education induced by globalization that we see in developing nations.

When we look at the Hiscox / Kastner measure, which is more representative of trade orientation rather than international economic shocks, we see a sharp difference with the results in Table 5.3. Whereas the trade orientation variable had the same positive effect on education spending in both autocracies and democracies, this is not the case in
Table 5.4. Instead, while increased trade orientation is strongly associated with increased education spending in developing states there is no robust effect in developed states. It is worth considering what this piece of evidence implies. Unlike the log openness variable, the Hiscox / Kastner variable is more robust to macroeconomic shocks; hence we do not see a strong negative impact of openness on education spending in advanced states. However, nor do we see the positive impact of trade orientation on education spending that we saw for autocracies, democracies, and developing countries. This is not surprising, since Section 5.2 argued that the demand-side impact of globalization should not impact advanced countries since they do not receive technology transfer. Thus, the evidence from Table 5.4 implies that the effects of openness on advanced states are, if anything, negative; but they are negative because changes in openness imply economic volatility rather than a choice to engage with the international economy. Developing states, conversely, see positive effects on education spending, partly through the demand-side effect of technology transfer.

We see a similar pattern in Models E through H, which examine relative education spending. Again, for non-OECD states, openness always has the expected strong positive impact on education spending as a proportion of overall government spending. However, within the OECD we see the same negative impact of log openness on education spending as in Model B, albeit this time for relative education spending. The results for the Hiscox / Kastner variable are also similar to Models C and D, with a strong positive effect of trade orientation on education spending in developing states but a statistically insignificant impact in developed states. What do these results imply? Again, it appears that the impact in developed states is limited to openness-induced
shocks. These shocks lead the government to engage in compensatory spending at the expense of education spending. Since education spending does not immediately counter economic volatility like more typical Keynesian stabilization policies, globally-induced shocks push up other government spending (as in the logic of Cameron, 1979, and Rodrik, 2000) rather than education spending. Since the Hiscox / Kastner measure is less reflective of these volatility issues than the log openness variable, we see a negligible impact of openness on education spending in advanced states when we use this variable instead. This implies that the sole important effect of openness on education spending in advanced states is an indirect one of economic volatility. However, for developing countries the story is reversed. In these states the impact of globalization is positive, partly through the technology transfer mechanism and partly because of less compensatory spending in these states.124

We have thus found a crucial difference between developed and developing states in the impact of openness on education. As we shall see in Chapter Seven, the real driver of education spending in advanced states is partisan politics. For the far larger developing world, however, openness is an enormous spur to greater investment in education. This may appear a counterintuitive result given the folk wisdom of a ‘race to the bottom’ crushing spending in these states. However, it appears instead that globalization, by pushing technology transfer into the developing world, is actually leading to a race to become skilled.

124 As well as the supply-side effects of globalization in those developing states that are autocracies.
5.7 Cross-sectional Analysis of Globalization

To this point, our analysis of globalization has largely concentrated on within-country changes in openness. This strategy certainly makes sense in terms of tracing the mechanisms developed in the formal model in Section 5.2. The model examines the response of education spending to changes in any particular state’s level of openness, thus empirical tests should also be focused on within-state changes. Moreover, because openness is so highly determined by country-specific geographic and demographic factors, differencing these out by using fixed effects analysis is the most appropriate way to examine potential changes in openness. Nonetheless, cross-sectional analysis is helpful in terms of permitting us to establish which types of countries are particular outliers to the general theory and to control for the effects of area and region in a way we cannot achieve in fixed effects analysis. Moreover, it allows us to conduct a series of robustness checks that are not easily interpretable in the dynamic regressions.

Table 5.5 presents a very similar set of models as those used in Section 3.6. The cross-sectional data is taken from averaging across all time periods in the five-yearly dataset: this leaves us with 113 observations. The main differences in terms of model specification are the inclusion of the log openness variable\textsuperscript{125} and an extra variable measuring the area of countries (log of millions of miles squared), which was excluded from the fixed effects analysis. It is important in cross-sectional analysis to control for area when attempting to analyze the supposed effects of openness since smaller countries almost necessarily will have higher levels of openness than larger ones as they tend to be self-sufficient in fewer goods. Moreover, it may be that smaller countries spend

\textsuperscript{125} We use this variable rather than the Hiscox / Kastner variable since it has twice the number of available countries.
systematically different amounts on education as a percentage of national income if the provision of education does not display constant returns to area. Since the model in Chapter Two suggests that the expansion of education to more citizens becomes increasingly costly, partly because of the extra marginal costs of providing education at the frontier or in rural areas as compared to the metropolis, we might expect smaller countries to spend less on education because of the lower cost of expanding education provision within a more confined space. As before, we also control for region and whether states had a communist experience (coefficients excluded from the table).

Model A provides the baseline cross-sectional analysis, adjusting the basic OLS results only for heteroskedasticity by using Huber-White robust standard errors (the null hypothesis of homoskedasticity is rejected at $p < 0.01$, when a Breusch-Pagan test is conducted). Fortunately, the inclusion of openness and area does not greatly affect the coefficient estimates of the control variables and the Polity score as compared to Table 3.4. The Polity score is almost identical, being just ten percent lower than in Table 3.4, demonstrating again that omitting openness from those previous regressions did not affect matters substantively. More interesting is the coefficient estimate for the log openness variable, which stands at 1.376, meaning that a doubling of openness should be associated with an increase in public education spending of 1.38 percent points of national income (or an increase in average education spending of around thirty-five percent). This is, in fact, substantially larger than the long-run effect taken from the dynamic analysis of 0.6 percent points. This suggests that measuring the difference in education spending between states that are highly open and those that are less open is

---

126 It is worth noting that controlling for population helps to deal with this difficulty since population and area are strongly positively correlated (0.48 within this cross-sectional dataset).
picking up other permanent characteristics of these states related to openness that are omitted from the cross-sectional regression. Put another way, the difference between Thailand and Malaysia in openness (with the latter having an average openness level double the former) should be associated with a greater difference in education spending than the difference in education spending that Thailand alone would receive if its openness doubled. Figure 5.2, an added variable plot, demonstrates these cross-sectional patterns associated with openness.

Figure 5.2: Added Variable Plot for Log Openness
Table 5.5: Cross-Sectional Effect of Openness

<table>
<thead>
<tr>
<th></th>
<th>MODEL A ROBUST SE</th>
<th>MODEL B REGION SE</th>
<th>MODEL C EX. HAT</th>
<th>MODEL D EX. RSTUD</th>
<th>MODEL E EX. COOKSD</th>
<th>MODEL F ROBUST REG.</th>
<th>MODEL G QUANTILE REG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLITY</td>
<td>.091</td>
<td>.091</td>
<td>.081</td>
<td>.074</td>
<td>.076</td>
<td>.078</td>
<td>.099</td>
</tr>
<tr>
<td></td>
<td>(.027)***</td>
<td>(.020)***</td>
<td>(.025)***</td>
<td>(.022)***</td>
<td>(.025)***</td>
<td>(.027)***</td>
<td>(.030)***</td>
</tr>
<tr>
<td>LOG OPEN</td>
<td>1.376</td>
<td>1.376</td>
<td>1.688</td>
<td>1.158</td>
<td>1.525</td>
<td>1.586</td>
<td>1.747</td>
</tr>
<tr>
<td></td>
<td>(.444)***</td>
<td>(.638)*</td>
<td>(.456)***</td>
<td>(.393)***</td>
<td>(.433)***</td>
<td>(.403)***</td>
<td>(.791)**</td>
</tr>
<tr>
<td>LOG AREA</td>
<td>.282</td>
<td>.282</td>
<td>.211</td>
<td>.203</td>
<td>.183</td>
<td>.211</td>
<td>.350</td>
</tr>
<tr>
<td></td>
<td>(.118)**</td>
<td>(.175)</td>
<td>(.109)*</td>
<td>(.081)**</td>
<td>(.101)*</td>
<td>(.100)**</td>
<td>(.223)</td>
</tr>
<tr>
<td>POP &lt; 15</td>
<td>.055</td>
<td>.055</td>
<td>.034</td>
<td>.00</td>
<td>.043</td>
<td>.009</td>
<td>.004</td>
</tr>
<tr>
<td></td>
<td>(.040)</td>
<td>(.039)</td>
<td>(.040)</td>
<td>(.034)</td>
<td>(.037)</td>
<td>(.037)</td>
<td>(.068)</td>
</tr>
<tr>
<td></td>
<td>(1.257)***</td>
<td>(1.642)***</td>
<td>(1.597)**</td>
<td>(.967)**</td>
<td>(1.208)**</td>
<td>(1.266)**</td>
<td>(2.101)</td>
</tr>
<tr>
<td>LOG GDP SQ</td>
<td>.087</td>
<td>.087</td>
<td>.069</td>
<td>.061</td>
<td>.072</td>
<td>.062</td>
<td>.060</td>
</tr>
<tr>
<td></td>
<td>(.026)***</td>
<td>(.034)**</td>
<td>(.034)**</td>
<td>(.021)***</td>
<td>(.025)***</td>
<td>(.027)**</td>
<td>(.043)</td>
</tr>
<tr>
<td>LOG POP</td>
<td>-.408</td>
<td>-.408</td>
<td>-.177</td>
<td>-.355</td>
<td>-.209</td>
<td>-.183</td>
<td>-.211</td>
</tr>
<tr>
<td></td>
<td>(.278)</td>
<td>(.360)</td>
<td>(.280)</td>
<td>(.252)</td>
<td>(.262)</td>
<td>(.223)</td>
<td>(.490)</td>
</tr>
<tr>
<td>GOVT. EXP</td>
<td>.045</td>
<td>.045</td>
<td>.022</td>
<td>.030</td>
<td>.038</td>
<td>.027</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>(.040)</td>
<td>(.044)</td>
<td>(.035)</td>
<td>(.028)</td>
<td>(.038)</td>
<td>(.031)</td>
<td>(.075)</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>42.905</td>
<td>42.905</td>
<td>30.781</td>
<td>30.282</td>
<td>31.279</td>
<td>27.201</td>
<td>26.449</td>
</tr>
</tbody>
</table>

N 113   113 113 103 103 103 113 113
R-SQ 0.56 0.56 0.63 0.70 0.66 0.55 0.41

Standard errors in parentheses * = p < 0.1,  ** = p < 0.05,  *** = p < 0.01

It is also worth examining the estimated coefficient for the log area variable, which is 0.28 and statistically significant at the p < 0.05 level (implying a country two times the size of another spends one quarter of a percent of GDP more on education, all else equal). This coefficient estimate supports the hypothesis that larger states have to spend more on education, even controlling for population, because of the difficulty in expanding provision to border regions and thus provides strong support for the
assumptions on increasing marginal cost underlying the formal model. Note also that there is weak evidence that increases in population, controlling for area, will reduce education spending. Again, this is not unexpected, since it implies greater density of population, which according to the assumptions underlying the formal model, should reduce the marginal cost of education. It is worth noting that this variable is negative and statistically significant if we do not control for area. Thus, it appears that the impact of a country’s size on education spending is not a function of simple economies of scale (as it might appear if we run the regression without including area) but rather of the interplay between a country’s geographical size and population density, with the former increasing marginal costs and the latter decreasing marginal costs of education.127

Models C through E, as in Section 3.6, remove influential observations in order to ascertain whether our results are being driven by particular outliers. Model C removes the ten observations with the greatest leverage (extremity on the independent variables). As before, we see a mild reduction in the coefficient estimate for Polity but, in fact, a large increase for the log openness variable to 1.69. Model D removes those observations with the largest studentized residuals – those that are extreme education spenders. The log openness variable drops back to just under its level in models A and B, which is an encouraging sign for the earlier models since those estimates are clearly not dependent on extreme spenders. Model E drops those countries with the most influential variables as

127 However, the effects of region on openness appear to change this pattern of robustness. If we analyze the estimate of a country’s openness on education spending once regional patterns of openness are controlled for, we find that our standard error estimates are somewhat inflated and the openness variable is only significant at the $p < 0.10$ level. Why is this the case? Since openness by its very nature is an interactive concept, and because most states trade predominantly within their own region, we find that regional effects on education spending tend to be quite pronounced, especially if we are both controlling for regional effects as dummy variables and clustering standard errors by region. If we remove the dummy variables but continue to use regional clustering, the estimate on log openness re-enters statistical significance at the $p < 0.01$ level. Nonetheless, it is worth noting that the independence of observations assumption is always somewhat suspect when dealing with trade data.
measured by Cook’s Distance, which essentially combines the leverage and residual results of the previous two Models. As might be expected, this Model finds coefficient estimates for log openness that are between the two previous models at around 1.53 percent points of national income for a doubling of openness.

Models F and G use non-OLS techniques of robust regression to explore our coefficient estimates further. Model F applies the ‘iterated robust regression’ technique, where observations are down-weighted according to their Cook’s Distance scores. We see a strong result for the log openness variable at 1.59, similar to Model E (unsurprisingly given their similar construction). The Polity, log area, and other control variables retain their levels of significance and similar coefficient estimates to before. This provides further evidence that our results on the effects of openness at the cross-sectional level and are not being solely driven by outliers. Indeed, it seems that once outliers are down-weighted the estimated impact of openness is fifteen percent higher. Model F, which uses quantile regression, as in Section 3.6, finds the largest coefficient estimates for Polity and log openness but all other variables are greatly reduced in statistical significance. This provides further evidence that the effects of democracy and openness are the most robust explanators of education spending, even more so than the intuitively important demographic variables like income and population. Overall, the cross-sectional results suggest that impact of openness is solidified over the very long term into permanent cross-country differences in education spending.
5.8 Conclusion

Although trade policy and education policy may seem almost tangential, this chapter has shown that education spending is deeply affected by global integration and that this relationship, despite the traditional view of globalization as threatening to public spending, is in fact robustly positive for the most part. While rich advanced democracies might occasionally sacrifice education spending during trade-induced recessions, elsewhere the impact of the global economy on education is benign. Globalization forces up demand for skills because it facilitates technology transfer. Hence would-be students in developing nations have the most to gain from global integration. Furthermore, globalization can even encourage those erstwhile enemies of education, autocracies, to expand their education spending, as harmful scarcity effects are dissolved. Thus, as the global economy expands, the friends of education need not fear a ‘race to the bottom’; instead, an integrated world should mean an educated world.
6.1: Introduction

Statistical analysis in the previous three chapters has confirmed a substantively strong and statistically robust relationship between public education spending and our two chief causal candidates – democracy and openness. However, even after running this battery of tests our candidates remain just that – correlations alone cannot directly test causation, though they can examine patterns of association at points along the supposed causal chain. To really get a handle on whether the causal mechanisms developed in Chapter Two are actually manifest, we need to examine the historical experience of a variety of states in much greater detail. By tracing through the process suggested by the model in a variety of case studies, this chapter attempts to provide further confirmation that the alleged effects of democracy and globalization on education spending are more than mere association.

The chapter begins by examining changes in both democracy and globalization and their effects on education spending in the Philippines. We see firstly that the tumultuous experience with different political regimes in the Philippines since the sixteenth century has had very powerful effects on education funding, particularly during
and following the period of martial law declared under Ferdinand Marcos. The volatility of political representation in the Philippines demonstrates both the positive effect on education that follows independence and democratization and the negative effects on education of colonialism, empire, and autocracy. The Philippines has also experienced significant vacillation in its degree of integration with the international economy. Again, we will see how closely this has tracked education spending but we shall also see that agricultural openness unaccompanied by openness in manufacturing (as was experienced under Marcos’ ill-fated green revolution) does not appear to have the same beneficial effects as more general openness because agriculture is not skill-biased and thus does not increase demand for education as argued in Chapter Five.

The chapter then moves to a comparison of two critical cases that demonstrate the separate effects of democracy and openness. In particular, we examine the case of India, a democracy with surprisingly low education spending, and Malaysia, an autocracy with surprisingly high education spending. As we shall see, the key difference between the states has been their level of integration with the international economy over the past several decades. The failure of India to adequately invest in education is infamous and while many authors have blamed this on the caste system (Subrahmanian, 2005) or opportunities to engage in child labor (Weiner, 1991), the recent opening of the international economy has spurred education spending while those other factors have remained constant.\footnote{In the case of child labor, openness has, if anything, probably increased returns to child labor, which in Weiner’s thesis would imply reduced participation in education.} Thus, it appears that India’s experimentation with import substitution led to severe contraction in education spending. The Malaysian (and indeed Singaporean) case of autocratic but economically open government, represents a familiar
pattern in East Asian development, where export orientation was accompanied by increased education spending, even under authoritarianism.

Finally, we examine a set of states that experienced sudden shocks to both democracy and openness. The three Southern European states of Portugal, Spain, and Greece all experienced sudden democratizations in the 1970s and then all joined the European Community during the 1980s. As we shall see both of these shocks were followed in all three cases by increases in education spending. The suddenness and temporal separation of these events provide a useful way of distinguishing the effects of democracy and openness on education spending from other potentially important but gradual forces like economic growth – they allow us to imitate an interrupted time series methodology. Most importantly, they allow us to separate out the effects of democratization and opening from one another because these events were undertaken a decade apart.

Before commencing with the specific case analyses it is worthwhile discussing the logic behind this case selection and the methodological aims of this section with regard to the use of case studies more generally. Case selection is a treacherous methodological terrain. Typically analysts face the temptation to choose only to examine those cases that are most supportive to their argument. If case comparison is used as a misleading way of essentially narrowing the dataset to the point that correlation between variables of interest is perfect, this rather negates the point of the exercise. Instead cases should be used to explore the causal mechanism postulated by the author, rather than as a demonstration of correlation – the latter task being better suited to statistical analysis. Given this emphasis on causation, it is imperative to choose cases where there is
significant change *within* states. Thus examining the Philippines and the Southern European states provides significant within state variation across a broad variety of states. Critically, the Filipino case also allows us to examine both democratizing and autocratizing events, as well as a volatile relationship with the international economy. It is imperative to examine if the purported effects of democracy and openness on education spending operate in ‘both’ directions.

A second aim of case analysis is to clearly define changes in the independent variables of interest in order to examine their consequent effects on education spending. Sharply defined phenomena should have sharp effects on the outcome of interest – this is the logic behind the method of interrupted time series. Moreover, the temporal suddenness of such events should make the chain of causation particularly clear and reduce the likelihood of endogeneity leading to misattribution of causal priority. Sharply defined shocks also allow us better to distinguish between our independent variables if the events happen separately. While democratic events and changes in openness are largely collinear in the case of the Philippines, this is not true in the case of the Southern countries, which experienced their entry to the European trading community around a decade after democratization.

The final aim of case analysis should be the examination of ‘critical case studies’ – that is, those cases that display unusual configurations on the set of independent variables. In this analysis we examine both India – an unusually autarkic democracy – and Malaysia – an unusually open autocracy – and compare their experiences with

---

129 In a sense, case studies that emphasize causal mechanisms within states rather than correlational case comparison between states are the small-n analogs of fixed effects regression. Given that this latter technique has been employed extensively in earlier chapters, it seems appropriate to concentrate on causal mechanisms rather than case comparison.
education spending. It is important to note that this comparison does not in itself support our causal argument – that is achieved by the statistical analysis of earlier chapters and by tracing causal mechanisms in the cases. Rather it provides us with a clearer picture of how the causal forces suggested by the argument are made manifest in the full range of states. It is important that theories not be tested on a limited range of states where all variables of interest are collinear – that is, where the convex hull of cases does not contain significant enough variation to allow analysts to properly test counterfactuals (Ho, 2004). The cases of India and Malaysia are important because they show the causal mechanism developed in the previous chapters at work in cases that are ‘off the diagonal’ of closed autarkies and open democracies and thus allow us to picture the full counterfactual of any country choosing to open its economy.

Having justified the case selection it is also worth justifying the methodology of case analysis itself. It is important to note that case analyses of this type will not prove a deterministic relationship between variables. An ambition of determinism is probably not a useful ontological assumption in case analysis, although many methods used by comparativists appear to assume determinism to be desirable if not necessary. The emphasis on deterministic relationships in case comparison is probably a result of the use of Mill’s (1858) methods of agreement and difference as popularized in Skocpol (1979). Sekhon (2004) notes that this interpretation both misreads Mill and holds comparativists to unattainable standards. He suggests instead a reversion to a probabilistic method of case comparison where cases are compared in terms of their conditional probabilities and counterfactuals (that is, the presence of some factor x increases the probability of
outcome y, where the presence and non-presence of factor x are both tenable counterfactuals).

This analysis hews to Sekhon’s suggestions by examining both within-state changes – which are perhaps the simplest forms of counterfactual – and comparing critical cases - perhaps the most effective form of testing whether the range of states in our sample actually meets the standards for tenable counterfactuals. Moreover, there is no assumption in this chapter that the theory developed in this dissertation is in any sense deterministic. We shall see occasions where changes in our variables of interest have no obvious effect on education spending and others where these changes have powerful consequences. The idea of a change in the conditional probability of increased education spending following changes in democracy and globalization, rather than a deterministic relationship, may be a looser test but it conforms better with our knowledge that changes in education policy are affected by other important independent variables like income and demography and also by individual contingencies like leadership, electoral pressure, and bureaucracy that are not systematically controlled for in these regressions. Thus these cases should not be thought of as constituting ‘proof’ of the relationship between education spending and democracy and globalization. Rather they analyze the plausibility of the causal process developed in the formal model and provide historical meat to the bones of the formal model.

6.2: The Philippines: Examining Democratic and Trade Volatility

The Philippine history of education has been a volatile and troubled one with brief interludes of success followed by long troughs of cutbacks and de-funding of the
education system. In this section we will trace the interlinked history of education, democracy and openness in the Philippines since the Spanish invasion of the sixteenth century. The Philippines experienced a variety of colonial regimes of varying degrees of repression - the Spanish, the Americans, and the Japanese – before independence, and then a variety of political regimes: from the emerging post-war democracy, to Ferdinand Marcos’s declaration of martial law and the ensuing autocracy, to the Aquino transition to democracy, followed by the brief and corrupt interlude of Joseph Estrada’s presidency. During the postwar period, the Philippines has also experimented with a variety of trade policies, also with significant repercussions for education spending. What is particularly dramatic about the experience of the Philippines is how closely changes in democracy and openness have been linked with education spending. Moreover, this pattern has held both in periods of liberalization and periods of political and economic repression.

These cycles in education spending have predominated despite the widespread belief that the Philippines has an idiosyncratic pro-education culture: an official UNESCO report remarked that ‘a passion for education is one of the unique characteristics of the Filipino’ (Synott, 2002). And yet this cultural affinity for education has proved a weak bulwark against the tides of politics. Education spending has varied widely since independence, regardless of cultural factors. Because of this substantial variation, the Philippines provides an excellent case for analyzing the causal mechanisms suggested in the preceding chapters: in terms of democracy - the effects of changing the size of the selectorate; and in terms of openness – the effects of increased demand through technology transfer and on the supply side through the attempts of the elite to protect their returns to education under autarky.
We begin our analysis of the history of education in the Philippines with the Spanish conquest of 1565. Spanish rule, which lasted nearly three and a half centuries, was essentially feudal, with the Philippines divided into three encomiendas (administrative districts): those of the King, those of the Church, and those granted to Spanish settlers. Given that the government of the Philippines was essentially a colonization of ‘direct rule’ (as opposed to the British system of reliance on local elites, or ‘indirect rule’), public services, such as there were, were set up for the benefit of settlers and the Church. The ‘selectorate’ governing the Philippines therefore represented a tiny fraction of the islands’ population and the extent of the education system mirrored the repression of political rule. Schools were limited to the children of the settlers or were vessels for proselytization: as Synott (2002) remarks, ‘the Spanish established no true schooling system for the Filipinos, and teaching was restricted to the forced learning of the Catholic catechism’.

Demands for the spread of education were a key part of the independence movement in the Philippines, providing further evidence that democratization was the catalyst for education spending, rather than the reverse. During the nineteenth century, the incipient independence movement arose in both Madrid and Manila (the Spanish authorities accused it of filibusterismo or ‘subversion’) with ‘education for Filipinos… a key cause of the independence movement and a factor in the struggles that ensued’.

---

130 The encomiendas system was replaced by a typically Latin American hacienda system during the eighteenth century, which was, if anything, an even more feudal mechanism of governance.

131 For a typically idiosyncratic discussion of the indirect method of British colonialism see Ferguson (2000); Acemoglu, Robinson and Johnson (2001) note that the most successful ex-colonies, for example, Botswana tended to be those where neither direct rule nor indirect rule through chiefs were in place, but rather inclusive social institutions already existed pre-colonialism. British imperialism does not appear to be a predictor of future education spending, for example both India and Malaysia were British colonies, possibly because of the broad variety in institutional governance associated with British rule.
(Synott, 2002). The most famous leader of the movement, the Filipino author Jose Rizal, wrote *Noli Me Tangere*, a novel whose central character is attacked as he lays the cornerstone for his village’s first schoolhouse, prompting the famous line: ‘In our country today, to know something is to be hanged’ (Rizal, 1997). The aspiration for schooling, then, went hand in hand with the incipient democratic movement. Following the public execution of Rizal in 1896, Filipino revolt against Spain snowballed into full-scale civil war and the declaration of independence in 1898 (Franco, 2000).

Independence was, unfortunately, a quickly frustrated dream for the Filipinos since, following the Spanish-American war of 1898, the dream of an independent Philippines was swiftly quashed by the imposition of American rule, which triggered a failed war of resistance leading to the deaths of 200,000 Filipinos. As part of their pacification program the Americans established a centralized public school system for the first time in 1901, bringing over 600 American teachers. Crucially for later Philippine development, the Americans removed religion from the school system (thereby removing the only aim of Spanish educators) and insisted that education be conducted in English. Of course, the granting of a school system to the Philippines was not an entirely beneficent act – the Americans expressly hoped that the socialization and propaganda effects of schooling would mollify the Filipinos. Nonetheless, American imperialism was, post-1900, clearly far more benign than that of the Spanish, and the provision of education followed this political logic closely.

The Americans gradually extended political rights to the Filipinos, albeit with the heavy hand of imperial control of trade and foreign policy hanging overhead. Local elections were introduced in 1901, legislative elections in 1907 and finally presidential
elections in 1935, the latter as the Americans began a gradual process of withdrawal from colonial control. Although these reforms marked the introduction of voting rights for the first time, the Filipino electorate was highly constrained: 1.15% of the total population were eligible to vote in 1907 and by 1935 this had only expanded to 11% of the population (Franco, 2000). Underlying this restriction of the franchise was a literacy requirement, highlighting how American rule had limited impact on education at the national level: less than half of the adult population of the Christian islands of the Philippines could read or write by the outbreak of the Second World War. Most Filipino politicians of the era were tightly linked to their upper-class constituents – the landholding caciques – and when Manuel Quezon was elected as the first Filipino president in 1935, his promises to introduce a ‘Social Justice’ campaign were quickly discarded after meeting strong parliamentary opposition from the representatives of the caciques. Overall American imperialism and the limited increase in representation had positive benefits on education spending and provision as compared to the era of Spanish rule but by the end of the 1930s the demands of the unrepresented poor for education provision, among other social goods, were increasingly unmet, foundering on colonial or parliamentary disapproval.

The American imperial era in the Philippines was brought to an end by the Japanese invasion of the islands during the Second World War. Typical of Japanese colonialism, rule was repressive and education became solely devoted to propaganda (Synott, 2002). Given that warfare led to the near-total destruction of Manila and other Filipino cities, it is little surprise that the education system had basically collapsed by
1945 and it would take several years following the US liberation before education spending recovered to pre-war levels.

The Philippines gained independence postwar but this was independence very much under American influence. During the 1960s, the Philippines had been a moderately democratic state, scoring plus five on the Polity index. US influence meant that civil liberties were repressed but a quasi-democratic electoral system was put in place and this political system began to respond to popular demands for increased education spending. From 1960 to 1965 the Philippines expanded from 56% enrolment in primary education to around 97% (Kang, 2002). In 1966, Ferdinand Marcos was democratically elected president of the Philippines and one of his earliest acts of legislation was the 1966 ‘Magna Carta for School Teachers’. This act represented the culmination of demands for an increasingly professionalized education system in the Philippines and led to a rise of education spending of around one quarter between 1960 and 1970. Teachers were granted academic freedom, the ability to unionize and, most critically in terms of education funding, a guarantee that teacher salaries would be indexed to the cost of living and accompanied by a set of extra allowances (Synott, 2002). This follows the logic developed in Section 4.6, that teacher salaries benefit following democratization – certainly, teachers fared far better in the early Marcos period than they would do following martial law.

In 1972 Ferdinand Marcos declared martial law, forcing a transition to personalistic rule. Contemporaneously, educational expenditure, which had been rising from 2.2% to 2.8% of GDP before Marcos declared martial law, dropped sharply to

---

132 The Polity index for the islands plummeted from positive five to minus nine following the declaration of martial law.
below 2% for most of Marcos’ remaining years of rule. As Kang (2002) notes, ‘under martial law in the 1970s the priorities of the government, as reflected in the budgetary allocations to defense and industry, shifted away from education’, with relative education spending declining from 29.1% of government spending in 1965 to just 11.4% by 1975. The decline worsened in the early 1980s when the Philippine economy nosedived into a prolonged recession forcing major cutbacks in all areas of government investment. This budgetary collapse was largely the result of endemic corruption—money that had been channeled into the public sector was largely appropriated by the elites and consequently the percent of the population in poverty grew from 43.8% in 1971 to 58.9% in 1985 (Congressional Budget Office, 1997). Consequently, salaries for teachers dropped well below the poverty line.

It was not until the late 1980s, after Marcos was forced to resign power, that educational expenditure recovered to its pre-1972 level, under the post-Marcos democracy of Corrazin Aquino and her successors. One of Aquino’s first acts as president was the convocation of a Congressional Commission study on education (EDCOM), which highlighted the collapse in funding relative to comparator nations, recommending massive reinvestment in public education, particularly teachers’ salaries (Toh and Floresca-Cawagas, 1993). Consequently, by 1998, educational expenditure had tripled its late-Marcos level and climbed to over 4% of GDP, although it has dropped back subsequently to its late 1990s average of around 3.5% of GDP. This dramatic post-Marcos increase was supported by a key stipulation in the new Philippine constitution of 1987 that education should be the largest proportion of the state’s budget. Indeed, the newly drafted constitution stipulated that expenditure on education should be at least 6%
of GDP. Although this did not prove to be a manageable target given the actual achievement of 3.5%, it clearly demonstrates the determination of the new democratic government to specifically target education as a key policy device. It is also a useful confirmation that public education expenditure as a percentage of GDP is an appropriate dependent variable for the empirical analysis in this project, given that this variable was formally incorporated into the Philippine constitution. The rise of education spending in the post-1986 period accelerated under President Fidel Ramos, who proclaimed a liberalization agenda combined with substantial increases in education spending.

Unfortunately, the political volatility that has bedeviled the Philippines did not end with the overthrow of Marcos and nor did the responsiveness of education spending to regime change. Although the government of Joseph Estrada from 1998 to 2001 claimed to represent the uneducated poor, the reality of his rule was far different. The Philippines entered a period of elite-driven corruption that rivaled the Marcos regime in its level of endemic bribery, if not its political repression. Despite Estrada’s claims to represent the poor, little attention was paid to education spending. Teacher salaries plummeted and their allowances for materials were cut (Synott, 2002). Many teachers were forced to take on second jobs or to work in the canteens at the school and split profits on food. The Estrada period saw a rapid reduction of education funding from 4.3% of national income to 3.3%, much of which has been attributed to Estrada’s plunder of national income. The corruption spread from the top downwards to the education

133 Estrada’s government resembles the ‘ends against the middle’ coalition discussed in Section 2.4, wherein the elite and the poor align over a policy of increased simple redistribution and reduced education spending. Certainly, Estrada was highly unpopular among the Filipino middle-class, who seized on the revelations of endemic corruption in the Estrada government by instigating impeachment proceedings in 2001. This undermining of Estrada was countered by massive riots among the poor in support of Estrada (de Dios and Hutchcroft, 2003). However, although Estrada’s base of support and the collapse in education funding superficially resemble an ‘ends against the middle’ coalition, Estrada’s ‘pro-poor’ rhetoric and policy promises remained largely unfulfilled (Tordesillas, 2000).
ministry, who appropriated administrative funds to spend on luxury motor vehicles for bureaucrats’ personal use. By the end of Estrada’s rule in 2001, teachers had become an important part of the resistance movement, producing a petition of nine demands for action – chief among them pay rises and funds for materials. Once again, the volatility of political regimes in the Philippines had direct and powerful impacts on education funding and again the pro-democracy movement was deeply invested in demands for increased education spending.

Figure 6.1: Democracy and Education Spending in the Philippines

The interlinked pattern of regime type and education spending can be seen in Figure 6.1. The period of moderated democracy in the 1960s came to an abrupt end in the early 1970s, which led to a collapse in education spending thereafter. It is particularly striking that education spending reached its nadir in 1985, a year before the People Power
revolution that overthrew Marcos. From 1986 onwards education spending increased dramatically, doubling between 1986 and 1989 and increasing to over four percent of national income by the late 1990s before the Estrada regime and the consequent slide in education funding, a collapse that does not yet appear to have been halted by the regime of Gloria Arroyo.

The story of education funding in the Philippines has not solely been driven by political regime change, although this certainly appears to have had the most dramatic impact. The relationship of the Filipino economy to the global economy has varied considerably over the past fifty years and this pattern of trade orientation also has a striking similarity to that seen in education spending. Figure 6.2 shows the detrended level of openness in the Philippines since 1960, as measured by exports plus imports over national income. Although there has been an upward trend in openness throughout the period, as in most states, fluctuations off this trend appear to covary with those in education spending. Particularly noticeable is the stagnation in openness during the latter period of the Marcos dictatorship, with the Philippines essentially unchanged in its openness from 1974 to 1986. This period, as we saw earlier, also corresponds to the period of martial law and of massively reduced education spending. Following the 1986 return to democracy we see openness shoot upwards, essentially doubling by the mid 1990s, with a commensurate increase in education spending. Figure 6.3 shows the change in the adjusted Hiscox / Kastner variable over this time period. In both cases, we see the same very tight fit between changes in openness and education spending.

134 The detrended series regresses openness in the Philippines on time to provide a linear prediction of the secular increase in openness and then subtracts the trend from the actual observation for that year.
Figure 6.2: Detrended Openness and Education Spending in the Philippines

Figure 6.3: The Hiscox/Kastner Measure and Education Spending in the Philippines
The relationship between openness and education spending appears to be tight in a bivariate analysis but democracy and openness were also closely related during this period in the Philippines. In order to separate out the effects of openness from political change, we turn to an examination of Philippine trade policy in the era of independence. The legacy of colonial rule, as in many other South-East Asian states, was a dependence on exports of agricultural and primary products to the metropole (Boyce, 1993). Under American rule, trade had expanded significantly but it was subject to significant limitations under the Payne-Aldrich and Philippine Tariff Acts of 1909, which allowed American goods free entry to Filipino ports but subjected Philippine agricultural exports to quotas and limited exports elsewhere. By 1930, 63% of Philippine imports came from the United States and 79% of Philippine exports went there (Hawes, 1987). These constraints on trade meant that industrial development was limited and educated labor was consequently in low demand. Trade with the USA certainly increased Philippine openness but this failed to have a positive impact on education provision for two reasons. Firstly, agricultural production had few technological requirements and did not require an educated labor force, thereby limiting the demand-side of education. Secondly, the Philippines was barely trading in manufactured goods with the USA and thus prices for these goods were not converging with the USA. Instead US companies used the Philippines as a dumping ground for cheap manufactures (de Dios and Hutchcroft, 2003), undermining the potential for increasing education supply without reducing the returns to education, since workers would find their wages undercut by American goods.

The post-political independence era was not an era of economic independence since the Philippines signed the Tydings Rehabilitation Act with the United States in
1946 which established a new series of quotas as well as ‘parity rights’ to US citizens for investment in the Philippines and a ban on the Philippines imposing export taxes: as Hawes (1987) notes, ‘it was a splendid example of neocolonialism’. The limitations on trade secured the continuation of agro-exports from the Philippines to the United States and limited the development of an industrial export orientation. Instead, Philippine industrialization turned inwards, focusing on a heavily protected internal market (de Dios and Hutchcroft, 2003). As in the case of India – discussed in the next section – the bureaucratization of trade policy meant that control over the export sector was seized by relatively few well-connected families, who ran conglomerates combining agricultural and industrial businesses. Since industry was heavily protected there was little technology transfer from abroad and hence demand for education failed to spike significantly upwards. Instead the Philippine economy began to mimic Latin American, rather than East Asian, development with little emphasis placed on educated labor (Haggard, 1986).

Ferdinand Marcos’ declaration of martial law in 1972 was followed by a rhetorical shift towards export oriented trade policy. Rhetoric was largely unmatched by action, since Marcos, once keen to remove industrial firms from elite family control, set about protecting industry in the name of his own cronies. Export zones were established but remained niches. As McKay (2006) explains:

[…] despite these early moves to promote exports and foreign investments, the Marcos government did not make a fundamental shift away from the patrimonial policies of the past. This was largely because Marcos and other oligarchs, who through protection and monopolistic position could exploit a move into the export sector, were nevertheless in poor shape to compete internationally with vastly more efficient foreign multinationals […] Marcos pursued a contradictory but politically savvy, two-pronged strategy: he created a limited export platform or enclave economy to please foreign investors and development agencies while maintaining a highly protectionist domestic economy and coercive state to fend off political rivals and enrich himself and his closest allies.
Thus, Marcos’ apparent trade orientation, proclaimed loudly for the benefit of international lenders, bore little resemblance to the structure of the Philippine economy outside the export zones (Bello, 2005). With manufacturing protected and uncompetitive, the Philippines did not face the same demand for education felt in the East Asian ‘Tiger’ economies. With local elites and Marcos cronies controlling these protected sectors, nor could the Philippine economy absorb new educated workers. Consequently, education spending continued to lag in the Marcos era, as discussed above.

Political liberalization in 1986 was swiftly followed by economic liberalization under Aquino (who removed most import controls) and, in particular, during the Ramos administration. The 1991 recession also hurt education spending, but following this blip and the election of Ramos in 1992, education spending spiked upwards to over four percent of national income. Ramos’ ‘Philippines 2000’ strategy connected trade liberalization and education spending, with his emphasis on the following the East Asian model. Under Ramos’ administration, manufactured goods became the majority of Philippine exports for the first time, forcing up the demand for an educated labor force to aid in their production (de Dios and Hutchcoft, 2003). Despite the political turmoil of Joseph Estrada’s corrupt government, the post-Ramos era has continued along the same economic lines with manufactured exports supported by an increasingly educated Philippine workforce. As the Philippines has moved to a more diverse export profile, absorbed foreign technology, and extracted itself from restrictive trade policies – some imposed by the United States and some self-made – we should expect to see greater demand for and supply of education, as educated Filipinos are permitted to sell their skills on the global market.
6.3: India and Malaysia: Comparing Two Puzzles

India and Malaysia provide symmetric, contrasting puzzles. Why has India, perhaps the most successful democratic experiment in the developing world, failed so dramatically in terms of providing education to its citizenry? Geeta Kingdon pointedly refers to India as ‘an education disaster’ (Kingdon et al, 2003). Malaysia, conversely, has had higher levels of investment than any other major state in Asia since the 1960s despite existing under a fairly oppressive authoritarian regime. Chapter Three suggested that there is a strong cross-sectional relationship, all else equal, between democracy and education spending. Even controlling for their different sizes, populations, and levels of economic growth, India and Malaysia still appear to be significant outliers in terms of their relationship between democracy and education spending. In this section, I argue that the very different experiences of each country with regard to integration into the global economy have been the driving force behind their unusual education spending.

Before delving into the specific case analyses of India and Malaysia it is worth examining their general trends in openness and spending across time and in comparison to their peer states. Figure 6.4 demonstrates how these patterns have played out in four South Asian states: Bangladesh, India, Malaysia and Thailand.¹³⁵ These four states vary a great deal in their level of openness to the international economy. While all four have become increasingly open since 1960, they have done so from very different starting points. Over the period of the sample there is a clear distinction between the relatively closed economies of Bangladesh and India and the more open economies of Malaysia and

¹³⁵ These states are also incorporated in Peter Lindert’s analysis on the effects of elite bias on educational composition, which suggests that the Indian bias toward tertiary education and their low overall levels of educational expenditure are a result of the anti-democratic nature of the caste system and one party rule. My analysis suggests a different explanation of the Indian paradox: its lack of openness to the international economy, which has enabled the elite to gather scarcity rents from their education: Lindert (2004).
Thailand. For example, their mean levels of exports plus imports over GDP across the sample period differ by an order of magnitude: Bangladesh’s average is 22.2% and India scores 15.2%, whereas Thailand has an openness average of 59.3% and Malaysia the extreme of 121% of GDP. This variation shows up in the Hiscox/Kastner measure as well (although it excludes Bangladesh): India receives a mean adjusted Hiscox/Kastner score of 63.9 (where zero represents the free-trade benchmark of the Netherlands in 1964), whereas Thailand scores 40.33 and Malaysia scores 30.86.

Figure 6.4: Education and Openness in Southern Asia

Thus, across the range of measures of openness used in the data analysis above these states differ substantially. Yet this range of variation is perhaps somewhat surprising. The countries are all neighbors along the Eastern coast of the Indian Ocean. Three out of four were British colonies in the early part of the twentieth century. None
was particularly wealthy in 1960—all had a GDP per capita below $1000 dollars (in 1995 $US), less than half the average Latin American GDP per capita at the time.\footnote{However, Bangladesh and India have remained significantly poorer on a per capita basis than the two Southeast Asian states.} Although India obviously had a population and area dwarfing the other states, this hardly explains the enigma of Bangladeshi under-education vis-à-vis Malaysia and Thailand. In fact, except for a couple of years at the end of the 1980s, India and Bangladesh have not had rates of public education higher than Thailand and Malaysia across the entire sample period. Perhaps most strangely, Malaysia and Thailand have been consistently less democratic than India (though not Bangladesh) across the period, yet their education spending has been consistently higher. We now turn to examining India and Malaysia in greater detail.

The key force behind these differences in education spending, then, appears not to be democracy but rather the degree of openness with the international economy. Indian import substitution has had the undesired (and perhaps unexpected) effect of both reducing demand for skills and creating an elite highly protective of their returns to education. Indian development was focused on developing domestic import-substituting industries, largely controlled by the political elites. The success of such industries depended rather more on easy access to import licenses and official corruption than on internationally competitive human capital. The Malaysians conversely have taken advantage of technological transfer from globalization and have been able to succeed with a policy of mass education without undermining the spoils of their elite. As such, the
autocratic government of Mahatir Mohammed has been able to combine economic openness and high education spending with elite-driven rule.\textsuperscript{137}

India’s failure to educate its workforce, particularly in rural areas, is infamous. Half of the Indian population remains illiterate (Lindert, 2004), which comprises 40% of the world’s illiterates. This seems surprising on a number of levels. Firstly, India has been a well-functioning democracy since 1947. Although politics are somewhat factional in India, Section 4.2 showed that the degree of factionalism within a political system does not appear to be a robust predictor of education spending. Rather, what matters is the extent of the franchise, the representativeness of the legislature, and the responsiveness of the executive, all of which have been strongly democratic by developing nation standards (with the possible exception of the state of emergency declared under Indira Gandhi in the early 1970s) since Indian independence.\textsuperscript{138} Secondly, Indian political rhetoric has consistently stressed the importance of education. A target of six percent of national income for education spending has been uttered several times since the first Five Year Plan in 1951 (Tilak, 2003). However, this rhetoric has never been translated into effective action: even today India spends only just over four percent of GDP on education.

There are two key reasons for this failure. The first is the decision to engage in an industrialization strategy of import substitution, which emerged in the mid-1950s as the consensus between the competing theories of economic nationalism (\textit{swadeshi}),

\textsuperscript{137} This pattern has also played out in the even more authoritarian neighboring city-state of Singapore, which has been a leader in skills provision since the 1960s. However, comparing Singapore to India is hardly a like-to-like comparison.

\textsuperscript{138} It is worth noting that democracy has not been a complete failure in terms of education spending in India – in fact India compares fairly favorably with autocratic and autarkic pre-1990s China, which consistently spent less than two percent of national income on education. Nonetheless, Indian autarky has kept education spending below what we would typically expect in a democracy, since most democracies are also fairly open in terms of trade orientation.
socialism, and Gandhian village production (Hardgrave Jr. and Kochanek, 2000). This strategy choked off foreign investment and hence foreign technology, reducing the demand for skilled labor. Secondly, the difficulty of obtaining export licenses in the ‘permit, license, quota Raj’\(^{139}\) led to the absence of an external market for skilled labor. This meant that increases in education supply, such that there were, were swiftly followed by unemployment or lowered wages (Tilak, 2003).

The failure to meet government rhetoric about education began as early as 1956, during the Second Five Year Plan. The Five Year Plans reflected the rarely-challenged Indian consensus that economic planning was a requisite of industrialization. The Plans were comprised of a mix of large-scale public works like irrigation, power plants, and roads along with investment in social services. During the First Five Year Plan, education spending amounted to a fairly substantial eight percent of all spending (around the same as the share devoted to power), half of which was devoted to elementary education. While this only amounted to around fifteen percent of overall education spending, the share of education spending in the Plans directly reflect government preferences over development, rather than non-policy variables like demographic pressures. After the First Five Year Plan, education spending dropped to 5.8% of plan spending in the Second Five Year Plan and yet further to just 2.7% by the Sixth Five Year Plan in the early 1980s. During that period the emphasis on elementary education was replaced by investment in higher education, with the former’s share of spending reduced to thirty percent. This

\(^{139}\) This popular characterization of the bureaucratization of the economy under the Congress Party was coined by their 1960s opponent, the Swatranta Party (Erdman, 1969). The sheer difficulty of obtaining permits and licenses was a bone of contention for international aid organizations and economists for several decades, for example Kreuger (1974).
pattern of decreased developmental funding for education vividly reflected the government’s import substitution strategy. Tilak (2003) notes that:

1956 to 1969 marked the beginning of a drastic decline of resources allocated to elementary education and a doubling or trebling of resources allocated for higher education […]. Relative emphasis shifted from the agricultural sector in favor of the industrial sector. Industrial development requires manpower, and higher education was looked upon for the supply of manpower. Phase III [1969-1986] showed a slight reversal of these trends. This may be partly attributable […] to the growth of educated unemployment, the mismatches in the labor market, and the resultant social unrest.

A number of points in Tilak’s assessment are worth remarking upon. Firstly, the Indian developmental strategy was focused away from areas of comparative advantage (the agricultural sector, which following the Green Revolution became fairly competitive) towards import-substituting manufacture. The government began to limit investment in education and channel it towards the children of the elite, who were those most likely to attend higher education, in an ill-fated attempt to jumpstart the Indian industrial sector. However, because Indians were not exporting their manufactures abroad the limited size of the market for such goods led to over-supply of high-end skills and a consequent collapse in the returns to such education. This is the classic pattern detailed in Chapter Five – autarkies cannot sustain the same proportion of high-skilled workers as open states. This undesirable pattern led to a further turn away from education funding in the 1970s (although the composition problem was slightly rectified as Tilak notes) and education essentially ceased to be a significant component of the Indian Five Year Plans until the late 1990s. Non-Plan education spending hardly fared much better, hovering at around two percent of national income until the late 1980s.
Thus, we have seen that the Indian development strategy from the late 1950s to 1990s, based as it was on autarkic industrialization, artificially deflated education spending and probably ended up causing more harm than good to long-run Indian wealth. Frustration with the 3.5 percent per annum ‘Hindu rate of growth’ (fairly poor by developing country standards), combined with an economic crisis in the early 1990s finally led to a breakthrough in economic policy and trade orientation under P.V. Narasimha Rao’s administration, elected in 1991. Rao’s finance minister, himself elected prime minister in 2004, Manmohan Singh was charged with developing and passing a broad range of liberalization policies in 1992. The Singh reforms permitted majority foreign ownership of Indian companies, reduced tariffs, and eliminated many quotas. In doing so they catalyzed the development of India’s rapidly growing high-technology and outsourcing industries, and following the reforms the growth rate increased from around five to seven percent. However, these reforms were strongly imposed by many in the Indian business and bureaucratic elites, in particular by the ‘Bombay Club’ – a group of powerful elite families who were concerned that their control of domestic industry would be hampered by the reforms.

The Bombay Club was proven right. Domestic elites were challenged effectively by globalization. However, in one important sense, globalization reduced one major threat to the elite – that of mass education weakening their position as the holders of a scarce resource: human capital. In fact India cannot educate workers fast enough at present for the skill demands of the newly globalized Indian companies and Western multinationals who have entered. The government has been attempting to catch up and has been expanding education investment significantly – largely at the behest of these
businesses’ demands. Moreover, where the government has not yet caught up, an incipient private education sector has developed, demonstrating that popular demand for education had been artificially suppressed by autarky.

A number of commentators and economists have suggested that as India globalizes the demand for education could rise even further, with a consequent decline in illiteracy rates if these demands are met by public provision. Adrian Wood and Michelle Calandrino (2000) perform a series of econometric simulations in which they predict demand for skills if India were to become as open to trade as China.\textsuperscript{140} They run a series of models, the most important of which for our purposes assumes a ‘diffusion of new products and modern production methods arising from increased openness’ (p. 18). They predict that the following changes in the Indian skill structure are likely: a twenty-three percent decline in demand for illiterates, a twelve percent rise in the demand for primary education, a thirty-one percent increase in demand for secondary education, and a sixty-four percent rise in demand for college graduates (Wood and Calandrino, 2000, Table 13). Do these increased demands for skill seem to be filtering through to policy? In fact, it does appear that supply is responding fairly successfully: if anything, India is over-educating at the secondary level vis-à-vis the primary level (Wood and Calandrino, 2000, Figure 2). Thus, following the Singh reforms to Indian trade policy we see not only aggregate effects but that the causal process developed in Chapter Two - stressing technology transfer on the demand-side and the reduced income elasticity of supply – also finds strong evidence in India’s experience of the 1990s.

\textsuperscript{140} The comparison of India to China in terms of openness is hardly unimaginable. Indeed, in many ways it is surprising that India is actually less open than China given the generally positive correlation between democracy and openness.

234
The Malaysian experience provides a dramatic contrast to India. Since the 1960s, Malaysia has spent over five percent of its national income on public education and at various points, including the early and late 1990s, over seven percent of GDP, which would place it firmly in within the top ten percent of spenders, despite having fairly slow population growth and a middle-income status. However, for most of this period, Malaysia has been run in a moderately autocratic manner, with a powerful executive that is largely uncontrolled by the legislative and judiciary. Thus Malaysia is a mixed case in terms of our theoretical determinants of democracy: it has a full voting franchise and the legislature is fairly representative but the legislature is not highly competitive, partly because the longtime ruling National Front coalition controls the press, and the executive is fairly unconstrained by the other branches of government. Thus, on a political level, Malaysia does not appear a prima facie likely candidate to spend large amounts on public education. We shall see that for two key reasons – Malaysia’s peculiar ethnic politics, and its early entry into the global economy – these unpromising initial conditions have nonetheless supported major investments into education.

Malaysia’s experience with British colonialism was mixed one. On the one hand, Malaysia’s abundance of natural resources, particular rubber, led to its becoming one of the wealthier colonies in the Empire. On the other hand, colonial government was beneficial largely for the British and for the Chinese and Indians who migrated en masse during the nineteenth century. The indigenous Malays, who had been largely agricultural, fared significantly less well, and soon became a numerical and economic minority. As in most colonies, there was little direct interest in providing public services for the indigenous population: as Snodgrass (1998) notes, ‘colonial governments in Malaya
provided little education […] most of what happened occurred through private rather than public initiative’. Education, then, was mostly limited to the British and Chinese elite until the end of the nineteenth century and even after some limited public provision to Malays began in 1870, it was very much limited in its range, and progression beyond elementary education by Malays was actively discouraged by the colonial authorities. Ethnically defined economic differences in Malaysia, in Snodgrass’s (1998) terms, ‘in large part reflected differences in education opportunity’. This dual economic and education dominance of the British and Chinese over the Malays was to be directly challenged following independence in 1957.

The run up to independence was accompanied by a new set of demands for education by the Malays. The most important moment was the release of the Razak Report in 1956, which recommended primary education to be publicly offered to all children using a national curriculum. This goal was achieved with astonishing pace, particularly in comparison to other developing countries with similarly ambitious aims during the same period (for example, the Indian Second Five Year Plan). By 1960, ninety percent of Malaysian children were enrolled in primary schools. It is worth noting that this expansion was contemporaneous with two important phenomena: firstly, increasing Malay control of the government, which led to a targeting of education at the previously undereducated Malay population, and secondly Malaysia’s program of industrialization which began as early as the late 1950s and led to increasing exports in manufactured goods, which required a more educated workforce. Moreover, before 1969 Malaysia scored strongly in terms of the Polity index. These early steps in education spending came at a time of relative democracy for Malaysia, although the Chinese community was
already discriminated against, since public support was only available for secondary schools that taught in Malay or English. The 1969 ‘May 13’ race riots by the Malay population against the wealthier Chinese led to a political tightening, resulting in the current semi-autocratic regime, and the development of Malaysia’s well-known form of affirmative action aimed at the Malay population.

The policy of promoting the economic and educational status of the Malays was essentially a method of targeting towards a favored minority, which we saw in Section 4.4 appears to be more common under autocracies. Indeed, this ethnic targeting became combined with targeting of resources to higher education, specifically for Malays, since passing exams in the Malay language in order to enter upper secondary education became compulsory in 1970. However, unlike the case in Section 4.4, where targeting tended to be towards higher education that favored a wealthy elite, the Malaysians were targeting higher education toward a poor but politically dominant minority. This outcome is line with the general predictions of the formal model that a reduced selectorate will target education towards its own members, although the empirical relationship to income differs substantially from the statistical analysis in Chapter Four. Since targeting education towards a poorer minority group is generally more costly than doing so to a wealthier group, it is unsurprising that Malaysian education spending began to rise dramatically during the 1970s.

The peculiar logic of Malaysian autocracy combined with a shift towards developmental export-oriented industrialization to lead to further education investment. The two-decade New Economic Program (1970 to 1990) in Malaysia had as a key aim the development of a strong human resource orientation in order to be internationally
competitive during the process of industrialization’ (Mukherjee and Singh, 1995). The NEP mixed affirmative action with the active promotion of export-oriented assembly industries as a way of galvanizing economic growth among the Malay community. In particular, the Malaysian government concentrated on apparel and the new electronics industry both of which demanded at least basic educational skills and often command of English. Education provision was expanded to meet these demands, albeit in its somewhat distorted pro-Malay manner. Secondary enrolment by the end of the NEP was nearly sixty percent and higher education had enrolment rates of seven percent (around half a typical European enrolment of the time). However, ‘true enrolments’ could have been much higher, since ethnic quotas in the tertiary system limited the access of Chinese and Indian students who often studies abroad. The massive increase in Malaysian spending was not purely from increased enrolments but from its targeting to the poorer Malays. The push from globalization was, if anything, even stronger than the ethnic developmental aims of the government, since by the late 1970s skills gaps were emerging in exporting industries, pushing up skilled wages despite the increases in enrolment. This contrasts strongly with the wage decreases that accompanied increased enrolment in autarkic India.

The recent New Development Program, established in 1991, de-emphasized affirmative action in order to respond to these export-led demands for skills. The key aim during the 1990s was to supply high-end skills that would facilitate the transition to production higher up the value-chain. Skills shortages were now considered a key threat to further development as international demand continued to push up demands for skills. Emphasis has recently been placed on more costly forms of education, including a
specialization in science and engineering as well as more vocational education, all of which are costlier than the standard education mix of the pre-1990 years. At present, the government is taking most of the responsibility for this demand, hence the recent increase in the budget to over seven percent of GDP, although the Asian crisis knocked down spending temporarily. As to whether the Malaysians, having essentially achieved the government’s aim of equalizing Malay and Chinese incomes, will continue to rely on public investment is an open question. However, the continued globalization of the Malaysian economy means that enrolment rates and spending are both likely to rise in the near future.

At the start of the second millennium, both India and Malaysia were desperately trying to meet the skill demands of their nascent high technology sectors, with varying degrees of success. But for the fifty years beforehand, these two states with similar levels of wealth and democracy in the ninety-fifties had very dissimilar experiences in terms of education funding. Despite its ostensible democracy, India’s elite-driven, autarkic economic system meant that the economic elite was threatened by expanded education provision and domestic technological demands were not strong enough to force increased education spending. Despite its turn to authoritarianism in the 1960s, Malaysia became a regional leader in education spending, partly because its autocracy actually favored the relatively poorer Malays (and hence targeted education spending was more costly than is typical) and partly in response to a highly export-oriented economy that had voracious skills needs. These cases, which appear to lie off the typical path of open democracies

141 In 1996, the Malaysians allowed private universities to form for the first time, partly in response to export-led demands for more skilled workers. Nonetheless, this is likely to remain a small percentage of overall spending, given that the government has expanded funding significantly for expensive technical education at the secondary level.
and autarkic autocracies, help us to see how the mechanisms laid out in the previous chapters were still manifest in these very unusual cases.

6.4: Dual Shocks: Southern and Eastern Europe Join the European Union

Typically, changes in regime type and orientation towards the international economy accompany one another. Trade policy changes are often a large component of the panoply of reforms that take place following democratization. We saw, for example, in the Philippines that political and economic liberalization both had positive impacts on education spending in the post-Marcos era. Given this collinearity, it is often hard within individual cases to pull apart the differential effects of democracy and openness on education spending: there is every risk that we will misattribute causal importance to one factor over another. This section attempts to remedy this problem by examining a set of cases where shocks to regime type and to economic openness happened in identifiably different periods: the Southern European states, Portugal, Spain, and Greece, who all experienced episodes of democratization in the 1970s and joined the European community in the 1980s. In all three cases, though particularly in the Iberian states, we see two jumps in education spending, one following each shock.

The 1970s saw a wave of political liberalization across Southern Europe, with first Portugal, then Spain and Greece, exiting from authoritarian military rule. Huntington (1991) termed this the ‘second wave of democratization’, which preceded the more famous ‘third wave’ at the end of the Cold War. All three countries had extremely low levels of education spending by European standards, less than two percent of national

---

142 The Greek rule was explicitly military rule. Spain and Portugal were both governed by former military officials, although in the Portuguese case this was a temporary coup by General Spinola, which was quickly replaced by civilian control.
income, partly as a consequence of autocracy and partly because of the long-standing traditions of church involvement in education, which mitigated against public provision and emphasized education as an instrument of cultural socialization rather than economic development. Following democratization in the mid-1970s, all three states saw increases in education spending – though the Greek increase was fairly minimal – before they joined the European Union in the 1980s – in the Greek case in 1981, and for Spain and Portugal in 1986. This second event also appears to have set off a series of increases in education funding, with all three states sharply improving funding and converging towards the European mean.

**Portugal**

In the 1960s Portugal had arguably the most backward educational system in Western Europe. Indeed, it was not until the mid-1960s that the country made public education available to all children between the ages of six and twelve. Even then, under the Salazar regime implementation of education policies sorely lagged any legislative expansion of education, leading to endemic illiteracy. However, the death of Salazar in 1970 and the bloodless coup of 1974 that removed his successor Caetano led to the imposition of free elections and full democracy by 1980 in Portugal. In the decade before Salazar’s death, public expenditure on education had averaged around 1.5% of GDP. Following the coup, educational expenditure hovered between 3.5% and 4% from the mid 1970s through to around 1986 – the year of entry to the European Community – after which it began its climb to just over 5.5% in 2000, the OECD norm at the time. This second jump was partly due to the extension of compulsory education from six to nine
years in the mid-1980s, which led to an increase in the average years of education within the labor force of one full year between 1982 and 1992 (from five to six years; Hartog and Vieira, 1995). Figure 6.5 demonstrates the close relationship between democracy and education spending in Portugal and the second climb following access to the European Community in 1986 (the thick vertical line).

**Figure 6.5: Democracy and Education Spending in Portugal**

Examining the transition to democracy and its relation to economic policy in detail, an intriguing tale emerges. While Salazar had largely conceived of education as “teaching one’s place in life,” Caetano’s education minister Veiga Simao (a Cambridge educated physicist) proposed the “democratization” of Portuguese education in 1972 (Stoer and Dale, 1987). Veiga Simao deliberately modeled his proposed reforms on the standard OECD pattern, conceiving of education as human capital development rather
than Salazarian indoctrination. Veiga Simao’s reforms included an extension of compulsory education and the reform of higher education. Ironically, according to Stoer and Dale (1987), these very reforms helped to sew the seeds of the regime’s demise: these proposed reforms, intended to slow the drive to democracy and preserve the old regime by creating “organization without mobilization,” instead “further stretched the credibility of the largely discredited principle of corporatism.” While the Caetano regime did not survive 1974, Veiga Simao’s unimplemented reforms were adopted by the new socialist left following the coup. The newly elected socialist party did not stop with the Veiga Simao reforms: further steps were made to develop nursery education, unify the secondary school system, ban child labor, and to provide study grants. The reforms of the 1980s (expanding the age of compulsory education to fourteen and increasing funding during the 1990s) were thus legacies not only of the transition to democracy itself but also of the rise of the Portuguese socialists - a common partisan phenomenon, as we shall see in Chapter Seven.

Portugal’s entry into the European Community in 1986 was also a key determinant of the rise in education spending in the late 1980s and early 1990s. As Figure 6.5 demonstrates, education spending had stabilized at around 3.5% of national income in the post-democratization era. However, from 1986 to 1992 education spending rose around fifty percent to five percent of national income before beginning a climb in the late 1990s to nearly six percent of national income by 2000. Underlying this increase was a massive increase in the demand for skill labor, precipitated by entry into the common market. Portugal, despite its reputation as a trading state, had remarkably low levels of openness during the early twentieth century, with imports averaging only five percent of
national income before the interwar era. As Nunes (2003) notes, ‘this fact… probably proved to be very detrimental to productivity growth, by reducing international diffusion mechanisms, particularly in the case of technical progress’. Portugal consequently lagged Europe in technological terms for the remainder of the twentieth century until the jolt of accession in 1986. Hartog et al (2001) argue that this date marks the point at which the returns to education began to rise most significantly in modern Portuguese history, despite the fact that education was expanding in supply at unprecedented rates during the 1980s. This implies that the assertion made in Chapter Five that globalization permits states to expand education without reducing the returns to education meets ample support in the Portuguese case. Combined with the technological demand-side impetus to education, the political balance of support for education swung sharply towards its proponents, since the previously opposed Portuguese elite retained their skill premium. Thus, in the post-democratization era, openness, along with partisanship, has been the chief driver of Portuguese education expansion.

Spain

Like Portugal, Spain had its transition to democracy in the mid-1970s with the death of Francisco Franco in 1975. Spain’s expenditure on education prior under Franco’s autocracy had hardly been higher than that of poorer Portugal, somewhat under 2% of GDP. As Diebolt (1999) shows, Spanish education spending was considerably below its long-run 1850 to 1970 trend during the period of Franco’s rule: at least a quarter below trend. However, as in the Portuguese case, following democratization education spending rose to over 3% of national income by the mid 1980s and to over
4.5% by the mid-1990s: in total, a near-trebling of expenditure. Again, similarly to the pattern in Portugal, Spanish education growth briefly slowed in the mid-1980s before rising steeply following accession to the European Community, although the period of stagnation was much shorter than that occurring in Portugal. The close connection between education and democracy, along with the spurt following accession to the common market (the thick vertical line), can be viewed in Figure 6.6 below.

**Figure 6.6: Democracy and Education Spending in Spain**

Similarly to Caetano’s doomed attempts to bolster autocracy through reform, the floundering Franco regime attempted to reform education in the early 1970s but was unable to implement reforms successfully or to override the chief enemy of widespread public education: the church. Education in Spain until 1970 had largely been the preserve
of the Catholic Church, which ran fee-paying schools with a very limited membership (McNair, 1984). Spanish education was extraordinarily stratified: in 1965, only 3% of working-age Spaniards had attended secondary schools, mostly the children of the upper middle class. The 1970 Education Act committed the state to public financing of education for all students, but this largely meant subsidization of the Catholic private school system as a result of the necessary political bargain between the government and the church, and little expansion was actually achieved (O’Malley, 1995).

The state school system developed slowly along a separate track but funding was halting until the 1978 post-Franco constitution, which enshrined the right to secondary education, and then the two Socialist education bills, the Ley Orgánica del Derecho a la Educación (LODE) in 1985 and the Ley Orgánica de Ordinación General del Sistema Educativo (LOGSE) in 1990—the latter of which extended compulsory education to sixteen (Boyd-Barret, 1995). The quantitative effects of the passage of these laws were enormous in magnitude: there was a doubling of real expenditure per student contemporaneous with a major increase in enrollment (from fifty to seventy percent of 14-18 year olds attending school; see Boix, 1998). Again, as in the Portuguese case, while the authoritarian regime of the early 1970s gave a nod to human capital development (largely for technocratic economic reasons), it was not until the democratic regime emerged, and in particular the arrival of the Socialist Party, that the state began funding public education at a level even approximating the Western European norm.

The mid-1980s saw a brief stagnation in education spending in Spain with education spending jumping again following entry into the European Community in 1986. From 1987 to 1995, education spending increased by over fifty percent, from three
percent of national income to 4.7%. While these increases in spending were partly a function of socialist rule, the impact of European integration was critical in pushing Spain towards the OECD average of education spending. In fact, the preamble to LOGSE specifically references the importance of the common market in justifying massive increases in education spending:

Ours is a society in a process of accelerated modernization which leads ever more certainly to a common horizon with Europe. When incorporating the citizens of the next century into the schools of today, the countries with which we are attempting to construct the European project […] place great confidence in the relevance of education and training, and are endeavoring to adapt these to the widening of individual, political, cultural, and productive opportunities, to the greater rapidity and complexity of change of every kind, offering a longer period of education to a greater number of citizens, promoting the best means in order to ensure its quality and putting into motion processes of reform in their respective systems […] The progressive integration of our society within the framework of the European Community positions use, in an educational context, for a future of competition… (LOGSE, 1990)

Spanish education spending since accession has converged rapidly with the European norm. As Diebolt (1999) notes, ‘with the emergence and consolidation of the European Union and more broadly with the increasing globalization of the economy, possible lags established during the course of history will gradually dwindle or disappear’. Moreover, while integration with the regional (and indeed global) economy has pushed up the demand for skill because of technology transfer, supply-side effects have prevented the wage premium to education from reducing, despite the very large increases in enrolment during the 1980s. In fact, Minondo (1999) finds that the Spanish non-manual / manual wage premium (an analog of the skilled / unskilled premium) actually increased during the 1980s from 1.45 to 1.60, with the bulk of the jump happening in the three years following accession. Overall, education spending since
democratization appears to have been closely related to the positive trade shock of entering the European Union, with the Spanish labor market converging in structure rapidly to that typical of advanced industrialized nations.

**Greece**

Unlike Spain and Portugal, Greece had an extended period of post-war democratic government before the autocratic interlude of military rule – ‘the Regime of the Colonels’ - from 1967 to 1974. Between 1952 and 1963, Greece had been governed by a series of conservative governments and then from 1963 to 1967 by centrist and liberal coalitions. Pre-1967 Greece was a constitutional monarchy with an overbearing monarchical influence, particularly between 1963 and 1967 when King Constantine II continually attempted to undermine the centrist governments of the time. In particular, the king’s ire was raised by the reformist Center Union government of George Papandreou between 1964 and 1965. Papandreou, the father of the first leader of the post-democratization Greek socialist party PASOK, Andreas Papandreou, was considered by the king to be dangerously radical and the Center Union government was undermined in 1965 by the king’s machinations. Before George Papandreou left office, he introduced Greece’s first modern education bill in 1964. The bill massively increased the role of the government in education and attempted to replace the artificial state language Katharevousa (a form of ancient Greek) with spoken or ‘demotic’ Greek as the language of instruction in primary education. This shift to spoken Greek vastly increased the relevance and accessibility of education to the poor and lower middle classes. Furthermore, enrolment was substantially increased by the extension of free compulsory education to nine years (Kazamias, 1978).
In combination with the use of spoken Greek, the change to compulsory education proved a spur to public spending on education which rose by fifty percent, from 1.4% of national income in 1960 to 2.1% by 1965, as can be seen in Figure 6.7.

**Figure 6.7: Democracy and Education Spending in Greece**

![Graph showing education spending in Greece](image)

The reaction of the king to Papandreou’s liberal government was merely a precursor of the reaction of the Greek establishment to the emergence of democratic socialism in Greece. In 1967, just before the scheduled elections for that year, Colonel George Papadopoulos seized control of government and established a military junta, which imprisoned opponents, including George Papandreou, and dissolved political parties. The ultraconservative reaction was also felt in the area of education. The generals revoked the 1964 Education Act, with compulsory educating reverting back to six years
from nine (Tsakloglou and Cholezas, 2005). Consequently, education spending fell back to 1.7% of national income by the mid 1970s. The overthrow of the generals in 1974 marked a return to both democratic politics and an expansionist public education policy. The center-right party New Democracy, headed by Constantine Karamanlis swiftly moved to reinstate portions of the 1964 Act removed by the generals.\footnote{Karamanlis’ government, although center-right, was far more favorable to public education spending than had been the autocratic generals. However, once the socialist PASOK party had gained office in 1981, education reform accelerated further. Chapter Nine examines cases of conservative and socialist parties regarding education spending. It is useful to note at this juncture that the move to democracy does not end debate over education, rather it alters the parameters within which policy can be set, in the Greek case, within the parameters of compulsory secondary education, which the generals had removed.} Education policy was moved to the top of the agenda; as Kazamias (1978) notes, ‘the new government, in the tradition of previous reformist regimes, gave educational reconstruction top priority’. Compulsory education reverted to nine years, and spoken Greek was to be used exclusively in a reformed secondary system. Overall, education spending had moved back to its pre-junta level by entry into the European Community in 1981.

1981 was a momentous year for Greece. Entry into the free market in January was followed in October by the election of Greece’s first socialist government. Both events underlay a surge in Greek education spending in the 1980s and 1990s that would push Greece to near the OECD average level of spending. Competition from European firms has driven Greek demand for education significantly. As Giamouridis and Bagley (2006) note, ‘Greek governments are very interested in participating in the global high-tech “New Economy” and … a restructured educational system is now seen as a necessary precondition for increased productivity, competitiveness, and the ability to adapt to the innovative content of the new technologies’. Since Greek companies had been heavily sheltered from competition pre-1981 and because Greece’s industrial structure had been
slanted towards labor- and land-intensive production, the arrival of skill-biased European technology has forced a sea change in education policy. The skill demands caused by European integration were accompanied by a series of ‘democratizing’ education reforms introduced by PASOK between 1981 and 1985 (Grollios and Kaskaris, 2003). These involved the establishment of teacher training colleges for the first time and the establishment of parent unions for civic participation in education planning. The socialists began a gradual increase in funding from two percent to 2.5% of national income by 1990, and in their second period in office from 1993 to 2004, they introduced a major reform to the structure of secondary education in 1997 and oversaw a rise in education spending from 2.5% to 3.8% of national income.

6.5: Conclusion

From the Pacific to the Indian to the Atlantic Ocean, the cases in this chapter have demonstrated the powerful and consistent effects of democracy and globalization on education spending. We have seen that both democratic revolutions and autocratic coups lead to systematic effects on education policy. The robust empirical relationship found between democracy and education spending in Chapters Three and Four is no mere artifact of a benign upward trend in both variables. Instead, autocratic leaders like Marcos, Estrada, Caetano, and Papadopoulos have all cut back education funding upon seizing power. Moreover, trade policies have also had enormous impact on education policy. Indian and Philippine import substitution industrialization stemmed the technological demand for education and protected the children of the elite from competition. Conversely, Malaysian export-led industrialization, and the spurt of trade
following entry to the European Community for Portugal, Spain, and Greece, has facilitated the transition to a high-skill, high-wage economy in these states. Even though education provision has expanded massively in these states, the wage premium to education does not appear to have suffered, indicating that the supply effects of globalization on education spending are powerful indeed. Across all these cases the same mechanisms suggested by the formal model have been seen to play out, confirming the basic hypotheses explored in previous chapters.
7.1 Introduction

In advanced industrial countries the politics of education may be more formalized than the struggles between autocratic elites and uneducated masses we saw in the previous chapters, but they are no less consequential. While the anti-education politician is a rare commodity\textsuperscript{144} in the Western world, budgetary trade-offs make manifest the underlying spectrum of preferences over public spending on education in actual policy outcomes. In fact, even among the world’s richest countries, education spending can be extremely volatile and at the mercy of tax cuts or grand expansions of state power, depending on the partisan identity of government. In this chapter, we shall see that swings in partisanship may have an impact on education spending as large as the potential effects of democratization that we saw in Chapter Three. Partisanship matters for education and it matters to the tune of billions of dollars.

\textsuperscript{144} Though not, it seems, entirely absent, as our examination of rhetoric surrounding the reduction of public funding of education will demonstrate in Section 6.4
The idea that partisanship affects policy outcomes is hardly new in political science. Indeed, it would be hard to believe that people would vote as they do if parties entirely failed to represent and execute the policy preferences of their constituencies. Work on this topic in political science has a storied history: from the analyses of Andrew Shonfeld (1965) and other postwar analysts of comparative economic policy in the ‘Golden Age’, through the ‘power resources’ analysis of writers like Korpi (1983) and Esping-Andersen (1985), to the more recent heirs to that literature, in particular the research community of John and Evelyn Stephens (see for example, Bradley et al, 2003, Rueschemeyer et al, 1992). Furthermore there has also been work, albeit more limited in scale, showing that socialist parties in advanced industrial countries tend to increase public spending on education (Boix, 1998 being the most significant example). In all, the field of study devoted to the effects of parties on policy has been tilled to near erosion. It is not, then, the sole aim of this chapter to show that left-wing governments spend more on public education than right-wing governments do, although we will address these results in passing. Instead our interest will revolve around firstly, how such partisan policymaking interacts with parties’ promises and their responsiveness to voters and secondly, how electoral institutions impact partisan policymaking.

The first objective is essentially bottom-up. How far are governing parties constrained by the preferences of those voters who vote for them and by the promises they make to these voters? In most studies this chain of links between preferences is effectively black-boxed. Parties are assumed to be trustworthy advocates of their constituents - passive vessels of popular preferences (for example, in Bradley et al, 2003). This simple and innocuous-looking assumption hides a host of pitfalls. Firstly, parties are
sticky institutions. When voters’ preferences over education policy change, whether because of economic growth, changes in industrial structure, or some other stochastic shock, these changed preferences may not become immediately manifest in the policy schedules of the parties that they vote for. Secondly, even when voters’ preferences are constant, there is no assurance that parties will choose to accurately reflect these preferences. Politicians may be driven centripetally by needs to obtain the median voter’s affirmation, centrifugally by needs to massage their base or by their own individual partisan preferences, or they may simply seek to maximize their own office rents. For example, many scholars have highlighted that the ‘time inconsistency’ problem, that prevents politicians post-election from keeping commitments made pre-election (Downs, 1959; Persson and Tabellini, 2000; Iversen 2005). Thus, when we see shifts in education spending it is often difficult to decompose these shifts into changes in voters’ preferences, changes in one party’s preferences, or changes in which party controls government.

Our second objective can be thought of as top-down. Parties are not only responsive to changing voter and party preferences but also to the constraints imposed by electoral institutions. Cabinets are not always free to ignore the preferences of parliaments and may find themselves constrained by legislative disapproval. Moreover, parties will face different trade-offs when seeking to impose their preferred education policy if they operate under majoritarian rule as opposed to proportional representation. In fact, as we shall see, the case of proportionality is associated with far less partisan volatility than the majoritarian case. Thus, forces from above and below will distort the channeling of party preferences into education policy.
The chapter begins by developing a theory of partisan education policy under electoral constraints in Section 7.2. This theoretical section accomplishes two key aims. Firstly, it provides a first cut at defining how voter preferences and party preferences combine to create policy outcomes. It explores a theory of education spending where parties make pre-election promises, to which voters respond, and following which parties have to decide to what degree they will follow these promises. Secondly, the theoretical section develops a mechanism explaining how political institutions constrain partisan policymaking in the area of education policy. In particular, we explore the moderating effect of proportionality on partisan swings in education spending. The chapter then continues in Section 7.3 by describing the particular data and measures used in this chapter to measure partisanship.

Sections 7.4 and 7.5 make up the middle section of the chapter, which examines the simple relationship between party ideology and, on the one hand, what parties say they will do to education spending, and on the other hand, what these parties actually do once in office. Section 7.4 begins our analysis of partisan preferences by examining the degree to which party manifestos express a desire to expand or contract education spending and how this rhetoric correlates with party type. We see a strong left-right pattern, with social democratic and liberal parties consistently mentioning expanding education more than conservative parties. Moreover, we shall also see the reverse relationship in terms of manifestos mentioning reducing education spending, with conservative (especially nationalist) parties the predominant users of such rhetoric. We also examine whether the pre-election rhetoric of parties actually has an impact on spending over and above the cabinet ideology of the governing party, once these parties
actually gain control over the policy process post-election. This leads us neatly into Section 7.5, which looks directly at the effect of cabinet ideology on both absolute and relative education spending. We find substantively strong and statistically robust evidence that as the ideological composition of the cabinet moves rightwards, both absolute and relative education spending are reduced. We then provide a more intuitive interpretation of these results by examining the predicted dollar change resulting from typical shifts in party control across several OECD states.

The last part of the chapter contains three sections that examine the bottom-up and top-down effects suggested above – attempting to decompose policy changes into changes in voter versus party preferences, and examining the role of electoral institutions in constraining policy. Firstly, in Section 7.6 we split the dataset into a variety of different elections, some with very close final results and others where the winning party had a particularly large margin of victory. We test whether policy shifts in education are similar across these two groups – one with large shifts in voter preferences, and the other with small shifts in voter preference but potentially large shifts in partisan control of government. This split sample analysis will aid us in attempting to decompose responsibility for policy shifts between voter preferences and party preferences. To corroborate the split-sample study we use propensity score matching techniques to ascertain if education spending is more volatile in elections where voter and cabinet preferences are ‘distinct’ as opposed to being ‘close’. Section 7.7 begins our analysis of electoral institutions by examining if the ideological composition of the legislature can act as a constraint on the preferences of cabinets over partisan policymaking. We shall see a clear impact of parliament, with legislatures able to succeed in buffering cabinets
when their composition differs substantially. Finally, Section 7.8 concludes with an analysis of the impact of electoral institutions on partisan policymaking. We find a strong moderating effect of proportional systems, measured in a variety of manners, on the impact of partisanship but no direct impact of electoral institutions themselves on policy outcomes. Thus, we show that electoral institutions do indeed matter for policy outcomes, as a variety of authors have recently argued (Rogowski and Kayser, 2002; Persson and Tabellini, 2003; Iversen and Soskice, 2006) but in as much as they undermine the ability of parties to legislate as they would do in a constraint-free environment.

7.2 Theoretical Development

The transition from individual preferences to policy outcomes is a tortuous one, mediated by party promises, party preferences, and party behavior. Parties themselves are constrained by electoral institutions and coalition partners and are pulled in opposite directions by the centrifugal forces of core partisan preferences and the centripetal force of the median voter. This chapter attempts to disentangle these varied forces from one another and to provide distinct estimates of the roles of voters, cabinets, and parliaments in education policy. Before we commence the empirical analysis, we extend the formal model developed in Chapter Two to provide a theoretical baseline for analyzing partisan policymaking. We begin by discussing how individual preferences over education spending are aggregated by political parties. We then explore two potential points of distortion between individual preferences and policy outcomes: the disconnect between parties’ pre-election promises and their post-election preferences; and the role of institutions in constraining the manifestation of party preferences in actual policy.
The formal model in Chapter Two suggested that the redistributive elements of education are the key determinants of individual preferences over education spending. In particular, the model argued that high income voters will prefer to reduce education spending and that middle class voters and potentially also the poor will desire higher levels of education. Extending this logic to a simple partisan analysis, we have a simple set-up where left-wing parties, representing the poor, favor increased absolute and relative education spending and right-wing parties, representing the wealthy, disfavor it. However, the course of true preferences never did run smooth. Parties face incentives to deviate from their constituencies to seek the vote of the median voter, whose education preferences will be more moderate than those of the party. To win election parties can announce their intended policies before the election - ‘committing’ to the median voter rather than following their partisan preferences. The problem with such promises stems from the classic ‘time-inconsistency’ problem (Iversen, 2005). The party’s pre-election incentive to promise moderate policy conflicts with their post-election incentive to deviate and fulfill their own partisan preferences over education policy.\footnote{This incentive to deviate is particularly strong in majoritarian systems, where the two-party nature of the system splits the middle class’s vote across two parties - see Section 7.8. Nonetheless the ‘time inconsistency’ problem is a general one, and we shall see in Section 7.4 that parties rarely commit to rhetorical promises that go against their partisan stripe. Furthermore, Section 7.6 shows that even in close elections parties will typically ignore voter wishes and enact their own preferred policy. This array of empirical results provides strong support to the theoretical assumption of non-credible commitments developed in the model in this section.} Moreover, parties are often constrained by parliamentary opposition or coalition partners and the strength of these constraints is typically determined by the prevalent electoral institutions in the state.\footnote{Iversen and Soskice (2006) develop their argument about the propensity for proportional representation to lead to center-left government from the baseline that proportional representation leads to different types of coalition formation than majoritarian electoral systems. Kedar (2005) shows that voters may strategically} To demonstrate this logic we now adapt the model from Chapter Two to
incorporate political parties who make pre-election promises and face post-election constraints.

We begin by assuming a simple median voter model of electoral politics with two parties (center-left and center-right) and partisan politicians (that is, politicians represent different income groups and would prefer the optimum education policy of that group) who are unable to make binding commitments to pre-election policy declarations. Since our baseline model has assumed three groups in our economy \((H, M, \text{and } P)\), there are too few parties for each group to be perfectly represented: thus the two parties, \(L\) and \(R\), fully represent \(P\) and \(H\) respectively but the middle group is split across both parties in terms of representation. Each party is thus made up of representatives of either \(P\) or \(H\) and an unknown proportion of \(M\). For any given election, the leader of the party who will make policy following election may be a member of \(M\), with probability \(\theta_K\), where \(K = (L, R)\), or of one of the fully represented groups, with probability \((1-\theta_K)\). Over repeated elections \(\theta_L = \theta_R = \theta\), but in any given election this symmetry may not hold, hence there is uncertainty over which party best represents the middle-class’s interests.\(^{147}\)

Once in power the leader of the elected party will make policy according only to their own partisan preferences; that is, they cannot commit to any other group’s policy, despite the possible vote gains that such a commitment might encourage. This restriction mirrors the above discussion of the time-inconsistency dilemma and precludes parties from making commitments in their pre-election manifestoes that go against the grain of vote for extremist minor parties, even if they do not share the policy positions of these parties, in order to moderate the coalition’s major party. Analysis in Section 7.4 of this chapter notes that minor coalition parties that are strong proponents of education, are more likely to received the education ministry – thus Kedar’s suggestion could well play out in education policy. Note also, that both Kedar’s theory and that propounded in this chapter are dependent on the prevailing electoral institution.

\(^{147}\) This model is based on that developed in Iversen and Soskice (2006).
their partisan identity. Under this probabilistic model, if party \( L \) is elected, the preferred education policy of group \( M \), \( S_{M}^{*} \), will be imposed with probability \( \theta_{L} \), and the preferred policy of \( P \), \( S_{P}^{*} \), with probability \((1 - \theta_{L})\).\(^{148}\) A symmetric pattern occurs with party \( R \).

The key prediction of such a model is that over repeated elections, where \( \theta_{L} = \theta_{R} = \theta \), the parties will impose the following expected policies:

\[
E\left( S_{L}^{*} \right) = \theta S_{M}^{*} + (1 - \theta) S_{P}^{*}
\]

\[
E\left( S_{R}^{*} \right) = \theta S_{M}^{*} + (1 - \theta) S_{H}^{*}
\]

This implies that, over repeated elections, the optimal policy for the left party is higher than for the right party since we know from Equations (27) through (29) in Chapter Two that the average of the middle income and poor groups’ preferred levels of education spending is higher than the average of the rich and middle income groups.\(^{149}\)

Hence left-wing government should be associated with greater absolute education spending than right-wing government. Similarly the results from Section 2.3 of Chapter Two relating relative education spending to each group’s preferences also carry through to the parties set-up, with left-wing parties preferring to tilt government spending towards education and right wing parties preferring to slant away from education. This result occurs because we know that the negative effect of education spending is higher for the rich than for the poor (since the poor benefit from scarcity effects and the rich lose out). Thus, even though the poor may prefer simple redistribution to education spending, their

\(^{148}\) \( S_{M}^{*} \) is defined formally as the level of education provision that maximizes the utility of the middle income group, as defined by the marginal utility of education in Equation (28) of Chapter Two.

\(^{149}\) Although our current model is abstracting away from the ‘ends against the middle’ coalition discussed in Section 2.4, the implication that a middle-poor coalition prefers higher education spending to a rich-middle coalition carries through. Since we are currently assuming a median voter logic to political decision-making, the rich-poor alliance, which prefers redistribution to education spending, cannot emerge. However, this pattern will re-emerge in party preferences in Section 7.4, the formal modeling in Section 7.8 and at greater length in Chapter Eight.
preference will be for higher relative education spending than the rich, with the middle class having the highest preference for relative education spending. In a two-party center-right / center-left system, the center-left party will consequently prefer higher relative education spending.

However, absolute and relative spending differ somewhat in the degree to which pre-election promises that rub against the partisan grain are made credible. We saw that the unidimensionality of absolute education spending as a policy arena meant that center-right parties demand less and center-left parties demand more. Neither party can credibly commit to a policy that goes against this pattern. However, in terms of relative spending, it may be the case that pre-election commitments carry more of a weight than they do in terms of absolute spending. The logic behind this assertion lies in the fact that relative education spending is a two-dimensional policy choice but elections are typically fought along one-dimensional battle-lines. If we assume that left-wing parties always choose to expand overall public spending and right-wing parties choose to contract spending, and that the election is fought along this single dimension, then there is still a role for pre-election promises in terms of signaling priorities between education and other government consumption within the general partisan trend of overall spending.

Figure 7.1 demonstrates this logic. The unidimensional electoral dimension of public spending means that the center-left party will enact tax policy $\tau_L$ if voted into office, which is larger than the center-right party’s preferred $\tau_R$. However, there remains a choice in how to spend (or save) the difference in tax rates. Starting from a status quo of $\{S^*, m^*\}$, the parties could choose an array of different combinations of education and simple redistribution, shown in Figure 8.1 by the shaded areas along each party’s
preferred tax policy. Since there is pre-election uncertainty among the middle income about the precise partisan balance within each party between $P$ and $M$ or $H$ and $M$, parties may try and signal their composition to the middle class by advocating, or not, increasing education spending. However, what this pre-election promise implies is merely the point on the shaded line that the party will choose. For left-wing parties this still means expanding education but not mentioning education pre-election signals that they will concentrate on redistributive spending, corresponding to point A in Figure 7.1. Right-wing parties, conversely might signal their interest in education spending in pre-election manifestoes, which means any cuts in education will be replaced by cuts in redistribution, as in point B. Thus, in relative spending, as we shall in Section 7.4, manifesto promises may actually be credible statements of intent.

**Figure 7.1: Relative Spending and Education Rhetoric**
We conclude our extension of the formal model to partisan politics by examining the constraining impact of political institutions on parties’ preferred policies. Two particular institutional constraints matter: parliamentary constraints and electoral constraints. The latter we develop formally in greater detail in Section 7.8. We concentrate here on parliamentary constraints. We can conceptualize these as the difference between the policy preferences of the ruling party or coalition and the parties out of power, moderated by a factor \( \rho \), which represents the ability of parliament to block or dilute legislation. This means that policy outcomes will be determined as follows:

\[
S^*_{CON} = \frac{(2 - \rho)S^*_{WIN} + \rho S^*_{LOSE}}{2}
\]

This equation implies that where parliament is weak, that is \( \rho = 0 \), the winning party obtains its preferred policy. However, if parliament is particularly strong, that is \( \rho = 1 \), and can force 50:50 bargains on all policies, we end up with an education policy that reflects the average of the preferred policies of all winning and losing parties. We shall see in Section 7.7 that parliaments do appear to have a role in constraining parties in government, although typically cabinet preferences overwhelm parliamentary preferences. With the models of partisan preferences, pre-election signaling, and post-election constraints laid out above, we can turn to operationalizing these partisan and institutional variables.

### 7.3: Measures of Partisanship

The key measurement task in this chapter is to find consistent ways of operationalizing both political partisanship and political institutions. Partisanship is difficult to measure cross-nationally because it is not obvious that the political cleavages
in one state translate into those of another, nor that parties’ declarations of ideology necessarily match up with their revealed preferences once in office. Institutions can be difficult to measure because it is often unclear if we wish to test an effect of ‘just being’ the institution – for example, using a dummy variable to stand for a system using single-member districts – or whether institutions proxy for underlying causal forces – for example, institutions determining the number of effective parties in a political system – which themselves determine outcomes of interest. One way to reduce the problem with partisanship measures is through fixed effects analysis because it examines only within-state changes and thus avoids the problem of cross-country comparability. We shall attempt to resolve the problem with institutional measures by using a variety of indicators that shed light on different aspects of the role of institutions. This section discusses the data choices made and sources used in the following sections.

To measure partisanship, the key data source used in this project is Thomas Cusack and Lutz Engelhardt’s *PGL File Collection* (2002). This dataset converts Budge et al’s (2001) *Comparative Manifestos Project* (CMP) dataset, which covers twenty-three OECD countries from 1945 to 2002, into a country-year dataset that conforms to the dataset used in Chapters Three and Four. This dataset provides a set of ideological ‘center of gravity’ indices, which are weighted averages of the ideological composition of cabinet, parliament, and other political institutions. Cusack and Engelhardt also provide a modified version of the CMP dataset, whose observations are party-electoral period, which I use in Section 7.4 to examine party rhetoric. In both datasets ‘ideology’ is calculated by using a series of manifesto declarations for each party in each electoral period: thus the same party may change in its ideological score over different elections.
(for example, Labour in the UK which moves to the right over the period 1974 to 1997). These manifesto declarations cover a broad variety of potential partisans splits including the size of the welfare state, levels of taxation, the degree of regulation in the economy, foreign policy, and civil rights. Once these manifesto declarations have been combined, the resulting ideological codings – the CMP policy position (CMPIDEO) - match up well with our expectations taken from simple party ID but have greater time-series variability and are more representative of policy preferences than simple party dummies would be.

The key independent variable used throughout the analysis is the cabinet partisanship variable, available from the Cusack / Engelhardt year-country dataset. This center of political gravity variable is constructed using the following formula:

$$CPG = \sum_{i=1}^{n} T_i C_i$$

$T_i$ is party $i$’s decimal share of seats or votes and $C_i$ is party $i$’s position on the ideological dimension where left-wing parties score less than zero and right-wing parties score higher than zero. For the cabinet partisanship variable the relevant $T_i$ is each party’s share of seats in the cabinet and for the parliamentary partisanship variable, used in Sections 7.6 and 7.7, the relevant $T_i$ is each party’s share of votes in the lower house. Thus, cabinet partisanship attempts to measure the ideological composition of the governing party (or coalition) and parliamentary partisanship gives us a fairly representative (albeit channeled through electoral institutions) picture of voters’ ideological preferences. In terms of attempting to derive party preferences over education spending we are best off relying on the cabinet partisanship variable since only governing parties can enact legislation and thus are the clear executors of any change on our dependent variable. However, as the analysis moves towards attempting to distinguish changes in voter preferences from party
preferences, the parliamentary partisanship variable will prove critical. Finally, two other variables are used in Sections 7.6 and 7.7: the difference between cabinet and parliamentary partisanship and the difference between cabinet and governmental parliamentary partisanship.

I also create a new center of gravity index for ‘educational rhetoric’ in Section 7.4, using a script file provided by Cusack and Engelhardt. This variable provides a weighted average of the percentage of the pre-election manifesto devoted to calls for increased education spending (minus calls for decreased education spending) across all of the parties on coalition government. This variable allows us to be able to assemble a country-year index of educational ‘rhetoric’ that we can enter into the broader dataset examining education outcomes.

Section 7.8 examines the impact of electoral institutions on partisanship in education policy. Three particular scores are used. Firstly, I use an inverse-single-member-district system: states with single-member districts are coded zero, those without are coded one and those with mixed systems are coded one half.\textsuperscript{150} This data is taken from Huber et al (1997). Secondly, I use Laakso and Taagepera’s (1979) ‘effective number of parties’ index, which is calculated as one divided by the sum of the square roots of the shares of seats held by the different parties in parliament. Thirdly, I use Iversen and Soskice’s measure of the proportionality of electoral systems which they construct as a composite index of Lijphart’s measure of the effective threshold of representation and Gallagher’s measure of the disproportionality between votes and seats. This index has been constructed to run from zero to one (Iversen and Soskice, 2006).

\textsuperscript{150} This measure is also used in the propensity score calculation in Section 3.6.
7.4: Testing Partisan Preferences: Does Partisanship Predict Rhetoric?

Promising to support education is an archetypal political crowd-pleaser. Most parties from left to right make campaign speeches in promise education to be a political priority. Many also make reference in their addresses to increasing education spending. Yet, when one examines party manifestos, different partisan preferences over increased public investment in education appear somewhat more distinct. In a sense, campaign manifestos are cheap talk – since parties are rarely held accountable to all promises in their campaign literature, mentioning a policy for increased education in the pre-election period does not provide a credible commitment for post-election behavior unless reputation costs are very high. Nonetheless, since manifestos have to be filled with some preferred policy proposals, there is also ample cause to believe that parties are not mentioning education for purely ornamental reasons. Moreover, parties may have to signal to their constituencies that they share their particular interests over policies: left-wing parties, in particular, may feel compelled to address public education spending.

As we shall see in this chapter, there are strong partisan patterns in the degree to which parties emphasize increased investment in education in their manifestos. Moreover, it appears that those minor coalition partners who emphasize expanding education spending more strongly in their manifestos stand a better chance of receiving the education ministry during the allocation of cabinet seats in a coalition government. However, when we examine whether these pre-election promises have any effect on post-election policy outcomes, controlling for the partisanship of government, we find a much more mixed story. In fact, absolute education spending does not appear to be independently affected by such promises. However, there does appear to be a direct effect
of rhetoric on relative education spending, even when partisanship is held constant, implying a rather pessimistic message: political parties that promise to give out more education spending with one hand, may take away funding from other government programs with the other. Rhetoric, in that sense, is merely about priorities under fixed budget constraints.

The objectives of this section are twofold. Firstly, this section attempts to divine whether the assumed partisan preferences over education policy laid out in the formal model in Section 7.2 ring true in terms of parties’ own expressed preferences. Secondly, this section addresses whether such expressed preferences are, in any sense, binding on politicians once they attain office. By undertaking this analysis we can test an elaborate model of how politicians respond to voter preferences and of the strategic nature of pre-election rhetoric and subsequent voter expectations over outcomes. We will then follow up on this line of thinking in Section 7.6, where we explicitly try to distinguish changes in voter preferences over education policy from changes in party control of government.

How can we measure rhetoric? The previous section on measurements of partisanship mentioned the Cusack-Engelhardt (2002) and Budge et al (2001) datasets from which this chapter draws measures of government ideology. As noted above, the Cusack-Engelhardt dataset creates yearly measures of various institutions’ ‘political centre of gravity’ by using weighted averages of policy positions expressed in party manifestos from the Comparative Manifestos Project. One important component of many of these indices of partisanship is the percentage of a party’s manifesto that is devoted to

---

151 The next section provides confirmation that parties’ revealed preferences also match up with the preferences assumed in Section 7.2.
calls for increased education spending. This variable ranges from zero to thirty percent, with a mean of 3.67% and a standard deviation of 3.4%. In this section’s empirical analysis we shall use the following abbreviation for this variable: EDPOS. The first set of empirical tests in this chapter use the basic CMP dataset, as adapted by Cusack and Engelhardt (2002), to examine the impact of party type on the education rhetoric variables. This dataset is composed of observations indexed $y_{ijt}$, where $i$ indexes the party, $j$ indexes the country, and $t$ indexes the election period. Note that the time variable is not a standard year variable but is organized in terms of elections. In terms of measuring party type, I employ three measures.

The first technique uses Budge et al’s (2001) party coding, which splits parties into eleven families, ecology (green), communist, social democratic, liberal, Christian democratic, conservative, national, agrarian, ethnic and regional, and special interest. The baseline empirical model will make the least restrictive assumptions about ideology by simply using dummy variables for each party type. It is worth noting that, although this party coding is roughly ordered from left to right, that ordering is in no sense interval, and thus major parties that are likely to form governments and smaller parties with no real chance of governing are each given separate dummies. Thus, it will also be useful to limit the analysis in two manners. Firstly, we combine parties into similar-party groups: the far left, the center left, the center right, and the paleo-conservatives. This simplifies

---

152 That is, $t+1$ would mean the following election, although we are not conducting time-series analysis here and hence we are assuming no serial correlation in error terms across elections (although we do allow serial correlation within elections through clustering effects).

153 The Communists and greens are in the far left grouping; the social democrats and liberals in the center-left grouping, the Christian democrats and conservatives in the center right grouping, and the nationalists, agrarians, regionalists and special interest parties are in the paleo-conservative group. This last group is so named since these parties represent conservative identity politics (e.g. national, rural, regional, special interest) rather than programmatic mass conservatism.
our scale somewhat, providing a more intuitive ordering of parties. It also resolves the problem that emerges from some countries seeing two party competition emerge between liberals and conservatives (Canada), others between social democrats and conservatives (the UK), and others between social democrats and Christian democrats (much of Continental Europe). Secondly, we simplify matters further by examining only those parties in the center-left and center-right groups – who by and large will be the core parties governing these countries and thus who will be most comparable to the parties under analysis when we turn to examine cabinet partisanship.

The second technique we shall use will order parties along a scale and treat that ordering as a single linear variable (PARTY). While this variable imposes a very artificial linear and interval nature on the difference between parties it does allow us to get an idea of whether there is a trend towards or away from mentioning increased education spending as we move to increasingly right-wing forms of party, from communists to ethnic / regionalist parties. This variable, because of its debatable construction should be viewed with some skepticism; however, it does allow us to proxy for an intuitive idea of the range of potential political parties.

The third technique abstracts away from party identification per se and moves towards examining the stated positions of these parties on issues other than education. We use the two ideological variables taken from the CMP in the Cusack-Engelhardt dataset: the CMP policy position variable (which will be our standard ideology variable in the following sections, CMPIDEO), and a simple measure of general party attitudes towards the market economy and the welfare state (MARKWELF). These ideological variables have the disadvantage that they make stronger assumptions about the links
between party and educational rhetoric, in that we are now ordering parties on an interval scale constructed by their positions on other issues. As we shall see, however, these variables have the distinct advantage in being able to differentiate between the same party at different points in time or similar party types across countries in ways that the previous party family measures are unable to manage.

Tables 7.1a and 7.1b examine the effects of these different measures of party on educational rhetoric. Before describing the results it is worth mentioning a few methodological considerations. Firstly, all of the following regressions use election fixed effects – thus even if education happens to be particularly salient in one electoral period, this will drop out of the equation and we will be left with the differences in party rhetoric within that election. The second methodological matter worth noting is that all regressions are adjusted for potential heteroskedasticity of errors. Given that parties makes no mention of education at all in around one sixth of observations this helps us control for the increased variance in the education rhetoric variables when parties fail to mention education. Thirdly, each regression for EDPOS is conducted twice, once using an OLS linear regression model and again using a negative binomial count model. The OLS regression could lead to negative estimations of predicted values on the dependent variable, since OLS is not bounded. Since negative mentions of education in a manifesto are not possible, we also use a count model. However, because the distribution of EDPOS has a variance not equaling the mean, the Poisson distribution is not an appropriate modeling choice. The negative binomial model adapts the Poisson distribution to allow the variance to vary and is thus used instead. All regressions are conducted using
maximum likelihood techniques with standard errors adjusted for heteroskedasticity as mentioned above.\textsuperscript{154}

### Table 7.1a: The Effects of Party Type on the Proportion of Manifestos Devoted to Calls for Increased Education Spending

<table>
<thead>
<tr>
<th></th>
<th>MODEL A1 OLS</th>
<th>MODEL A2 OLS</th>
<th>MODEL A3 OLS</th>
<th>MODEL B1 NEGBIN</th>
<th>MODEL B2 NEGBIN</th>
<th>MODEL B3 NEGBIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greens</td>
<td>-1.656</td>
<td>-.456</td>
<td>-.678</td>
<td>-.214</td>
<td>.201</td>
<td>.421</td>
</tr>
<tr>
<td></td>
<td>(.297)***</td>
<td>(.166)***</td>
<td>(.083)***</td>
<td>(.075)***</td>
<td>(.078)*</td>
<td>(.045)***</td>
</tr>
<tr>
<td>Communists</td>
<td>-.869</td>
<td>.110</td>
<td>.752</td>
<td>-.456</td>
<td>.044</td>
<td>.187</td>
</tr>
<tr>
<td></td>
<td>(.256)***</td>
<td>(.239)***</td>
<td>(.139)**</td>
<td>(.131)***</td>
<td>(.082)</td>
<td>(.030)***</td>
</tr>
<tr>
<td>Social Dem.</td>
<td>.623</td>
<td>.109</td>
<td>.752</td>
<td>.044</td>
<td>.238</td>
<td>.238</td>
</tr>
<tr>
<td></td>
<td>(.239)***</td>
<td>(.140)***</td>
<td>(.101)***</td>
<td>(.078)</td>
<td>(.048)**</td>
<td>(.048)**</td>
</tr>
<tr>
<td>Liberals</td>
<td>.477</td>
<td>.354</td>
<td>.060</td>
<td>.038</td>
<td>.038</td>
<td>.038</td>
</tr>
<tr>
<td></td>
<td>(.237)**</td>
<td>(.145)**</td>
<td>(.240)</td>
<td>(.253)</td>
<td>(.253)</td>
<td>(.253)</td>
</tr>
<tr>
<td>Christian Dem.</td>
<td>-.312</td>
<td>-.060</td>
<td>-.1478</td>
<td>-.060</td>
<td>-.060</td>
<td>-.060</td>
</tr>
<tr>
<td></td>
<td>(.253)</td>
<td>(.240)</td>
<td>(.396)***</td>
<td>(.310)*</td>
<td>(.310)*</td>
<td>(.310)*</td>
</tr>
<tr>
<td>Conservative</td>
<td>-.060</td>
<td>-.555</td>
<td>-.526</td>
<td>-.268</td>
<td>-.276</td>
<td>-.276</td>
</tr>
<tr>
<td></td>
<td>(.253)</td>
<td>(.310)*</td>
<td>(.334)</td>
<td>(.096)***</td>
<td>(.126)**</td>
<td>(.126)**</td>
</tr>
<tr>
<td>Agrarian</td>
<td>-.555</td>
<td>-.060</td>
<td>-.060</td>
<td>-.060</td>
<td>-.060</td>
<td>-.060</td>
</tr>
<tr>
<td></td>
<td>(.310)*</td>
<td>(.240)</td>
<td>(.240)</td>
<td>(.240)</td>
<td>(.240)</td>
<td>(.240)</td>
</tr>
<tr>
<td>Ethnic / Reg.</td>
<td>-.526</td>
<td>-.526</td>
<td>-.526</td>
<td>-.268</td>
<td>-.276</td>
<td>-.276</td>
</tr>
<tr>
<td></td>
<td>(.334)</td>
<td>(.334)</td>
<td>(.334)</td>
<td>(.096)***</td>
<td>(.126)**</td>
<td>(.126)**</td>
</tr>
<tr>
<td>Constant</td>
<td>3.535</td>
<td>3.000</td>
<td>3.390</td>
<td>.903</td>
<td>.651</td>
<td>1.286</td>
</tr>
<tr>
<td></td>
<td>(.218)***</td>
<td>(.120)***</td>
<td>(.071)***</td>
<td>(.086)***</td>
<td>(.063)***</td>
<td>(.074)***</td>
</tr>
<tr>
<td>N</td>
<td>4076</td>
<td>4076</td>
<td>2877</td>
<td>4023</td>
<td>4023</td>
<td>2784</td>
</tr>
<tr>
<td>R-SQ.</td>
<td>0.41</td>
<td>0.40</td>
<td>0.48</td>
<td>0.40</td>
<td>0.40</td>
<td>0.40</td>
</tr>
<tr>
<td>Elections</td>
<td>345</td>
<td>345</td>
<td>340</td>
<td>345</td>
<td>345</td>
<td>340</td>
</tr>
</tbody>
</table>

Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01

\textsuperscript{154} We might debate whether mentioning education in a manifesto is really a count model. On the one hand, negative values are not possible, as in the count set-up, and moreover we could think of the percentage of the manifesto devoted to education as the number of times (normalized to the size of the manifesto) that education is mentioned. On the other hand, our count model is clearly bounded at one hundred (although in practice we come nowhere near this value in the data) and the analog between counting discrete events and the ‘number of words’ used to emphasize education spending is not foolproof. We thus use the negative binomial with appropriate care and skepticism, as a robustness check for the linear regression model.
Table 7.1a presents our first set of results for the \textit{EDPOS} variable, examining the effects of the party dummies. The first three models, A1-A3, use ordinary least squares regression with election fixed effects and standard errors adjusted for heteroskedasticity. Ten parties are entered into the regression in Model A1, with the ‘special interest’ party grouping removed. The best way to interpret these coefficients is to compare them to one another in terms of their sign and magnitude, noting that statistical significance is measured against a null hypothesis that they have the same impact on \textit{EDPOS} as the special interest party. Three points are immediately noticeable. Firstly, and perhaps most surprisingly, are the very large and significant negative coefficients on the green and communist parties (especially the former). Secondly, there are strong positive and significant coefficients for the social democrats and liberal parties, with the former having the largest positive coefficient of all the parties. Thirdly, all the parties to the right of the liberals – the Christian democrats, conservatives, nationalists, agrarians, and regionalists – have negative coefficients, with particularly large coefficients for the paleo-conservative parties, especially the nationalists.

How ought we to interpret the coefficients in Model A1? Figure 7.2, below, shows 95\% confidence intervals for each party, with the dashed line representing the constant term (also our estimate for the average \textit{EDPOS} value for special interest parties). The most striking pattern is an inverse-U, with far left parties barely mentioning education; social democrats and liberals the strongest advocates for increased education spending; and with right-wing parties at varying lower levels of advocacy, particularly nationalist parties, who most resemble the green parties. If we, exclude the greens and communists from analysis we see a clear left-right negative pattern (this will emerge
more strongly when we examine the ideology variables). The result for greens and communists is somewhat surprising and may result from the fact that these parties typically stand little chance of obtaining power and their manifestos tend to be calls for revolutionary change as opposed to incremental increases in social policy funding. Another interpretation would be to revisit the possible ‘ends against the middle’ argument developed in Section 2.4. In this section we noted that if the poor are deprived of education, even under democracy, we may see them advocate for other forms of redistribution than education. The reverse-U shape of Figure 7.2 suggest a possible ‘ends against the middle’ anti-education between extreme left and right parties. However, since the parties typically fail to become the formateurs of coalitions, and almost never ally with one another, the fact that preferences demonstrate an ‘ends against the middle’ pattern does not necessarily support such a coalition actually emerging, at least among the OECD countries of this dataset.

**Figure 7.2: Comparing Parties’ Education Rhetoric**
We simplify matters somewhat in Model A2 by combining the parties into four major groups: far left, center left, center right, and paleo-conservative. Model A2 includes dummies for the first three groups. We see very strong results here, with far-left parties mentioning education even less than the paleo-conservatives, and with the two centrist groups devoting considerably more space in their manifestos to calls for increased education funding. This result, with centrist parties more focused on policy funding formulae is unsurprising, since these are the only parties likely to have control of policy levers following the election. Importantly for the argument in this chapter, we also see that center-left parties are considerably greater advocates for increase public spending on education than are center-right parties, devoting almost one percent point more of their manifestos to this topic. This finding is confirmed in Model A3, which includes only center-left and center-right parties in the sample, finding a difference of three quarters of a percentage point between the two groupings. Thus, there appears to be considerable evidence backing the assertion that left-wing parties (at least those likely to actually gain power) express greater pre-election interest in increasing education funding than do right-wing parties.\textsuperscript{155}

\textsuperscript{155} Models B1 through B3 replicate this analysis using a negative binomial model, with the percentage of the manifesto devoted to education spending rounded to the nearest whole percentage point (so that the data conforms to the discrete specification of a negative binomial probability function). The results are remarkably similar, in terms of sign, relative magnitude, and statistical significance, to those found in the OLS analysis. The chief difference appears to be greater statistical significance for the negative coefficients attached to the far right parties. Overall, the robustness to different statistical assumptions is an encouraging find, supporting the general picture that mainstream left and right parties differ substantially in their expressed preferences over increased education spending, with extremist parties generally mentioning education even less in their manifestos than center-right parties.
Table 7.1b: Interval Measures of Partisanship and Education Rhetoric

<table>
<thead>
<tr>
<th></th>
<th>MODEL A1 OLS</th>
<th>MODEL A2 OLS</th>
<th>MODEL A3 OLS</th>
<th>MODEL B1 NEGBIN</th>
<th>MODEL B2 NEGBIN</th>
<th>MODEL B3 NEGBIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTY</td>
<td>-0.047</td>
<td></td>
<td></td>
<td>-0.020</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.021)**</td>
<td></td>
<td></td>
<td>(0.007)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMPIDEO</td>
<td>-0.045</td>
<td>-0.003</td>
<td></td>
<td>-0.014</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.002)*****</td>
<td>(0.001)*****</td>
<td></td>
<td>(0.001)*****</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARKWELF</td>
<td>-0.003</td>
<td>-0.003</td>
<td></td>
<td>-0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001)*****</td>
<td>(0.000)*****</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>3.721</td>
<td>3.410</td>
<td>3.471</td>
<td>0.905</td>
<td>0.972</td>
<td>0.808</td>
</tr>
<tr>
<td></td>
<td>(0.106)*****</td>
<td>(0.041)*****</td>
<td>(0.047)*****</td>
<td>(0.056)*****</td>
<td>(0.055)*****</td>
<td>(0.049)*****</td>
</tr>
<tr>
<td>Observations</td>
<td>4076</td>
<td>4076</td>
<td>4068</td>
<td>4023</td>
<td>4023</td>
<td>4018</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.38</td>
<td>0.41</td>
<td>0.38</td>
<td>0.345</td>
<td>0.345</td>
<td>0.345</td>
</tr>
<tr>
<td>Elections</td>
<td>345</td>
<td>345</td>
<td>345</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standard errors in parentheses * = p < 0.1, ** = p < 0.05, *** = p < 0.01

Table 7.1b continues our analysis of the effects of partisanship on education rhetoric by examining whether one-dimensional, interval scales of ideology also show the patterns demonstrated in Table 7.1a. Again we use both OLS and negative binomial models to analyze the impact on the percentage of manifestos devoted to calls for increased education spending. Model A1 uses the simple party measure, which replicates the ordering of parties used above (from greens to special interest parties). We saw considerable non-linearity when we examined Figure 7.2 earlier, which suggests that a linear assumption may not be appropriate – however, there are also fewer far-left parties in the dataset than centrist parties which reduces this problem from the perspective of trying to get a good fit to the data (if not substantively).\(^{156}\) A linear fit does, however, appear to be statistically significant at the five percent level, although with a much lower

\(^{156}\) I also conducted these regressions using a quadratic function of party type (that is, using both party type and its square), finding a positive coefficient on the linear variable and a negative coefficient on the quadratic variable (both statistically significant at the p<0.01 level – forming an inverse U that peaked between social democrat and liberal parties..
magnitude than the regressions above suggest because of the inclusion of the far left parties (excluding both far-left and paleo-conservative parties gives us a coefficient estimate of -.277, with a t-statistic of -6.92, implying a decrease of around 0.83 of a percent point as we move from social democrats to conservatives – similar to our results in model 3A of Table 7.1a). Similar results also obtain when we use the negative binomial formulation, albeit at higher levels of statistical significance.

Models A2 and B2 use the CMP’s ideology index (with the education element excluded) as our independent variable. This variable, described in greater detail in Section 7.3, ranges between -90.8 and 85, with a mean in the dataset of -6.4 and a standard deviation of 24.3. The coefficient on this variable is -.045, implying that a two standard deviation shift to the right in ideology should be associated with a decrease of over two percent points in EDPOS – an extremely large predicted first difference with a huge t-statistic of -19.5. This implies that other ideological factors that are associated with being on the left or the right, for example, attitudes on employment, regulation, and authority, are very closely associated with attitudes towards increased education spending. This is an important finding, since it provides tight support for our assumptions that left and right wing parties have fundamentally different preferences over education, at least in terms of ‘expressed preferences’. Models A3 and B3 confirm this assertion using a simpler proxy for ideology, using codings of attitudes to the welfare state and market economy, normalized on a scale between -100 and +100, also finding a robust partisan effect (albeit somewhat smaller – two standard deviations leading to a change of around 0.4 percent points).
We now shift gear somewhat to examine a slightly different question about parties’ preferences over education spending. For parties that win a majority, the connection between education rhetoric and education policy should be simple: they can choose to enact their promises or choose to renege on them. For parties that fail to join the government, the strategic environment is also simple – they simply have no control over policy outcomes. However, there is a large subset of cases where parties do not win a majority but do have some hand in government through coalition. They thus have some opportunity to realize their expressed policy preferences over education spending but this is likely to depend on whether they are given the education seat in the cabinet. Table 7.2 examines whether non-winning parties that express a strong preference for increased education spending in their pre-election manifestos are more likely to be granted the education portfolio in coalition cabinets in the post-election period.

Table 7.2 contains four models. Models A and C contain the full sample of parties, including those who won the election. Models B and D include only those parties that did not win the election. These parties may however gain some cabinet portfolios if they form a coalition with the winning party. The other difference between the models is that Models A and B use OLS with election fixed effects whereas Models C and D use a logistic link function as well as election fixed effects (thus, the predicted values of the dependent variable are bounded between zero and one unlike in the OLS models). The regressions have as their dependent variable a simple zero / one coding of whether a party gained the education portfolio in that particular electoral period. We control for all party types, as well as the vote share that party got (on the assumption that coalition partners with high vote shares are more likely to get plum cabinet positions like education). Our
The independent variable of interest is $EDPOS$ – as before, the percentage of the party’s manifesto devoted to calls for increased education spending.

### Table 7.2: The Effects of Education Rhetoric on Gaining Education Portfolio

<table>
<thead>
<tr>
<th></th>
<th>MODEL A FIXED LINEAR FULL SAMPLE</th>
<th>MODEL B FIXED LINEAR NON P.M.</th>
<th>MODEL C FIXED LOGIT FULL SAMPLE</th>
<th>MODEL D FIXED LOGIT NON P.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPOS</td>
<td>0.006</td>
<td>0.003</td>
<td>0.043</td>
<td>0.062</td>
</tr>
<tr>
<td></td>
<td>(0.002)***</td>
<td>(0.002)**</td>
<td>(0.021)**</td>
<td>(0.031)**</td>
</tr>
<tr>
<td>Greens</td>
<td>-0.114</td>
<td>-0.111</td>
<td>-14.703</td>
<td>-15.698</td>
</tr>
<tr>
<td></td>
<td>(0.028)***</td>
<td>(0.026)**</td>
<td>(742.158)</td>
<td>(985.049)</td>
</tr>
<tr>
<td>Communists</td>
<td>-0.165</td>
<td>-0.033</td>
<td>-1.448</td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td>(0.022)***</td>
<td>(0.018)*</td>
<td>(0.555)**</td>
<td>(0.557)</td>
</tr>
<tr>
<td>Social Dem.</td>
<td>-0.083</td>
<td>-0.006</td>
<td>-0.225</td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td>(0.022)***</td>
<td>(0.017)</td>
<td>(0.490)</td>
<td>(0.525)</td>
</tr>
<tr>
<td>Liberals</td>
<td>-0.051</td>
<td>0.030</td>
<td>0.917</td>
<td>0.742</td>
</tr>
<tr>
<td></td>
<td>(0.023)**</td>
<td>(0.021)</td>
<td>(0.489)*</td>
<td>(0.511)</td>
</tr>
<tr>
<td>Christian Dem.</td>
<td>0.005</td>
<td>0.070</td>
<td>0.508</td>
<td>1.145</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.024)**</td>
<td>(0.502)</td>
<td>(0.529)**</td>
</tr>
<tr>
<td>Conservative</td>
<td>-0.072</td>
<td>-0.009</td>
<td>-0.019</td>
<td>0.156</td>
</tr>
<tr>
<td></td>
<td>(0.024)***</td>
<td>(0.020)</td>
<td>(0.495)</td>
<td>(0.540)</td>
</tr>
<tr>
<td>Nationalist</td>
<td>-0.119</td>
<td>-0.038</td>
<td>-15.180</td>
<td>-16.202</td>
</tr>
<tr>
<td></td>
<td>(0.024)***</td>
<td>(0.019)**</td>
<td>(897.032)</td>
<td>(1,693.827)</td>
</tr>
<tr>
<td>Agrarian</td>
<td>-0.040</td>
<td>0.006</td>
<td>0.277</td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td>(0.029)</td>
<td>(0.024)</td>
<td>(0.523)</td>
<td>(0.607)</td>
</tr>
<tr>
<td>Ethnic / Reg.</td>
<td>-0.140</td>
<td>-0.144</td>
<td>-0.823</td>
<td>-1.288</td>
</tr>
<tr>
<td></td>
<td>(0.036)***</td>
<td>(0.035)**</td>
<td>(0.722)</td>
<td>(0.738)*</td>
</tr>
<tr>
<td>Vote Share</td>
<td>1.377</td>
<td>0.262</td>
<td>11.873</td>
<td>5.330</td>
</tr>
<tr>
<td></td>
<td>(0.050)***</td>
<td>(0.045)**</td>
<td>(0.594)**</td>
<td>(0.908)**</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.029</td>
<td>0.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.016)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>4064</td>
<td>3333</td>
<td>3443</td>
<td>1494</td>
</tr>
<tr>
<td>Elections</td>
<td>353</td>
<td>353</td>
<td>297</td>
<td>101</td>
</tr>
</tbody>
</table>

Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%
Examining the coefficients we see that advocating education spending in one’s manifesto significantly increases the chances of receiving the education ministry. Since Models A and C include those parties who win the election it is not surprising we see a strong positive result here – presumably those parties who advocate education spending and form a coalition government will want to keep the education portfolio to themselves. However, when we exclude election winners from the analysis, we still see a strong effect of education advocacy on the chances of being granted the education portfolio, even controlling for party type and vote share. To get an idea of the predicted effect, a party that increased its proportion of its manifesto devoted to calls for increased public education spending by ten percent points would see its chances of acquiring the education ministry increase by around three percent points. This is hardly an enormous shift but at the margin it certainly appears that advocates are more likely than non-advocates to be granted the right to direct education policy.

The final analysis of expressed preferences over education spending asks whether manifesto promises to expand education are merely cheap talk, once general partisanship is controlled for. We now move from using the CMP elections dataset to using the main dataset employed in this chapter, in which observations are country-years, and the sample ranges from 1960 to 2002 across twenty-three OECD countries. Thus, the only parties still incorporated in the dataset are those serving in government during a particular year (that is, the Conservative party in the UK is not part of this dataset in 1998 but it is in 1996). In particular, to measure partisanship we are now using Cusack and Engelhardt’s cabinet center of gravity measure which compiles the CMP ideology

---

157 In fact, when we move to examining the role of parliament in Section 6.6, we will revisit those parties out of government, provided they won enough votes to secure seats in parliament.
variable for all parties, converting it into a country-year dataset, where the center of
gravity is a weighted average of the parties comprising the governing cabinet. Thus,
instead of having a CMP ideology variable (CMPIDEO) for each party in each electoral
period we now have a cabinet center of gravity index combining the ideology indices of
each of the parties in government. If a cabinet contains members of only one party (as in
many majoritarian systems) this cabinet center of gravity index will correspond closely to
the CMP ideology variable for that party in that electoral period. Coalition government,
however, requires weighting each party’s ideology index by their share of seats. A further
change, which we shall examine specifically in this particular sub-section, is that the
EDPOS index is now a weighted average of the EDPOS scores for each party in cabinet.
Thus, EDPOS in this sub-section reflects the average emphasis each party in coalition put
on education before the election, weighted by their post-election cabinet seats.\footnote{158}

\footnote{158 As noted in Section 7.3, this variable was created from the CMP dataset using a Perl script provided by Cusack and Engelhardt (2002).}
Table 7.3: The Effects of Rhetoric on Education Spending

<table>
<thead>
<tr>
<th></th>
<th>MODEL 1</th>
<th>MODEL 2</th>
<th>MODEL 3</th>
<th>MODEL 4</th>
<th>MODEL 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RHETORIC</td>
<td>PUBED</td>
<td>PUBED</td>
<td>PUBED / GOVEX</td>
<td>PUBED / GOVEX</td>
</tr>
<tr>
<td>D.V. (T-1)</td>
<td>.373</td>
<td>.676</td>
<td>.673</td>
<td>.619</td>
<td>.634</td>
</tr>
<tr>
<td></td>
<td>(.34)***</td>
<td>(.034)***</td>
<td>(.034)***</td>
<td>(.036)***</td>
<td>(.034)***</td>
</tr>
<tr>
<td>RHETORIC</td>
<td>-</td>
<td>.012</td>
<td>-.000</td>
<td>.193</td>
<td>.124</td>
</tr>
<tr>
<td></td>
<td>(.012)</td>
<td>(.002)</td>
<td>(.061)***</td>
<td>(.056)***</td>
<td></td>
</tr>
<tr>
<td>CAB PARTY</td>
<td>-.027</td>
<td>-</td>
<td>-.007</td>
<td>-</td>
<td>-.022</td>
</tr>
<tr>
<td></td>
<td>(.005)***</td>
<td>(.002)***</td>
<td>(.009)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POPULATION &lt;15</td>
<td>.171</td>
<td>.022</td>
<td>.043</td>
<td>-.081</td>
<td>.130</td>
</tr>
<tr>
<td></td>
<td>(.067)***</td>
<td>(.023)</td>
<td>(.024)*</td>
<td>(.119)</td>
<td>(.111)</td>
</tr>
<tr>
<td></td>
<td>(3.556)***</td>
<td>(1.445)***</td>
<td>(1.407)*</td>
<td>(7.277)*</td>
<td>(6.406)*</td>
</tr>
<tr>
<td>LOG (GDP) SQ</td>
<td>.140</td>
<td>-.069</td>
<td>-.072</td>
<td>-.327</td>
<td>-.367</td>
</tr>
<tr>
<td></td>
<td>(.069)***</td>
<td>(.028)**</td>
<td>(.028)***</td>
<td>(.141)***</td>
<td>(.126)***</td>
</tr>
<tr>
<td>LOG (POP)</td>
<td>3.589</td>
<td>.258</td>
<td>.146</td>
<td>5.781</td>
<td>3.890</td>
</tr>
<tr>
<td></td>
<td>(2.274)</td>
<td>(.925)</td>
<td>(.900)</td>
<td>(4.766)</td>
<td>(4.201)</td>
</tr>
<tr>
<td>GOVEX/GDP</td>
<td>-</td>
<td>-.037</td>
<td>-.024</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(.020)*</td>
<td>(.020)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>.094</td>
<td>.007</td>
<td>.033</td>
<td>-.038</td>
<td>.167</td>
</tr>
<tr>
<td></td>
<td>(.031)***</td>
<td>(.010)</td>
<td>(.012)***</td>
<td>(.049)</td>
<td>(.056)***</td>
</tr>
<tr>
<td>_CONS</td>
<td>-88.126</td>
<td>-53.476</td>
<td>-86.818</td>
<td>-152.186</td>
<td>-431.756</td>
</tr>
<tr>
<td></td>
<td>(71.452)</td>
<td>(25.644)***</td>
<td>(27.546)***</td>
<td>(124.304)</td>
<td>(123.531)***</td>
</tr>
<tr>
<td>R SQUARED</td>
<td>.436</td>
<td>.862</td>
<td>.867</td>
<td>.816</td>
<td>.848</td>
</tr>
<tr>
<td>OBSERVATIONS</td>
<td>737</td>
<td>407</td>
<td>389</td>
<td>406</td>
<td>388</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>23</td>
<td>24</td>
<td>23</td>
<td>24</td>
<td>23</td>
</tr>
</tbody>
</table>

Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%
We will begin by examining whether general cabinet ideology for a given electoral period is a good predictor of the weighted EDPOS variable – that is, do the policy positions of the governing coalition predict their position on education spending? Model A, in Table 7.3, is a time-series cross-sectional fixed effects model with the weighted EDPOS variable as the dependent variable, the lagged value of this variable, and a similar range of control variables to the analyses in Chapters Three and Four: population under fifteen, log GDP, log GDP squared, log of population, other government expenditure, and a linear time trend, as well as the country fixed effects mentioned above. The new element in this regression is the cabinet center of gravity index, which varies from -58 to +62. Model A estimates that changes in the cabinet partisanship index have a fairly significant effect on the weighted level of EDPOS. Using the average within-country range of partisanship in the dataset – fifty points on the cabinet partisanship index – we find a predicted change of 1.35 percent points in EDPOS. That is, a shift of fifty points to the right on the cabinet partisanship index should be associated with the weighted manifestos of the coalition partners having around one and half percent less rhetoric promoting increased education spending. Clearly, the results from the tables above for parties more generally also hold up when we examine the parties that actually obtain government. This is a reassuring finding, demonstrating that our previous results were not dependent on extremist parties who rarely gain government.

159 Note that this amounts to conducting a similar analysis to that conducted in models A2 and B2 of Tables 6.1b and 6.2b, which examined the correlation between overall ideology and education advocacy. However, in this case we are restricting our analysis to the sub-sample of parties that actually gained seats in government. Essentially then, this first test checks whether the general connection between ideology and pro-education rhetoric is true for parties that actually end up in government.

160 This is a smaller range than the original CMP ideology coding in the elections dataset above, largely because none of the extreme parties become majority governments and thus their ideology values are diluted once in government.
The four remaining models turn to the more critical question of whether education policy actually bears any resemblance to pre-election promises. Models B and C both have *absolute public spending on education* as their dependent variable. This measure is identical to that used in Chapters Four and Five, although our dataset is limited to the OECD. Again, the same set of control variables as in earlier chapters is employed. The key distinction is Model B includes the weighted education rhetoric variable, and Model C includes both this *and* the cabinet partisanship variable. Examining Model B first we see no direct effect of the weighted education rhetoric measure on actual education outcomes. Once we include the cabinet partisanship variable, the coefficient on rhetoric essentially vanishes, although cabinet partisanship appears a strong predictor of actual education spending (which we shall explore in much greater depth in the following section). Thus far, then, it appears that despite the clear relationship between partisanship and ‘expressed preferences’ over education spending, these preferences are poor predictors of actual outcomes, and once partisanship is controlled for, rhetoric has essentially no effect on absolute education spending.

This rather negative result is, however, counterbalanced by Models D and E, which use *relative education spending* as their dependent variable. Model D just includes the rhetoric measure and finds a strong and robust relationship between rhetoric and relative education spending – a percent point increase in the amount of the ‘weighted’ manifesto dealing with calls for increased public education corresponds to an increase of around 0.2 percent points of the amount of overall government spending devoted to education. Is it, however, the case that education rhetoric is merely serving here as a proxy for cabinet partisanship? That appears not to be the case. In fact, Model E, which
includes both the weighted education rhetoric variable and the cabinet partisanship variable, estimates that both measures have robust effects on relative education spending. The impact of rhetoric is reduced by around a third but it remains robust at the five percent level. Cabinet partisanship is also significant but, unlike, Model B, controlling for it does not decimate the estimated coefficient.

What then, are the implications of this finding? It appears to be the case that ‘expressed preferences’ over education spending, once general partisanship is controlled for, only correspond to ‘revealed preferences’ in terms of education’s relative importance vis-à-vis other government programs. On the one hand, this is perhaps intuitive. If we think about what the rhetoric variable is really measuring, we could construe it as the relative importance of education to other pre-election promises in a given manifesto (or, in this case, weighted manifestos). Since these other promises would presumably also be for other forms of government action and spending, then one could argue that we are simply seeing the zero-sum game of policy emphasis in the manifesto spill over into a zero-sum relationship between objects of actual government spending. On the other hand, there does appear to be an element of subterfuge in government promises to increase public spending on education that actually turn out to be, at best, a fixing of education spending combined with a reduction of other government services. Notice that this relationship is separate from the effects of partisanship. Thus, it implies that right-wing governments with election manifestos that are ‘unexpectedly’ pro-education, will not actually expand education once in office but that they will, at least, maintain funding while cutting other programs. Left-wing governments who barely mention education, conversely, may be deciding to tilt the budget toward other preferred public goods.
Rhetoric, then, acts as a signal over a government’s preferences over education in regards to other policy areas but it appears to have precious little impact on the aggregate emphasis that is placed on education. We shall see in the following section that aggregate changes in absolute spending, as well as relative spending, correspond much more closely to who parties are rather than what they say.

7.5: Testing Partisan Preferences: Does Partisanship Predict Behavior?

We concluded the last section on the finding that pre-election promises to expand education funding only appear to have effects on education spending vis-à-vis other government policies and that overall spending on education was largely unaffected by such campaign messages. If politicians are not responding to particular commitments made to the electorate in terms of absolute education spending then what is driving their behavior? In this section, I argue that a party’s overall ideological position, that is, its ‘essential’ partisan preference, is a much better predictor of education spending than are pre-electoral statements. In fact, voters would do well to beware the ‘gift horse’ of promises of changes in education spending, whether upward or downward, from politicians whose party’s ideological preferences appear to contradict such statements. In fact, cabinet partisanship is a robust and substantively powerful predictor of both absolute and relative education spending, leading to changes of around one percent of GDP in a period as short as one electoral term following a shift in government. As we shall see, dramatic changes in government could lead to equally momentous changes in education funding, potentially holding the funding for thousands of schools and millions of teachers in the balance.
The empirical analysis in this section uses the country-year dataset of OECD countries and examines the cross-sectional and time-series effects of changes in partisanship on changes in education spending. As in the previous section and Chapters Three and Five, our dependent variables of interest are absolute education spending and relative (to other government consumption) education spending. Table 7.4, below, applies both fixed effects and panel corrected standard error (PCSE) techniques to examine the effect of partisanship on both absolute and relative education spending. The PCSE technique is a simple OLS with lagged dependent variable with standard errors adjusted for contemporaneous correlation. The fixed effects model differs by introducing country dummies and thus measures only within-state differences in partisanship.\footnote{A much more detailed analysis of the statistical properties of PCSE and fixed effects regression can be found in Chapter Three.} For the remaining sections of this chapter only the fixed effects method will be employed, since it avoids the problem of cross-country comparability of partisanship scores. We saw in the previous section’s analysis of party rhetoric that countries often have different political cleavages: for example, between social democrats and conservatives; liberals and conservatives; or social democrats and Christian democrats. Comparing ideology across countries may make too much of differences between liberal parties and social democrats or between conservative parties and Christian democrats. However, within one country, the ideological cleavage tends to remain standard across time, with changes in the two or three major parties fairy rare. Thus, movements in the partisanship index under a fixed effects set-up reflect swings in government between the established parties in one country, not the difference between left-wing parties in, say, Canada and France.
Table 7.4: The Effects of Partisanship on Absolute and Relative Education Spending

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PUBED / GDP</td>
<td>PUBED / GDP</td>
<td>PUBED / GOV</td>
<td>PUBED / GOV</td>
</tr>
<tr>
<td>PCSE FIXED EFFECTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAGGED D.V.</td>
<td>.783</td>
<td>.673</td>
<td>.796</td>
<td>.643</td>
</tr>
<tr>
<td></td>
<td>(.044)***</td>
<td>(.034)***</td>
<td>(.041)***</td>
<td>(.034)***</td>
</tr>
<tr>
<td>PARTISANSHIP</td>
<td>-.005</td>
<td>-.007</td>
<td>-.018</td>
<td>-.027</td>
</tr>
<tr>
<td></td>
<td>(.002)***</td>
<td>(.002)***</td>
<td>(.007)***</td>
<td>(.008)***</td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>.053</td>
<td>.043</td>
<td>.226</td>
<td>.147</td>
</tr>
<tr>
<td></td>
<td>(.017)***</td>
<td>(.024)*</td>
<td>(.076)***</td>
<td>(.111)</td>
</tr>
<tr>
<td>LOG (GDP)</td>
<td>2.051</td>
<td>2.689</td>
<td>5.221</td>
<td>10.213</td>
</tr>
<tr>
<td></td>
<td>(.764)***</td>
<td>(1.404)*</td>
<td>(3.604)</td>
<td>(6.423)</td>
</tr>
<tr>
<td>LOG (GDP) SQ</td>
<td>-.031</td>
<td>-.072</td>
<td>-.065</td>
<td>-.358</td>
</tr>
<tr>
<td></td>
<td>(.013)**</td>
<td>(.027)***</td>
<td>(.055)</td>
<td>(.126)***</td>
</tr>
<tr>
<td>LOG (POP)</td>
<td>-.432</td>
<td>.144</td>
<td>-1.579</td>
<td>4.795</td>
</tr>
<tr>
<td></td>
<td>(.125)***</td>
<td>(.895)</td>
<td>(.545)***</td>
<td>(4.205)</td>
</tr>
<tr>
<td>GOVEX/GDP</td>
<td>.024</td>
<td>-.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.013)*</td>
<td>(.020)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>-.018</td>
<td>.033</td>
<td>-.052</td>
<td>.187</td>
</tr>
<tr>
<td></td>
<td>(.006)***</td>
<td>(.012)***</td>
<td>(.032)</td>
<td>(.055)***</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>-25.435</td>
<td>-22.908</td>
<td>37.432</td>
<td>-464.763</td>
</tr>
<tr>
<td></td>
<td>(10.095)***</td>
<td>(22.409)</td>
<td>(89.830)</td>
<td>(123.331)***</td>
</tr>
<tr>
<td>OBSERVATIONS</td>
<td>389</td>
<td>389</td>
<td>388</td>
<td>388</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>R-SQUARED</td>
<td>.818</td>
<td>.604 (.867)</td>
<td>.824</td>
<td>.581 (.846)</td>
</tr>
</tbody>
</table>

Short Run Effect of Mean Party Range
- .250
- .350
- .900
- 1.350

Four Year Effect of Mean Part Range
- .719
- .851
- 2.460
- 3.132

Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%
Models A and B of Table 7.4 examine the PCSE and fixed effects regressions of absolute public spending on education. The models used, despite their different statistical derivations, both demonstrate a statistically significant estimated effect of partisanship, with a similar magnitude. The coefficient on partisanship is estimated to be between minus .005 and minus .007 in size. In order to ascertain what kind of substantive effect is implied by this range of coefficients, I estimate short and long run effects of the mean range of partisanship across the 23 countries in the dataset (fifty points on the Cusack / Engelhardt scale). Short run (one year) effects simply amount to the coefficient on cabinet partisanship multiplied by fifty. They imply that switch from the average left-wing party to the average right-wing party in the dataset is associated with a reduction in spending of a between a quarter and a third of a percent point of national income. This implies a five to seven percent decrease in average education spending across the dataset.

Long run effects are calculated using the following expression: $(50 \cdot \beta) \cdot (1 + \gamma + \gamma^2 + \gamma^3)$, where $\beta$ is the coefficient on cabinet partisanship and $\gamma$ is the coefficient on the lagged dependent variable. This measures the four year effect of a change in partisanship and is intended to represent a standard electoral cycle. The long-run effect is estimated to be a reduction in spending of around three quarters of a percentage point of national income, or a reduction in spending of around fifteen percent of the average expenditure on education across the dataset. Clearly, a party that won multiple terms would see an even greater change in education expenditure in the long-run, albeit with a falling marginal change for each extra year.

---

162 It is clear that the average electoral cycle varies significantly across the countries in the dataset, so this four-year cycle is intended to be representative of a likely electoral term rather than specific to any state.
Figure 7.3: Predicted Electoral Effects on Education Spending

Figure 7.3 depicts two hypothetical electoral terms using the coefficients from the fixed effects model, starting from the average level of education spending across the dataset and examining a switch from the right to left of the average range across the states in the dataset. Two hypothetical situations are constructed: firstly, a switch from a right party to a left party for two periods; and secondly, a switch from right to left in the first term and then back again to the right party in the second term. As can be seen from the curvature of the predicted paths of education spending, the impact of changes in partisan control is immediate but tails off rather rapidly, due to the relatively low value of the lagged dependent variable coefficient (0.673). This implies that consistent partisan control of government will indeed lead to divergence in education policy but, even in the long run, is unlikely to lead to changes of much greater than one percent of GDP in education spending. Since the within-country standard deviation of education spending
since 1990 (that is, once all the states in the dataset had reached high levels of income) is 0.46, this likely range of partisan change seems quite plausible.

The control variables, by and large, demonstrate their expected effects. The population under fifteen variable is positively related to public education spending and the composition of government spending but is only statistically significant in the former tests, in which one standard deviation change in the population under fifteen is associated with an increase in spending on education of around one third of a percent point of GDP. The income effect is, as predicted by Wagner’s Law, positive but with diminishing marginal returns, again reaching significance only in Models A and B. As countries grow wealthier they tend to spend more on education but such a pattern is strictly concave in income and flattens out as they get wealthier. The effect of population is negative and significant in Model A, which incorporates between-effects, suggesting economies of scale may exist in education provision as large countries can spend proportionately smaller amounts. However, population is statistically insignificant in the three other models. Finally, there is slim evidence that non-education government spending may have a positive effect on education spending in Model A, which reverses direction and loses significance in Model B (and is removed from the analysis in the further models).

Models C and D of Table 7.4 use PCSE and fixed effects models to examine the effect of partisanship on the relative public spending on education. In both of the models, cabinet partisanship is again a significant predictor of the composition of government spending. The short term predicted change in relative education spending is around one percent of overall government consumption. The predicted four year electoral term effect of changing from the average left-wing to the average right-wing party in the dataset is a
reduction of between 2.5 and 3 percentage points in the percentage of government spending devoted to education. Given that the average percentage of government spending devoted to education across the dataset is 28.7%, this would amount to around a ten percent decline in the proportion of government spending taken by education. This implies that although left-wing governments do tend to increase absolute education spending (for a fixed level of national income), they may be doing so at the expense of other government spending. Equally, right-wing governments that trim education spending may not be doing so as an overall strategy of cutting back public spending but may simply be channeling spending toward other favored projects or constituencies, such as defense or subsidies to families.

When we combine the estimates for both absolute and relative education spending we find that, although a shift to the political right will lead to declines in both education spending and in other government consumption, education suffers disproportionately. Figure 7.4(a) displays the first result: that all government consumption is reduced during periods of right-wing government. The figure predicts a decline in both education spending and other government consumption for a period of ten years of unbroken right-wing government. There is a decline in both following the election in period zero, which tails off after around five years. However, it is difficult to tell from this figure how education spending is affected in comparison to other government consumption. Figure 7.4(b) remedies this problem by showing the same ten-year period with education relative to all government spending. A fairly sharp decline in education spending can be seen here. Of the overall decline in government consumption following the election of a right-wing government (1.7% of national income), the analysis above predicts that two-thirds
of this impact (1.1%) is taken by cuts in education spending, with the remaining third (0.6%) cut from other government consumption. This analysis could of course be reversed to show a similar ratio in increases in public spending for left-wing governments. Overall, it appears that education is the most affected component of public consumption following partisan changes in government, even though it only amounts to around one quarter of all public consumption. Public spending on education appears to be the sharpest point on which redistributive politics turn.

Figure 7.4a: Predicted Pattern of Education and Other Government Consumption for Ten Years Following 50 Point Shift to the Right
Before we move to the analysis of how cabinet ideology impacts education spending under a variety of institutional conditions it is useful to provide some intuition of the dollar-value magnitude of the changes predicted in Table 7.4. Table 7.5 shows how the specific range of partisanship within each state would be associated with four year changes in spending in absolute dollar terms. Separating out the states in this fashion is useful in two ways. Firstly, it allows us to predict dollar changes for states with very different income and education spending levels. Secondly, because the ideological range within states varies considerably, it is useful to be able to move beyond our fifty-point first difference used above to examine states with different ‘swings’ in partisanship.
Table 7.5 uses the predicted four year effects from the fixed effects model (Model B) from Table 7.4. This model has the advantage that it measures only changes within states and hence is the most appropriate measure in terms of estimating the effects of partisan change within countries. To use the United Kingdom as an example (which we will return to in the case analyses of Chapter Nine), a change from Conservative to Labour control of the government is associated with a four year change in spending of $12.3bn (£7bn at 2006 exchange rates), or $206 (£118) per capita. This a vast figure, with obvious implications for the kinds of educational purchases that could be made. For example, this sum could purchase the services of half a million teachers at the average UK salary for junior teachers. Alternatively, per student spending in the public primary and secondary sector could rise by $2,750 / £1,580 (in fact, over nine years of government, Labour’s spending per student has risen by £2,500, even higher than this estimate). Elsewhere the predicted change in per capita spending from a full shift in partisanship ranges from $57.82 in Spain (which has a low partisan range and low absolute per capita spending) to over $400 in Denmark and Iceland (with high partisan range and high per capita spending).
### Table 7.5: Four Year Predicted Financial Effects of Partisanship on Education

<table>
<thead>
<tr>
<th>Country</th>
<th>Range of Partisanship</th>
<th>1999 Total Ed Exp $bn</th>
<th>Change in Exp $bn</th>
<th>Change as % of Budget</th>
<th>1990s Mean Per Capita</th>
<th>Change in Per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>31.8</td>
<td>19.9</td>
<td>2.4</td>
<td>12.0</td>
<td>$1021</td>
<td>$122.87</td>
</tr>
<tr>
<td>Austria</td>
<td>82.4</td>
<td>16.3</td>
<td>3.6</td>
<td>22.3</td>
<td>$1688</td>
<td>$375.72</td>
</tr>
<tr>
<td>Belgium</td>
<td>39.9</td>
<td>17.9</td>
<td>2.1</td>
<td>11.6</td>
<td>$1284</td>
<td>$148.89</td>
</tr>
<tr>
<td>Canada</td>
<td>32.1</td>
<td>37.2</td>
<td>3.7</td>
<td>9.9</td>
<td>$1271</td>
<td>$126.04</td>
</tr>
<tr>
<td>Denmark</td>
<td>71.9</td>
<td>15.9</td>
<td>2.4</td>
<td>15.3</td>
<td>$2748</td>
<td>$420.39</td>
</tr>
<tr>
<td>Finland</td>
<td>67.7</td>
<td>9.6</td>
<td>1.8</td>
<td>18.8</td>
<td>$1727</td>
<td>$325.06</td>
</tr>
<tr>
<td>France</td>
<td>53.0</td>
<td>100.8</td>
<td>15.4</td>
<td>15.3</td>
<td>$1566</td>
<td>$239.36</td>
</tr>
<tr>
<td>Germany</td>
<td>39.8</td>
<td>121.1</td>
<td>17.7</td>
<td>14.6</td>
<td>$1412</td>
<td>$205.90</td>
</tr>
<tr>
<td>Greece</td>
<td>60.9</td>
<td>4.9</td>
<td>1.4</td>
<td>28.1</td>
<td>$350</td>
<td>$98.35</td>
</tr>
<tr>
<td>Iceland</td>
<td>81.5</td>
<td>0.4</td>
<td>0.1</td>
<td>28.8</td>
<td>$1540</td>
<td>$443.80</td>
</tr>
<tr>
<td>Ireland</td>
<td>53.6</td>
<td>4.2</td>
<td>0.9</td>
<td>20.8</td>
<td>$905</td>
<td>$187.90</td>
</tr>
<tr>
<td>Italy</td>
<td>33.1</td>
<td>53.2</td>
<td>6.6</td>
<td>12.4</td>
<td>$817</td>
<td>$101.11</td>
</tr>
<tr>
<td>Japan</td>
<td>32.2</td>
<td>196.5</td>
<td>30.4</td>
<td>15.5</td>
<td>$1516</td>
<td>$234.39</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>34.0</td>
<td>0.8</td>
<td>0.1</td>
<td>16.5</td>
<td>$1497</td>
<td>$247.68</td>
</tr>
<tr>
<td>Netherlands</td>
<td>36.9</td>
<td>23.2</td>
<td>3.0</td>
<td>13.0</td>
<td>$1387</td>
<td>$180.01</td>
</tr>
<tr>
<td>New Zealand</td>
<td>40.6</td>
<td>4.6</td>
<td>0.5</td>
<td>10.1</td>
<td>$1083</td>
<td>$109.04</td>
</tr>
<tr>
<td>Norway</td>
<td>44.8</td>
<td>12.3</td>
<td>1.3</td>
<td>10.3</td>
<td>$2505</td>
<td>$259.03</td>
</tr>
<tr>
<td>Portugal</td>
<td>41.2</td>
<td>7.3</td>
<td>0.9</td>
<td>12.0</td>
<td>$595</td>
<td>$71.36</td>
</tr>
<tr>
<td>Spain</td>
<td>22.8</td>
<td>30.5</td>
<td>2.6</td>
<td>8.6</td>
<td>$673</td>
<td>$57.82</td>
</tr>
<tr>
<td>Sweden</td>
<td>81.1</td>
<td>20.8</td>
<td>3.7</td>
<td>17.8</td>
<td>$2095</td>
<td>$372.16</td>
</tr>
<tr>
<td>Switzerland</td>
<td>25.0</td>
<td>17.9</td>
<td>1.4</td>
<td>7.7</td>
<td>$2457</td>
<td>$190.18</td>
</tr>
<tr>
<td>UK</td>
<td>56.8</td>
<td>56.8</td>
<td>12.3</td>
<td>21.6</td>
<td>$954</td>
<td>$205.97</td>
</tr>
<tr>
<td>USA</td>
<td>53.7</td>
<td>437.5</td>
<td>78.8</td>
<td>18.0</td>
<td>$1443</td>
<td>$259.85</td>
</tr>
</tbody>
</table>

### 7.6: Does Policy Reflect Voters or Politicians?

The model developed in Chapter Two, and the empirical analyses conducted in Section 7.5, suggest a strong effect of the partisan alignment of governments on education spending. However, as the analysis stands, we are left unable to distinguish
whether this purported partisan effect is the outcome of party preferences as opposed to voter preferences. That is, do changes in policy reflect parties taking advantage of their election to impose policies at some distance removed from voters’ wishes? Or do policy changes largely reflect the true preferences of voters when they elect different parties into power? It is impossible to distinguish these two different forces when changes in voting patterns match changes in cabinet partisanship. We saw in Section 7.4 that pre-electoral promises on education spending by parties do not have an independent effect on absolute education spending. Section 7.5 showed, instead, that cabinet ideology, regardless of expressed preferences, has a robust and powerful impact on aggregate education spending. However, we do not yet know how well cabinet preferences and voter preferences reflect one another. Put simply, we have established a firm link between party preferences and policy outcomes but we do not yet know how responsive parties are to the overall composition of voter preferences. In this chapter we shall see that large shocks to education policy appear more likely to occur where cabinet ideology diverges significantly from parliament, and by analogy, voter preferences.

Unfortunately, there is no simple measure of voter preferences that will provide comparable data across all the countries in our dataset. While individual national election studies, like the National Election Study in the United States, occasionally provide information on voters’ policy preferences, such surveys are rarely comparable cross-nationally nor available for all the electoral periods in our analysis. Thus, we have to move to a second-order operationalization of voter preferences. In this chapter, we will make the assumption that aggregate voter preferences are better represented by the ideological composition of parliament than they are by the ideological composition of
government. Obviously, the composition of parliament will better reflect voter preferences the more proportional is the electoral system. At the extreme, in a one-district voting system like the Netherlands, parties will gain seats in parliament in direct proportion to the voting patterns of citizens. In single member district systems, conversely, it is theoretically possible that the parliament’s composition be representative of only 50.0001% of the population’s voting preferences. However, even in majoritarian systems, the composition of parliament will necessarily be more reflective of overall voter preferences than the ideological composition of the governing party, which will - except in the perverse outcome of a ‘national coalition’ - represent the preferences of fewer citizens than will the parliament. Equally, in all proportional governments, except for a coalition of every party, the cabinet’s ideological center of gravity will be less representative of the voters’ preferences than will be the parliament’s center of gravity. Thus, any difference between the ideological composition of the cabinet and parliament should be a monotonic transformation of the difference between the preferences of the cabinet and of voters.\textsuperscript{163}

This section will use two different statistical techniques to examine the question of whether cabinet or voter preferences matter more in determining education policy outcomes. In both cases, we will distinguish between elections where cabinet and parliament preferences are closely aligned (‘close’ elections) and those where there is a significant gap (‘distinct elections’). Accordingly, we adjust the dataset used in the previous section by examining electoral periods rather than country-years, since there is since we can only measure changes in voter preferences at election time. Our first

\textsuperscript{163} In this section we care only about the difference between parliamentary and cabinet composition during specific electoral periods. The following section will examine if parliamentary ideology has any independent effect on education spending and will do so using the standard country-year dataset.
technique will be to actually split our dataset into two sub-samples: those electoral periods with a gap between cabinet and parliament ideology below the mean (close elections), and those with a gap larger than the mean (distinct elections). We examine the effect of changes in our independent variables on changes in education spending within that electoral period, using standard OLS techniques. We find, in particular, that the estimated effects of partisanship on education spending are larger in the sub-sample where cabinet and parliamentary ideology are more distinct. This implies that changes in education policy are being driven by party preferences rather than voter preferences.

The second empirical strategy uses propensity-score matching to try and separate the effects of being in a close or distinct period from a variety of other factors that might affect selection into that type of period. In essence, we are assuming that being in a ‘distinct’ electoral period, as opposed to a ‘close’ period, is a treatment effect. Because the assignment to this treatment is not entirely random (although there is some stochasticity in all elections) we need to balance the electoral periods on a variety of independent variables, which reduces (or eliminates) selection bias on both observed and unobserved characteristics (Abadie, 2002; Ho et al, 2004; Ho, 2005). In performing matching, we thus hope to find out if being in a distinct, rather than close, electoral period has an independent effect on the magnitude of changes in education policy.

We begin our analysis by considering the two sub-samples technique. In the following empirical analysis I thus use country-electoral periods as the unit of analysis and I examine changes in, rather than levels of, the dependent variable (public spending on education as a % of GDP). To measure the relative importance of parties versus

---

164 The statistical analysis of partisanship and education spending in Section 7.5 used country-years as the basic unit of analysis. However, in attempting to distinguish between voter and party the key unit of
voters I use an absolute distance measure, which is the absolute value of cabinet partisanship minus parliamentary partisanship. This measure will be used to distinguish between ‘close’ electoral periods and ‘distinct’ electoral periods. The following statistical model is used:

$$
\Delta Y_{it} = \beta_0 + \beta_1 \Delta X_{it} + \beta_2 \Delta Z_{it} + \epsilon_{it} \text{ for } |D|_{it} \leq \frac{\sum |D|_{it}}{n}
$$

Models A through C estimate the change in public education spending between electoral periods using the changes in $X$, cabinet partisanship, and $Z$, the control variables, firstly for all cases, secondly for those cases where the absolute distance measure, $D$, is less than, its mean across the dataset (8.1), and thirdly where $D$ is greater than its mean.165 Models D through F repeat this structure but include changes in government spending as an extra control variable.166

The results in Table 7.6 show an interesting set of patterns. Firstly, in Models A and D, with the full set of cases, we see the expected effect of cabinet partisanship on education spending, with roughly the same coefficient as in the country-year analyses in Section 7.5. Secondly, in the analyses conducted on elections that more closely reflect ‘voter preferences’ (Models B and E), where the distance between cabinet partisanship and parliamentary partisanship is below the average, the estimated coefficient is statistically insignificant (albeit, with the correct direction and a plausible magnitude). Conversely, in Models C and F, which use the cases with an absolute distance above the

---

165 The median distance would also be an appropriate measure and the results are identical if the median is used instead of the mean because the sub-samples are identical.

166 This addition of government spending almost halves the dataset. It thus adds a potentially important variable at the expense of degrees of freedom.
mean, the coefficient is statistically significant and larger in the larger dataset comparison between Models B and C. This implies that the partisan effect is stronger and more robust when parties’ and voters’ preferences are not aligned. What these tests indicate is that shifts in cabinet partisanship matter most in distinct elections, where cabinet and parliament partisanship are poorly aligned.

Table 7.6: Split Sample Comparison of Close and Distinct Elections

<table>
<thead>
<tr>
<th></th>
<th>MODEL A1</th>
<th>MODEL A2</th>
<th>MODEL A3</th>
<th>MODEL A4</th>
<th>MODEL A5</th>
<th>MODEL A6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ CAB PARTISAN</td>
<td>-0.06</td>
<td>-0.06</td>
<td>-0.08</td>
<td>-0.07</td>
<td>-0.07</td>
<td>-0.07</td>
</tr>
<tr>
<td></td>
<td>(.002)**</td>
<td>(.003)</td>
<td>(.002)**</td>
<td>(.003)**</td>
<td>(.005)</td>
<td>(.003)**</td>
</tr>
<tr>
<td>Δ POPULATION&lt;15</td>
<td>.129</td>
<td>.066</td>
<td>.288</td>
<td>.026</td>
<td>.176</td>
<td>-0.016</td>
</tr>
<tr>
<td></td>
<td>(.094)</td>
<td>(.129)</td>
<td>(.129)**</td>
<td>(.078)</td>
<td>(.106)</td>
<td>(.144)</td>
</tr>
<tr>
<td>Δ LOG(GDP)</td>
<td>29.960</td>
<td>20.722</td>
<td>49.707</td>
<td>15.729</td>
<td>5.168</td>
<td>20.564</td>
</tr>
<tr>
<td>Δ LOG(GDP) SQ.</td>
<td>-.536</td>
<td>-.368</td>
<td>-.889</td>
<td>-.275</td>
<td>-.065</td>
<td>-.344</td>
</tr>
<tr>
<td></td>
<td>(.248)**</td>
<td>(.289)</td>
<td>(.293)**</td>
<td>(.382)</td>
<td>(.436)</td>
<td>(.615)</td>
</tr>
<tr>
<td>Δ LOG(POP)</td>
<td>-1.648</td>
<td>-5.993</td>
<td>6.719</td>
<td>-2.268</td>
<td>-10.688</td>
<td>-3.321</td>
</tr>
<tr>
<td></td>
<td>(3.217)</td>
<td>(4.360)</td>
<td>(5.435)</td>
<td>(4.735)</td>
<td>(5.533)*</td>
<td>(9.902)</td>
</tr>
<tr>
<td>Δ GOVT EX.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.040</td>
<td>.192</td>
<td>-1.176</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.078)</td>
<td>(.063)**</td>
<td>(.119)</td>
</tr>
<tr>
<td>YEAR</td>
<td>-.001</td>
<td>.005</td>
<td>-.010</td>
<td>.027</td>
<td>.022</td>
<td>.033</td>
</tr>
<tr>
<td></td>
<td>(.007)</td>
<td>(.010)</td>
<td>(.007)</td>
<td>(.011)**</td>
<td>(.015)</td>
<td>(.026)</td>
</tr>
<tr>
<td>R SQUARED</td>
<td>0.134</td>
<td>0.095</td>
<td>0.293</td>
<td>0.149</td>
<td>0.317</td>
<td>0.263</td>
</tr>
<tr>
<td>COUNTRIES / N</td>
<td>21 / 128</td>
<td>19 / 64</td>
<td>18 / 64</td>
<td>20 / 79</td>
<td>16 / 40</td>
<td>14 / 39</td>
</tr>
</tbody>
</table>

We have seen that the effects of partisanship on education spending appear to be stronger in those electoral periods where cabinet and parliamentary / voter preferences are distinct. However, the above analysis does not control for the fact that selection into the two groups of ‘close’ and ‘distinct’ elections is not random and may, indeed, be correlated with observed and unobserved characteristics which bias our results. In order to deal with this problem the following analysis uses propensity score matching techniques to produce unbiased estimates of the effect of being in a ‘distinct’ election.
Our key concern is that elections where the parliament and cabinet are ideologically distinct are more common in majoritarian than proportional systems. We thus need to find a way to control for this electoral institution distinction, which has a large, although not deterministic, impact on selection into the two types of ‘close’ and ‘distinct’ electoral periods. Moreover, there could also be non-measured differences between electoral periods that might affect their propensity to be ‘close’ or ‘distinct’ - for example, campaigning, fiscal crisis, political culture - which also affect education policy. For these reasons, matching provides a useful robustness check for the assertion in the previous section that ‘distinct’ elections lead to greater changes in education spending.

Since we are now examining solely the difference between ‘close’ and ‘distinct’ electoral periods, rather than the difference in the effects of partisanship in these two types, we need to adjust the dependent variable somewhat. In the previous sub-sample analysis, our dependent variable was the simple change in education spending. Because we included the partisanship variable we could examine whether the coefficient on this variable was negative – as hypothesized in Section 7.5 – and its comparative magnitude across sub-samples. However, once we focus on the simple difference between ‘close’ and ‘distinct’ types of election – where being ‘distinct’ is the treatment - we only want to ascertain the absolute value of the change in education spending. In order to conduct propensity score matching, we need to balance our cases on a variety of independent variables, so that there are no statistically significant differences between the control and treatment group when matching techniques are applied. We begin by constructing propensity scores for each observation. This score is calculated by using probit estimation.

167 Section 3.9 will deal directly with the impacts of electoral institutions on education spending. In this section we are attempting to ‘balance out’ this impact through matching.
to estimate $e_i(X_i) = \Pr(T_i = 1 \mid X_i)$, where $X_i$ are the independent variables we wish to balance across and $T_i$ denotes having being given the treatment, i.e. being a ‘distinct’ electoral period (Ho, 2005). Thus the propensity score is a one-dimensional summary of how likely a case was to be given the treatment, given their scores on a variety of covariates. The problem of causal inference requires that we match cases which were given the treatment with cases that are highly similar on the array of independent variables but were not given the treatment.\(^{168}\) Statistically, we are attempting to estimate the average treatment effect (ATE), derived as follows:

$$ATE = E(Y_i(1) \mid T_i = 1, e_i(X_i)) - E(Y_i(0) \mid T_i = 0, e_i(X_i))$$

We thus perform the probit regression of the treatment variable on the independent variables in order to estimate the propensity scores which we can use to calculate the ATE. The regression includes change and level indicators for all the independent variables from models A to C in Table 7.6, as well as the absolute spending on education variable and a dummy variable coding whether a state uses single-member electoral districts.\(^ {169}\) This latter variable is an important determinant of selection into the treatment group and thus it is important to balance on this variable. From Table 7.7(a) we see that three particular variables appear to be particularly important in determining exposure to the treatment: changes in the size of the youth population, year, and the single member district variable. The latter variable appears particularly important, with a

\(^{168}\) More accurately, we wish to calculate the effects of treatment on cases that were treated and on those that were not treated. Since we cannot calculate the latter effect (treatment on the non-treated) because it is a counterfactual, we try to find control cases whose values on all other covariates were as close as possible to treated cases. Calculating propensity scores thus allows us to avoid the problem of calculating the counterfactual $E(Y_i(1) \mid T_i = 0)$. 

\(^{169}\) Government spending is excluded because it reduces the sample size considerably, although results are essentially unaffected if it is included.
large predicted effect on the likelihood of treatment and a very robust level of statistical significance. Clearly, a state’s electoral system is an important determinant of whether they are likely to have ‘distinct’ electoral periods. We thus use propensity scores to balance out this variable (as well as year and changes in youth population).

**Table 7.7a: Probit Estimation of Distinct Cabinet Dummy for Propensity Scores**

<table>
<thead>
<tr>
<th></th>
<th>COEFFICIENT</th>
<th>STD. ERROR</th>
<th>t SCORE</th>
<th>P &gt; t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ CAB IDEOLOGY</td>
<td>.011</td>
<td>.012</td>
<td>.98</td>
<td>.328</td>
</tr>
<tr>
<td>Δ POP &lt; 15</td>
<td>.705</td>
<td>.351</td>
<td>2.01</td>
<td>.045 **</td>
</tr>
<tr>
<td>Δ LOG GDP</td>
<td>111.909</td>
<td>92.361</td>
<td>1.21</td>
<td>.226</td>
</tr>
<tr>
<td>Δ LOG GDP SQ.</td>
<td>-2.067</td>
<td>1.783</td>
<td>-1.16</td>
<td>.246</td>
</tr>
<tr>
<td>Δ LOG POP</td>
<td>-7.435</td>
<td>17.992</td>
<td>-4.1</td>
<td>.679</td>
</tr>
<tr>
<td>CABINET IDEOLOGY</td>
<td>.009</td>
<td>.0128</td>
<td>.67</td>
<td>.505</td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>-.058</td>
<td>.115</td>
<td>-.51</td>
<td>.613</td>
</tr>
<tr>
<td>LOG GDP</td>
<td>7.717</td>
<td>6.158</td>
<td>1.25</td>
<td>.210</td>
</tr>
<tr>
<td>LOG GDP SQ.</td>
<td>-.119</td>
<td>.111</td>
<td>-1.07</td>
<td>.285</td>
</tr>
<tr>
<td>LOG POP</td>
<td>-1.075</td>
<td>.893</td>
<td>-1.20</td>
<td>.229</td>
</tr>
<tr>
<td>YEAR</td>
<td>-.091</td>
<td>.044</td>
<td>-2.07</td>
<td>.039 **</td>
</tr>
<tr>
<td>PUBED</td>
<td>.161</td>
<td>.194</td>
<td>.83</td>
<td>.407</td>
</tr>
<tr>
<td>SMD</td>
<td>2.362</td>
<td>.728</td>
<td>3.25</td>
<td>.001 ***</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>77.767</td>
<td>117.985</td>
<td>.66</td>
<td>.510</td>
</tr>
</tbody>
</table>

The total number of observations is 84. A Pseudo R squared value of 0.283 was obtained.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>Treated</th>
<th>Control</th>
<th>% bias</th>
<th>Δ % bias</th>
<th>p &gt; t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ CAB IDEOLOGY</td>
<td>Unmatched</td>
<td>4.6415</td>
<td>-1.6689</td>
<td>33.7</td>
<td>9.4</td>
<td>.134</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>4.6415</td>
<td>-1.0748</td>
<td>30.5</td>
<td>4.4</td>
<td>.214</td>
</tr>
<tr>
<td>Δ POP. &lt;15</td>
<td>Unmatched</td>
<td>-.56851</td>
<td>-.81405</td>
<td>37.5</td>
<td></td>
<td>.083 *</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>-.56851</td>
<td>-.39564</td>
<td>-26.4</td>
<td>29.6</td>
<td>.283</td>
</tr>
<tr>
<td>Δ LOG GDP</td>
<td>Unmatched</td>
<td>.06737</td>
<td>.0695</td>
<td>-3.8</td>
<td></td>
<td>.864</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>.06737</td>
<td>.05283</td>
<td>25.9</td>
<td>-581.1</td>
<td>.284</td>
</tr>
<tr>
<td>Δ LOG GDP SQ.</td>
<td>Unmatched</td>
<td>3.5396</td>
<td>3.5956</td>
<td>-2.0</td>
<td></td>
<td>.929</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>3.5396</td>
<td>2.8046</td>
<td>26.0</td>
<td>-1212.0</td>
<td>.291</td>
</tr>
<tr>
<td>Δ LOG POP</td>
<td>Unmatched</td>
<td>.01555</td>
<td>.01352</td>
<td>15.5</td>
<td></td>
<td>.486</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>.01555</td>
<td>.0149</td>
<td>4.9</td>
<td>68.1</td>
<td>.840</td>
</tr>
<tr>
<td>CAB. IDEOLOGY</td>
<td>Unmatched</td>
<td>4.0357</td>
<td>-3.5482</td>
<td>46.2</td>
<td></td>
<td>.046 **</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>4.0357</td>
<td>-.73976</td>
<td>29.1</td>
<td>37.0</td>
<td>.236</td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>Unmatched</td>
<td>20.332</td>
<td>21.124</td>
<td>-23.0</td>
<td></td>
<td>.280</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>20.332</td>
<td>20.175</td>
<td>4.6</td>
<td>80.2</td>
<td>.791</td>
</tr>
<tr>
<td>LOG GDP</td>
<td>Unmatched</td>
<td>26.602</td>
<td>25.969</td>
<td>47.1</td>
<td></td>
<td>.036 **</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>26.602</td>
<td>26.305</td>
<td>22.1</td>
<td>53.1</td>
<td>.318</td>
</tr>
<tr>
<td>LOG GDP SQ</td>
<td>Unmatched</td>
<td>709.5</td>
<td>676.05</td>
<td>46.9</td>
<td></td>
<td>.037 **</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>709.5</td>
<td>692.83</td>
<td>23.4</td>
<td>50.2</td>
<td>.296</td>
</tr>
<tr>
<td>LOG POP</td>
<td>Unmatched</td>
<td>16.553</td>
<td>16.001</td>
<td>42.5</td>
<td></td>
<td>.059 *</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>16.553</td>
<td>16.167</td>
<td>29.7</td>
<td>30.1</td>
<td>.202</td>
</tr>
<tr>
<td>YEAR</td>
<td>Unmatched</td>
<td>1985.7</td>
<td>1986.2</td>
<td>-10.1</td>
<td></td>
<td>.644</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>1985.7</td>
<td>1987.1</td>
<td>-25.5</td>
<td>-153.3</td>
<td>.360</td>
</tr>
<tr>
<td>PUBED</td>
<td>Unmatched</td>
<td>5.9891</td>
<td>5.6224</td>
<td>32.5</td>
<td></td>
<td>.139</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>5.9891</td>
<td>6.4696</td>
<td>-42.6</td>
<td>-31.0</td>
<td>.095 *</td>
</tr>
<tr>
<td>SMD</td>
<td>Unmatched</td>
<td>.35106</td>
<td>.10811</td>
<td>67.6</td>
<td></td>
<td>.003 **</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>.35106</td>
<td>.29255</td>
<td>16.3</td>
<td>75.9</td>
<td>.585</td>
</tr>
</tbody>
</table>
Table 7.7(b) shows the results of \( t \)-tests comparing means for the control and treated group for the matched and unmatched datasets. As can be seen, no \( t \)-test is significant at the five percent level in the matched dataset: the matched dataset significantly reduces the difference between the control and treated group. The matching technique used is a simple nearest neighbor algorithm, matching each case against its two closest comparators.\(^{170}\) In particular, given our concern about the role of electoral systems in selecting electoral periods into the ‘distinct’ group, the difference in means between the treatment and control group is now minimal. Having performed matching we can now calculate the average treatment effect, which is estimate to be .182, with a bootstrapped standard error of .083, significant at the five percent level. Table 7.7(c), below, shows this estimate along with the estimates of the average treatment effect on the treated group (ATT) and untreated (ATU), as well as the bias-corrected confidence interval for our ATE estimate. The estimate of the average treatment effect is not enormous, at around 0.2 percent points of GDP, but it does conform to the extra effect of partisanship we found in Table 7.6. Moreover, it amounts to just under half of one standard deviation in the dependent variable - the absolute change in education spending over an electoral period - and to around forty percent of the mean of this variable. Furthermore, it is substantially larger than the difference in the dependent variable we would obtain from comparing the unmatched treatment and control groups (0.05), demonstrating that the effect of observed variables, like the SMD dummy, and of unobserved variables on selection into treatment is very large.

\(^{170}\) I use two cases because if one case is used a couple of outlying cases at each end of the propensity score have overwhelming weight on the matching process. Matching and propensity score calculation were performed using Sianesi and Leuven’s PSMATCH2 program for STATA (Sianesi and Leuven, 2004).
Table 7.7c: Average Treatment Effect of Having Distinct Cabinet Preferences on Absolute Changes in Education Spending

<table>
<thead>
<tr>
<th>Sample</th>
<th>Treated</th>
<th>Controls</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmatched</td>
<td>.499</td>
<td>.444</td>
<td>.056</td>
</tr>
<tr>
<td>ATT</td>
<td>.499</td>
<td>.248</td>
<td>.251</td>
</tr>
<tr>
<td>ATU</td>
<td>.444</td>
<td>.539</td>
<td>.095</td>
</tr>
<tr>
<td>ATE</td>
<td></td>
<td></td>
<td>.182</td>
</tr>
<tr>
<td>Bootstrap SE</td>
<td></td>
<td></td>
<td>.083 **</td>
</tr>
<tr>
<td>Bias Corrected CI</td>
<td></td>
<td></td>
<td>(.140, .307)</td>
</tr>
<tr>
<td>N</td>
<td>47</td>
<td>37</td>
<td></td>
</tr>
</tbody>
</table>

The two techniques applied in this section clearly demonstrate that the politics of education spending differ dramatically in ‘close’ and ‘distinct’ electoral periods. Where cabinets shift firmly away from voter preferences, as expressed in the ideological composition of parliament, they appear to enact larger and more partisan changes to education spending. The sub-sample technique demonstrated that in elections that were more ‘distinct’ than the mean, the impact of partisanship on education spending was stronger. The matching technique showed that this was not merely a product of variables that select cases into being ‘distinct’: rather elections where the cabinet is particularly ideological vis-à-vis the parliament also see changes in education spending of a large magnitude. So policy changes do, at the margin, appear to reflect a strong effect of cabinet partisanship, whatever the expressed preferences of voters. But despite the power of cabinets to enact their preferred policies, is there the possibility of a moderating effect from parliament or electoral institutions? The next two sections extend the analysis of this section to look at the impact of these institutions directly.
7.7: Cabinets vs. Parliaments

The previous section analyzed the gap between cabinets and parliaments for instrumental purposes. Our interest was not precisely in the relationship between parliamentary ideology, cabinet ideology, and education spending but in how we could use the ideology variables to construct a measure of ‘distinct’ and ‘close’ elections to get an idea of how much policy latitude governing parties had in these two different situations. In this section we will explore the interplay between cabinet and parliamentary ideology in more nuanced detail. We will not divide the sample into ‘close’ and ‘distinct’ elections; instead we shall use the standard country-year dataset from Section 7.5 as our baseline sample and examine whether parliaments appear able to constrain cabinets in education spending and whether the parliament has an independent effect of its own education outcomes.

Two particular variables are analyzed in this section. Firstly, cabinet minus parliamentary partisanship, which is positive if the cabinet is more right-wing than parliament and negative if it is more left-wing. Secondly, we will examine the effects of parliamentary partisanship itself to see if it has an effect on education spending independent of the cabinet. As in Section 7.5, we use the standard fixed effects with lagged dependent variable technique. Models A through D of Table 7.8 incorporate the two new variables in various permutations to identify the effect of parliamentary and party constraints on cabinet decision-making. Model A incorporates the cabinet minus parliamentary partisanship model into the baseline fixed effects model used in Table 7.4, with public education spending as a percentage of GDP as the dependent variable. In fact, controlling for cabinet partisanship, the cabinet minus parliamentary partisanship variable
does not appear to have a statistically significant relationship to education spending. The coefficient on cabinet partisanship does, however, rise to from -.007 to -.009 once we control for the difference measure. However, Model B shows that once the cabinet partisanship measure is excluded, the difference between cabinet and parliamentary partisanship does appear to have a statistically significant and negative relationship with education spending. This confirms the assertion in Section 7.6 that cabinet ideology has an impact on education spending distinct from voter preferences as represented by parliamentary composition.

Model C incorporates parliamentary partisanship on its own, with a statistically significant, negative relationship on education spending. The coefficient on this variable is -.009, identical to that found on cabinet partisanship in Model A. However, if we include the cabinet ideology variable in Model C, we find that the coefficient on parliamentary ideology becomes statistically insignificant (results not shown). Model C shows that it is not clear whether there is any independent impact of parliamentary ideology on education spending. To examine this question in further detail, Model D, in contrast to Model A, incorporates both parliamentary partisanship and the difference measure (but excludes cabinet partisanship), with both coefficients being negative and statistically significant. In this case we find not only that parliamentary ideology retains its coefficient of -.009 from Model C but also that the difference measure is statistically significant and negatively signed. This implies that a left-wing parliament will lead to higher education spending but that the position of the cabinet in relation to the parliament will determine whether parliamentary ideology is accentuated or dampened.
Table 7.8: Testing the Effects of Cabinet versus Parliamentary Partisanship

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAGGED D.V.</td>
<td>0.668</td>
<td>0.682</td>
<td>0.664</td>
<td>0.668</td>
</tr>
<tr>
<td></td>
<td>(0.034)***</td>
<td>(0.034)***</td>
<td>(0.034)***</td>
<td>(0.034)***</td>
</tr>
<tr>
<td>CABINET COG</td>
<td>-0.009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CABINET - PARL</td>
<td>0.004</td>
<td>-0.006</td>
<td>-0.005</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.002)**</td>
<td>(0.002)**</td>
<td></td>
</tr>
<tr>
<td>PARL COG</td>
<td></td>
<td></td>
<td>-0.009</td>
<td>-0.009</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.003)***</td>
<td>(0.003)***</td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>0.047</td>
<td>0.038</td>
<td>0.055</td>
<td>0.047</td>
</tr>
<tr>
<td></td>
<td>(0.024)*</td>
<td>(0.024)</td>
<td>(0.024)**</td>
<td>(0.024)*</td>
</tr>
<tr>
<td>LOG GDP</td>
<td>2.514</td>
<td>3.055</td>
<td>2.282</td>
<td>2.514</td>
</tr>
<tr>
<td></td>
<td>(1.418)*</td>
<td>(1.421)**</td>
<td>-1.419</td>
<td>(1.418)*</td>
</tr>
<tr>
<td>LOG GDP SQ.</td>
<td>-0.069</td>
<td>-0.077</td>
<td>-0.064</td>
<td>-0.069</td>
</tr>
<tr>
<td></td>
<td>(0.028)**</td>
<td>(0.028)**</td>
<td>(0.028)**</td>
<td>(0.028)**</td>
</tr>
<tr>
<td>LOG POPULATION</td>
<td>0.165</td>
<td>0.155</td>
<td>0.176</td>
<td>0.165</td>
</tr>
<tr>
<td></td>
<td>(0.896)</td>
<td>(0.905)</td>
<td>(0.894)</td>
<td>(0.896)</td>
</tr>
<tr>
<td>GOVEX/GDP</td>
<td>-0.022</td>
<td>-0.027</td>
<td>-0.025</td>
<td>-0.022</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.020)</td>
<td>(0.020)</td>
<td>(0.020)</td>
</tr>
<tr>
<td>Year</td>
<td>0.035</td>
<td>0.026</td>
<td>0.037</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>(0.012)***</td>
<td>(0.012)**</td>
<td>(0.012)***</td>
<td>(0.012)***</td>
</tr>
<tr>
<td>Constant</td>
<td>-89.461</td>
<td>-80.135</td>
<td>-91</td>
<td>-89.461</td>
</tr>
<tr>
<td></td>
<td>(27.360)***</td>
<td>(27.468)***</td>
<td>(27.399)***</td>
<td>(27.360)***</td>
</tr>
<tr>
<td>Observations</td>
<td>389</td>
<td>389</td>
<td>391</td>
<td>389</td>
</tr>
<tr>
<td>Number of States</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Dependent variable: Public Education Spending as a % of GDP.
Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%

What are we to conclude from these results? In particular, why is the parliamentary ideology variable significant in combination with the difference measure but not the actual level of cabinet ideology? The first thing to note is that cabinet partisanship is highly correlated with the difference measure, with a correlation of 0.73, as it also is with parliamentary partisanship (a correlation of 0.75). Yet, parliamentary partisanship is not highly correlated with the difference measure, with a correlation of 0.10. Thus, Model A displays a much higher degree of multicollinearity between the partisanship measures than Model D, which incorporates only the difference and the
parliamentary measure. It appears that movements in the difference measure then represent changes in cabinet partisanship more strongly than changes in parliamentary partisanship. This makes a good deal of sense given that parliamentary composition is, almost by definition, likely to be much more stable than government composition, since the latter is decided by votes and seats at the margin.

Thus, our interpretation of the results should be as follows. Model A shows that the key driver of policy change is indeed the cabinet, rather than shifts in parliament for a given cabinet ideology. If you hold the government constant and shift seats in the parliament, there is no tangible effect on education policy, provided of course that the government does not change. Cabinets do not appear to be reacting to voter pressure so much as their own ideological interests, supporting a ‘partisan politicians’ model of the political process. Model B reiterates this position, showing that as the cabinet moves further away from the pattern of votes and seats in parliament, the partisan effect becomes stronger: governments appear to have significant policy autonomy from parliament, and by implication, from voters. Model C, shows nonetheless that, if we ignore the makeup of the cabinet, parliamentary ideology does appear to be correlated with education policy in a similar manner to cabinet partisanship. Model D extends this by adding the difference measure to Model C. In Model D, if the cabinet is further to the wings than parliament this has a further partisan impact on policy making. That is, for a given parliamentary structure, shifts in cabinet partisanship, as expected, show a significant partisan effect on education policy. Unlike Model A, Model D, permits us to examine both the absolute and relative positions of parliamentary and cabinet partisanship.
Figure 7.5 builds on Model D by providing a set of predicted education spending policies for four mixes of partisanship: a left-wing parliament with cabinet further to the left; a left-wing parliament with cabinet to its right; a right-wing parliament with cabinet to its left, and a right-wing parliament with cabinet to its right. Each of these examples is paired with its closest match from the dataset, which cover a variety of states with differing electoral systems. The first example, paired with the United Kingdom in 1974, has a moderately left-wing parliament and a highly left-cabinet. In this case, the one year increase in education spending from a position of neutral cabinet and parliamentary ideology is predicted to be a third of a percent point of GDP. However, if we keep parliamentary composition constant and allow the cabinet to shift towards the center, as in Norway in 1970, we see the effect on education spending is halved to 0.17 percent points. In the third example, paired with Ireland in 1975, we keep cabinet ideology to the left but allow parliament to shift in its composition to right of center. In this case the two forces balance one another out and education spending remains roughly constant. Finally, in the case where cabinet is to the right of parliament - our example here is Australia in 1976 – education spending is lowered by a quarter percent point of GDP. Thus, we have seen that for a constant parliamentary position, moving the cabinet either accentuates or balances spending. Thus, although the regressions appear to show that cabinet ideology is the key driver of partisan education policy, other governmental institutions can play a key role in constraining or facilitating this dynamic.
Figure 7.5: Parliamentary and Cabinet Partisanship and Public Education

UK 1974: Predicted One Year Change from Zero Partisanship: +0.34% of GDP

Norway 1970: Predicted One Year Change from Zero Partisanship: +0.17% of GDP

Ireland 1975: Predicted One Year Change from Zero Partisanship: +0.02% of GDP

Australia 1976: Predicted One Year Change from Zero Partisanship: -0.23% of GDP
7.8: Partisan Policy Under Electoral Constraints

The final extension of this chapter examines how electoral systems alter the partisan effect on education spending. As noted earlier, a multitude of authors have examined the effects of electoral systems on various forms of public spending. However, they have used a variety of different models in order to elucidate the mechanism by which electoral systems are supposed to impact on spending. Typically, most authors suggest that electoral systems have an independent effect on the level of spending. Persson and Tabellini (2003), for example, provide extensive empirical evidence claiming that welfare states are systematically smaller in states with majoritarian electoral systems. Their work is informed by theoretical priors developed by Lizzeri and Persico (2001), who suggest that the attention paid to ‘non-pivotal’ voters under proportional systems means these systems have higher spending than swing-voter oriented majoritarian systems, and by Austen-Smith (2000), who notes that the greater number of parties under proportional systems leads to coalitional bargains that ante up public spending. Rogowski and Kayser (2002), although ostensibly interested in the determinants of the price level rather than public spending per se, derive a similar answer: majoritarian systems are more swing-voter-attuned than proportional ones and are likely to favor consumers over producers accordingly.

Iversen and Soskice (2006) suggest that it is not the electoral institutions themselves that directly affect spending but their influence on which party is more likely to obtain office: they suggest that proportional systems favor center-left parties. In proportional systems, the middle class do better by entering into coalition with working class parties than by joining a coalition with the wealthy since in a left-middle coalition
both members can ‘plunder’ the wealthy, whereas the working class offer little booty for a middle-wealthy alliance. Conversely, majoritarian systems favor center-right parties because in this case voters in the middle class can only choose between two parties, center-left and center-right, with the former likely to be dominated by the working class, who will plunder both the wealthy and the middle class: the middle class thus tends to vote center-right. Thus public spending is directly determined by party preferences but the likelihood of parties gaining office is determined by electoral institutions.

This chapter takes Iversen and Soskice’s intuition one stage further and examines whether electoral institutions not only affect the likelihood of particular parties coming to power but how partisan they will behave once in office. I begin by adapting Iversen and Soskice’s model and concentrate on the range of partisanship likely under PR versus majoritarianism. The previous sections have shown that education spending is a particularly redistributive form of government expenditure. Hence, we should expect tax and transfer regimes for education to be highly progressive. Following Iversen and Soskice’s assumptions, let us concentrate solely on the taxation and provision of education and abstract away from concerns about the composition of government spending outlined in earlier sections. Using our three groups $P$, $M$, and $H$, we assume, following Iversen and Soskice, that because of proportionality the maximum tax takes from each group are $0$, $T_M$, and $T_H$, and that all taxes will provide education funding.\footnote{The poor group is assumed to pay no taxes so as to simplify the model. However, the results carry through provided they pay less than $T_M$.}

We shall concentrate solely on changes in the aggregate tax take under different electoral systems, and in particular on the potential range of tax take.
Under majoritarianism, there are two parties $L$ and $R$, with the former being led by a member of $P$ with probability $2/3$ and by a member of $M$ with probability $1/3$; the latter by a member of $H$ with a probability of $2/3$ and by a member of $M$ with probability $1/3$. These probabilities emerge from the equal size of each group and can be thought of as representing voters’ uncertainty about the ideology leaders of each party during a campaign. Each party will attempt to maximize the optimal policy of its members,\footnote{That is, the optimal amount of taxes they can expropriate from the other groups without violating the progressivity of the tax system.} which amounts to, for $P$, $M$, and $H$, respectively: $(T_H + T_M)$, $T_H$, and $0$. Thus the expected tax revenue $\rho$ of the $L$ and $R$ parties, and the potential range of policy, are:

\begin{align*}
E(\rho_L) &= \frac{2}{3} [T_H + T_M] + \frac{1}{3} T_H \\
E(\rho_R) &= \frac{1}{3} T_H \\
E(\text{Range}_{MAJ}) &= E(\rho_L) - E(\rho_R) = \frac{2}{3} [T_H + T_M]
\end{align*}

Under PR, there are three parties, $L$, $C$, and $R$, representing $P$, $M$, and $H$. If each group votes for its representative party, policy will be developed through coalitional bargaining in the post-election period. We assume, following Iversen and Soskice, that each party has an equivalent chance of being made fondateur. We assume that once a coalition is formed, Rubenstein bargaining takes place and the final tax revenue therefore lies halfway between the optimal points of each party. We abstract away from the possibility of reneging on bargains.\footnote{This possibility is dealt with at length by Iversen and Soskice, who show that their results still obtain, provided no group can make credible commitments to under-exploit their bargaining power.} As might be expected, in terms of ascertaining the potential range of tax revenue, the key instances we want to look at are when $L$ or $R$, are made fondateur. If $L$ is chosen they choose between $C$ and $R$ as partner:
Unsurprisingly, \( L \) will therefore choose to bargain with \( C \), who can offer them a higher tax take. If \( R \) is chosen as fondateur, they will likewise choose to bargain with \( C \) and this coalition produces the simple total tax revenue of \( \frac{1}{2} T_H \). Thus, to calculate the potential range of tax revenue we need to look at the difference between the tax revenue of the \( LC \) coalition and that of the \( CR \) coalition:

\[
E(\text{Range}_{PR}) = E(\rho_{LC}) - E(\rho_{CR}) = \frac{1}{2}[T_H + T_M] + \frac{1}{2} T_H - \frac{1}{2} T_H = \frac{1}{2} [T_H + T_M]
\]

Thus, the range of partisanship under PR is significantly smaller than that under majoritarianism. This result obtains largely because of the increased bargaining power of the middle group, with its commensurately more moderate policy preferences, under the PR system, where it counts for half of the post-election governing coalition. Under majoritarianism, the two-party system squeezes the middle class into only a third of either of the two parties.

The formal model implies that proportional representation systems should see a smaller range of partisan policy because the coalitional dynamics generated in these systems force parties to bargain over policy and give greater bargaining power to centrist groups. Table 7.9 empirically explores this proposition using three variables, discussed in Section 7.3: a dummy variable for whether an electoral system does not use single member districts; the effective number of parties in the legislature; and the Iversen-Soskice index of proportionality. In each case, the variable is interacted with cabinet partisanship. There are two key reasons for doing this: firstly, electoral systems are
largely constant within states across time, hence in a fixed effects model they essentially drop out into the country-specific error term; secondly, we are interested in the manner through which electoral systems channel partisanship, hence we care about partisanship conditional on electoral system.

**Table 7.9: The Partisan Effect Under Different Electoral Institutions**

<table>
<thead>
<tr>
<th></th>
<th>MODEL 1 PUBED / GDP</th>
<th>MODEL 2 PUBED / GDP</th>
<th>MODEL 3 PUBED / GDP</th>
<th>MODEL 4 PUBED / GOV</th>
<th>MODEL 5 PUBED / GOV</th>
<th>MODEL 6 PUBED / GOV</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAGGED D.V.</td>
<td>0.627</td>
<td>0.619</td>
<td>0.618</td>
<td>0.492</td>
<td>0.498</td>
<td>0.493</td>
</tr>
<tr>
<td></td>
<td>(0.039)***</td>
<td>(0.040)***</td>
<td>(0.040)***</td>
<td>(0.036)***</td>
<td>(0.035)***</td>
<td>(0.035)***</td>
</tr>
<tr>
<td>CABINET COG</td>
<td>-0.014</td>
<td>-0.021</td>
<td>-0.013</td>
<td>-0.057</td>
<td>-0.086</td>
<td>-0.046</td>
</tr>
<tr>
<td></td>
<td>(0.004)***</td>
<td>(0.006)***</td>
<td>(0.004)***</td>
<td>(0.018)***</td>
<td>(0.024)***</td>
<td>(0.016)***</td>
</tr>
<tr>
<td>CAB * NONSMD</td>
<td>0.010</td>
<td>0.052</td>
<td>0.021</td>
<td>0.07</td>
<td>0.007</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.005)*</td>
<td>(0.022)**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAB * PARTIES</td>
<td>0.005</td>
<td>0.012</td>
<td>0.007</td>
<td>0.021</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.002)***</td>
<td>(0.006)**</td>
<td>(0.022)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAB * PROPORT</td>
<td>0.113</td>
<td>0.123</td>
<td>0.123</td>
<td>0.283</td>
<td>0.367</td>
<td>0.369</td>
</tr>
<tr>
<td></td>
<td>(0.030)***</td>
<td>(0.028)***</td>
<td>(0.028)***</td>
<td>(0.127)***</td>
<td>(0.112)***</td>
<td>(0.112)***</td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>0.322</td>
<td>2.991</td>
<td>3.273</td>
<td>14.327</td>
<td>30.168</td>
<td>31.739</td>
</tr>
<tr>
<td></td>
<td>(0.039)***</td>
<td>(0.028)***</td>
<td>(0.028)***</td>
<td>(0.127)***</td>
<td>(0.112)***</td>
<td>(0.112)***</td>
</tr>
<tr>
<td>LOG GDP</td>
<td>-1.981</td>
<td>-2.106</td>
<td>-2.112</td>
<td>(8.009)*</td>
<td>(7.996)***</td>
<td>(8.049)***</td>
</tr>
<tr>
<td>LOG GDP SQ.</td>
<td>-0.031</td>
<td>-0.072</td>
<td>-0.078</td>
<td>-0.419</td>
<td>-0.697</td>
<td>-0.727</td>
</tr>
<tr>
<td></td>
<td>(0.039)**</td>
<td>(0.039)**</td>
<td>(0.152)***</td>
<td>(0.148)***</td>
<td>(0.148)***</td>
<td></td>
</tr>
<tr>
<td>LOG POPULATION</td>
<td>1.711</td>
<td>0.46</td>
<td>0.721</td>
<td>10.556</td>
<td>6.512</td>
<td>7.698</td>
</tr>
<tr>
<td></td>
<td>(0.108)</td>
<td>(0.926)</td>
<td>(0.931)</td>
<td>(4.464)*</td>
<td>(3.633)*</td>
<td>(3.664)**</td>
</tr>
<tr>
<td>GOVEX/GDP</td>
<td>-0.012</td>
<td>-0.002</td>
<td>-0.003</td>
<td>-0.839</td>
<td>-0.762</td>
<td>-0.766</td>
</tr>
<tr>
<td></td>
<td>(0.014)***</td>
<td>(0.013)***</td>
<td>(0.013)***</td>
<td>(0.057)***</td>
<td>(0.050)***</td>
<td>(0.051)***</td>
</tr>
<tr>
<td>Year</td>
<td>0.042</td>
<td>0.041</td>
<td>0.038</td>
<td>0.216</td>
<td>0.241</td>
<td>0.228</td>
</tr>
<tr>
<td></td>
<td>(0.014)***</td>
<td>(0.013)***</td>
<td>(0.013)***</td>
<td>(0.057)***</td>
<td>(0.050)***</td>
<td>(0.051)***</td>
</tr>
<tr>
<td>Constant</td>
<td>-98.874</td>
<td>-117.643</td>
<td>-119.441</td>
<td>-665.35</td>
<td>-876.749</td>
<td>-890.672</td>
</tr>
<tr>
<td></td>
<td>(35.543)***</td>
<td>(35.780)***</td>
<td>(35.921)***</td>
<td>(142.038)***</td>
<td>(132.958)***</td>
<td>(133.950)***</td>
</tr>
<tr>
<td>Observations</td>
<td>299</td>
<td>293</td>
<td>293</td>
<td>298</td>
<td>292</td>
<td>292</td>
</tr>
<tr>
<td>Number of States</td>
<td>19</td>
<td>17</td>
<td>17</td>
<td>19</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.59</td>
<td>0.64</td>
<td>0.64</td>
<td>0.68</td>
<td>0.74</td>
<td>0.74</td>
</tr>
</tbody>
</table>

Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%

Models A through C use public education as a percentage of GDP as the dependent variable. In all three models, the measures of proportionality of electoral
system are both positive and statistically significant, albeit more so in the measure of party number and the proportionality index. In all cases, the impact of proportionality is to dampen down the partisan effect estimated by the coefficient on the cabinet partisanship variable. Model A implies that the effect of cabinet partisanship is roughly three and a half times stronger in SMD systems than in non-SMD systems (comparing coefficients of -.014 and -.004). Model B implies that each additional ‘effective’ party in an electoral system reduces the impact of the partisanship coefficient by around one quarter. Finally, the results for the proportionality index in Model C indicate that the effect of partisanship is basically cancelled out as the index asymptotes towards one.

Figures 7.6(a) through 7.6(c) demonstrate these patterns graphically. Figure 7.6(a) shows the difference in the partisan effect between single-member district (SMD) electoral systems and those without single-member districts (non-SMD). The SMD effect on partisanship is far steeper than that for non-SMDs: a move of fifty points on the partisan index is associated with a drop in education spending of 0.3% of GDP in non-SMD systems versus around 0.8% in SMD systems. Figure 7.6(b) compares the average effective number of parties in proportional systems (3.9) to those in majoritarian systems (2.5), where the fifty point partisanship increase is respectively associated with a drop of 0.2% of GDP versus 0.5%. Finally, Figure 7.6(c) compares the effect of partisanship for a state scoring one on the proportional index (less than 0.1% of GDP) versus a state scoring zero on the proportional index (0.7% of GDP). There is clearly a very significant moderating of partisan policies in proportional electoral systems, however measured. It appears that the increased bargaining power of centrist groups, as outlined in the formal model at the start of this section, dampens any pull to the extremes. For completeness
Models D through F repeat the empirical exercise using relative education spending as the dependent variable, producing similar statistically significant positive coefficients. Indeed, if anything the impact of proportionality is slightly stronger: in all three cases the impact of partisanship on relative education spending in fully proportional systems is essentially nil. Putting the models together, they suggest that proportional electoral systems moderate partisanship over the composition of government spending between education and other spending in a very powerful manner.

**Figure 7.6a: Single Member Districts and the Partisan Effect**
Figure 7.6b: Effective Number of Parties and the Partisan Effect

Figure 7.6c: Proportionality and the Partisan Effect
7.9: Conclusion

In this chapter we have explored the interrelationship between partisanship and education spending in several contrasting ways. The extension to the formal model undertaken in Section 7.2 suggested that parties face two potential constraints on enacting their partisan preferences in education policy: pre-election commitments to the median voter and post-election institutional constraints. However, we have seen empirically that only the latter constraints appear to moderate party behavior. Pre-election promises matter only to the degree that they signal relative education spending; otherwise, we can better predict changes in education policy by who a party is rather than what they say. We saw that these more general ideological differences between parties are robust predictors of education spending, with a typical switch from right to left control of government associated with an increase in education spending of almost one percent point of GDP. Indeed, education spending makes up the lion’s share – two thirds - of the overall change in government spending following partisan turnover. Such changes in education policy appear to be a function of party preferences rather than changes in voter sentiment as shown by the analyses in Section 7.6, which suggested education spending is more volatile following elections where party preferences are distinct from voter preferences. To some degree, however, partisan volatility can be quelled by parliamentary pressure, or more pertinently, by the prevalent electoral institutions. We saw in Section 7.8, that highly proportional systems led to almost total consensus over education spending, whereas majoritarian systems accentuate partisan cycles in education. Thus, the replacement of the battles between autocratic elites and democratic masses by political parties only leads to an educational armistice under proportionality.
8.1: Introduction

The simple left-right partisan patterns of preferences over education spending that we examined and tested in the previous chapter were a very much a function of our aggregated level of analysis. It appears that when we examine overall public spending on education, left-wing parties do indeed both express and make manifest preferences for increased funding. Since aggregate spending on education is likely to be redistributive, given near universal coverage for students under the age of sixteen in OECD countries, it is unsurprising that we find the left supporting such a progressive use of the tax system. However, what if the distribution of education provision were not universal? What, instead, if governments could target education spending towards their preferred constituents? As we saw in Section 4.5, such policy flexibility could lead to a much more nuanced relationship between types of government and types of education spending.

In fact, when we distinguish between primary, secondary, and tertiary education funding, we find that clear partisan preferences over the composition of education spending exist. In particular, if we examine the ratio of tertiary to primary funding, we...
find that right-wing governments systematically increase this ratio while in office, while left-wing governments reduce it. This finding seems intuitive. Tertiary education (that is, university and other post-secondary education) has traditionally been fairly limited in its range of coverage. In the 1960s, fewer than ten percent of individuals attended college in almost every OECD nation. The chief exception to this rule was the United States, largely because the GI Bill facilitated the creation of a mass higher education system. Yet, in most European countries, although the end of the Second World War typically saw the expansion of the welfare state to unprecedented levels (for example, the British National Health Service), there was not a commensurate attempt to facilitate the transition of ex-servicemen into university education (Timmins, 2004). Instead, higher education and the professional jobs that went hand in hand with graduate status, was the preserve of the elite few in most European states until at least the 1980s. Given that higher education served the elite, public funding for higher education was an uncontroversial policy for parties of the right, and Europe’s higher education system has been almost entirely publicly subsidized in the post-war era. In fact, the few recent moves towards private funding in higher education funding have been the work of left-wing parties like New Labour in the UK and the Labor Party in Australia. The politics of higher education funding, then, appear to be the reverse of those for more general education spending.

The general result that right-wing parties prefer to increase higher education funding vis-à-vis primary funding lies in contrast to the specific constraints that parties face depending on the precise configuration of their higher education system. Many

---

Education (ISCED) program developed by UNESCO does make distinctions, it typically differentiates ‘Type A’ academic programs from ‘Type B’ vocational programs, a distinction that is not addressed directly in this dissertation (it does however, form an important component of the Varieties of Capitalism framework, see especially Estevez-Abe, Iversen, and Soskice, 2001).
states, particularly those in Continental Europe, retain the kinds of elite, publicly funded higher education systems that were almost universal in the post-war period. These countries have never expanded enrolment beyond around one quarter of the population, and hence they have been able to maintain a system of complete public subsidization at moderate cost: hence the key political debate in these systems is over expansion. In contrast, a number of other states have already transitioned from an elite to a mass higher education system. Amongst these states, the political debate is over the appropriate balance between public and private financing. The Anglo-American states of Australia, Canada, New Zealand, the United Kingdom, and the United States have around fifty percent enrolment in higher education but have reduced the proportion of funding that comes from public sources in order to keep costs manageable. On the other hand, the Scandinavian states of Denmark, Finland, Norway, and Sweden have also transitioned to a mass higher education system but have retained a fully public funding structure. In these latter states, this has led to high overall public costs of higher education; costing over 1.5% of national income in public funding compare to a typical cost of 1% elsewhere. Since these three configurations present different trade-offs between coverage, subsidization, and overall public cost, they can be conceptualized as a trilemma, where states can have a maximum of two out of the three following characteristics: a fully public system, a mass system, and a moderate overall public cost. The politics of higher education, in particular, the preferences of different groups over subsidization and coverage, will thus be contingent on which corner of the trilemma a state sits.

This chapter explores the politics of targeted education spending in the OECD, with a particular focus on higher education. We move from the general analysis of
aggregate targeting of funding between primary, secondary, and tertiary levels to the more state-specific analysis of the politics of higher education funding within the trilemma. We begin with an empirical time-series cross-sectional analysis of the composition of education spending in twenty OECD states during the 1990s. We find strong evidence that shifts to the right in cabinet partisanship lead to an increase in the ratio of tertiary to primary spending. We then move to an analysis of how the politics of higher education play out within the three specific configurations of the higher education trilemma: the Continental, Anglo-American, and Scandinavian systems. A formal model of the trilemma is developed, starting by establishing the aggregate trade-off between subsidization, coverage, and public cost before moving to individual preferences between the three possible configurations within the trilemma and concluding by examining how individual preferences are aggregated into party preferences and political decisions. The model is intended to provide a comprehensive micro-mechanism to understand institutional change in higher education, linking individual preferences up to policy outcomes. The modeling of the trilemma is followed by an empirical analysis of whether the purported trade-offs appear to exist at both the national and individual levels using both cross-sectional analysis and an examination of trends among states moving to a mass higher education system. Three particular case studies – the United Kingdom, Sweden, and Germany – are examined in the following chapter, in order to describe in greater detail the political underpinnings of institutional change within the trilemma.

8.2: Testing Partisan Preferences and the Composition of Education Spending

We saw in both Chapter Two and Section 4.5 that regimes, or indeed parties, that more greatly reflect the preferences of the wealthy than the poor will attempt to push the
balance of education spending towards higher education, which favors the wealthy, and away from universal primary education. The logic behind this assertion is simple. If a right-wing government comes to power and they face a fixed budget but no constraints on the composition of that budget, we would expect their preference to be to target education funding towards their own constituents, and since right-wing voters are more likely recipients of higher education than left-wing voters, they will bias spending towards higher education. However, as we know from Chapter Seven, right-wing parties spend generally less on aggregate education than do left-wing parties; thus, budgets are not, in practice fixed. Hence, a change in the relative funding of higher and primary education may come from freezing the former and cutting the latter. Similarly, left wing parties typically increase overall spending on education but may choose to target increased funds at primary and secondary education rather than higher education (as was the case during Tony Blair’s first two terms – see Chapter Nine).

The case of secondary education is somewhat more complex than those of tertiary and primary education. Primary education is universally provided in all OECD countries, whereas in most states tertiary education is provided to a minority of the population. However, while all students in the OECD will obtain at least some secondary education - almost all states extend compulsory education to the age of sixteen - a significantly smaller proportion will continue on in upper secondary education between sixteen and eighteen / nineteen. This proportion varies widely across even the wealthiest countries in the OECD; for example, the UK loses around one third of students to the workforce or unemployment at age sixteen whereas Finland retains all but three percent (OECD, 2005). This inconsistency means that secondary spending is not directly comparable
across OECD countries and the degree to which secondary education spending implies de facto targeting to the upper and middle classes varies considerably. As we shall see, this weaker theoretical prediction about secondary spending will meet with fairly weak findings in empirical tests on the ratio of tertiary to secondary spending. However, our expectations about the ratio of tertiary to all other forms of education, and in particular, tertiary to primary, should be that right-wing parties will target funding towards tertiary where they are able to do so.

Table 8.1 thus examines whether the partisan effects demonstrated in Chapter Seven are replicated when examining the composition of education spending rather than its overall education spending. Model A uses tertiary spending over primary spending as its dependent variable; Model B uses tertiary spending over primary plus secondary spending; and Model C uses tertiary spending over secondary spending. In all cases the data availability if far poorer than in the analyses conducted in Chapter Seven. Data is much more fragmentary on the composition of education spending than on aggregate expenditure and there is very little availability before 1980. Given this paucity of data we should be careful about the interpretation of these results. The dataset is reduced from 23 to 20 countries and from 389 observations to around one hundred, lowering the average panel size per state from seventeen to five. This is reflected in the relatively small coefficient on the lagged dependent variable, which ranges between .35 and .47 and in the general statistical insignificance of most of the control variables in the analysis.
Table 8.1: Partisan Effects on the Composition of Education Spending

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tertiary education over primary education</td>
<td>Tertiary education over primary and secondary education</td>
<td>Tertiary education over secondary education</td>
</tr>
<tr>
<td>LAGGED D.V.</td>
<td>0.473</td>
<td>0.349</td>
<td>0.466</td>
</tr>
<tr>
<td></td>
<td>(0.052)**</td>
<td>(0.076)**</td>
<td>(0.094)**</td>
</tr>
<tr>
<td>CABINET COG</td>
<td>0.007</td>
<td>0.003</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>(0.003)**</td>
<td>(0.002)*</td>
<td>(0.004)</td>
</tr>
<tr>
<td>PUBLIC ED as a % GDP</td>
<td>0.043</td>
<td>0.041</td>
<td>0.258</td>
</tr>
<tr>
<td></td>
<td>(0.078)</td>
<td>(0.051)</td>
<td>(0.122)**</td>
</tr>
<tr>
<td>POPULATION&lt;15</td>
<td>0.043</td>
<td>0.031</td>
<td>0.033</td>
</tr>
<tr>
<td></td>
<td>(0.044)</td>
<td>(0.035)</td>
<td>(0.091)</td>
</tr>
<tr>
<td>LOG (GDP)</td>
<td>-3.166</td>
<td>-6.034</td>
<td>-15.481</td>
</tr>
<tr>
<td></td>
<td>(5.072)</td>
<td>(3.267)*</td>
<td>(8.901)*</td>
</tr>
<tr>
<td>LOG (GDP) SQ</td>
<td>0.040</td>
<td>0.109</td>
<td>0.337</td>
</tr>
<tr>
<td></td>
<td>(0.096)</td>
<td>(0.063)*</td>
<td>(0.175)*</td>
</tr>
<tr>
<td>LOG (POP)</td>
<td>-3.049</td>
<td>-2.431</td>
<td>-6.286</td>
</tr>
<tr>
<td></td>
<td>(3.016)</td>
<td>(1.683)</td>
<td>(4.921)</td>
</tr>
<tr>
<td>GOVEX/GDP</td>
<td>-0.053</td>
<td>0.002</td>
<td>0.076</td>
</tr>
<tr>
<td></td>
<td>(0.039)</td>
<td>(0.025)</td>
<td>(0.061)</td>
</tr>
<tr>
<td>YEAR</td>
<td>0.043</td>
<td>0.014</td>
<td>-0.037</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.015)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>21.731</td>
<td>95.781</td>
<td>346.323</td>
</tr>
<tr>
<td></td>
<td>(84.656)</td>
<td>(58.372)</td>
<td>(161.427)**</td>
</tr>
<tr>
<td>OBSERVATIONS</td>
<td>106</td>
<td>95</td>
<td>99</td>
</tr>
<tr>
<td>COUNTRIES</td>
<td>20</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>R-SQUARED</td>
<td>0.73</td>
<td>0.52</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Nonetheless we do see a significant effect for partisanship, even in these rather unpromising data conditions. Model A shows the strongest and most statistically convincing effect of cabinet partisanship. In this analysis, a one point shift in partisanship
is associated with a 0.007 increase in the ratio of tertiary to primary education spending. Given that the within-country standard deviation of this variable is 0.98, this implies that a fifty point shift from left to right on the cabinet center of gravity scale (the average range across countries) would lead to a 0.35 increase in the tertiary / primary ratio, or just over a third of one standard deviation. The potential impact of this shift can be interpreted visually in Figure 8.1, an added variable plot of the fixed effects analysis. A fairly tight slope of moderate incline indicates a robust and substantively significant relationship between cabinet partisanship and the tertiary / primary ratio. The mean ratio in the dataset is 2.05 – thus a shift from left to right of fifty points would mean a seventeen percent increase in the ratio. If we include long-term effects, these predicted first differences would double, leading to an increase in the tertiary-primary ratio of two-thirds of a standard deviation.

The remaining models show somewhat less convincing results. Model B shows a borderline significant positive effect of right-wing partisanship on the tertiary / (primary + secondary) ratio, which using the fifty point shift in partisanship outlined above would be associated with an increase of nearly half of a standard deviation in this ratio. Thus, we obtain a larger substantive predicted shift but with less robustness. This borderline significance vanishes entirely when looking at the tertiary / secondary ratio in Model C. The predicted effect of moving from left to right on the cabinet partisanship scale remains positive but the standard error has ballooned in size and the coefficient is not statistically significant.

175 Unlike the added variable plots from Chapters Three and Five, this is not a purely cross-sectional plot but includes countries taken at different points in time. Thus, the plot essentially measures deviations from country-means, as in typical fixed effects models. The gaps between countries should thus be approached with caution, since they do not reflect cross-sectional differences.
The relative significance of the three models suggests that the key distinction between levels of education spending is in their breadth of coverage of the population. Tertiary education has traditionally only been available to a minority of the population and even today has only crossed the fifty percent threshold in a few states. Secondary education has much higher rates of attendance in the population but in most states, around one quarter of the population, generally the poorest, fail to graduate or even attend upper secondary school. Primary schooling, on the other hand, is universally compulsory in the OECD. The stronger significance of the tertiary / primary ratio in Model A than those ratios containing secondary education in Models B and C suggests that the partisan effect is strongest where the attendance gap is widest and most favors the wealthy, who might prefer to have their tertiary education subsidized rather than to pay for it entirely privately, given that many of those paying taxes will not receive this subsidy. This
confirms the suggestion in Chapter Two that where public education spending can be targeted towards the rich, the normal partisan pattern is reversed.

8.3: A Higher Education Trilemma

We now move away from the very general analysis of targeted education spending in the previous section to a more state-specific analysis of how the institutional structure of higher education in each particular state impacts the politics of funding and coverage. This section asserts that OECD countries face a ‘trilemma’ when considering higher education policy. Governments can choose only two from the following three goals: a mass higher education system, a fully subsidized system, and a moderately costly system. Three potential configurations exist: the Anglo-American model with a mass and inexpensive system at the cost of decreased subsidization; the Scandinavian model with a mass and fully subsidized system at a very large overall public cost; and the Continental model with an inexpensive, fully subsidized system at the cost of very limited coverage. These institutional differences shape the form of politics over higher education that can emerge and they condition both individual and party preferences.

In order to specify precisely what I mean by a ‘trilemma’ in higher education it is useful to formalize this intuition. One way of simplifying this analysis is to think about the provision of any public service. At the most basic level, the government must decide how many people will receive the service – that is, the extent of coverage – and to what extent...

\[176\]

\[176\] Iversen and Wren’s (1998) well-known formulation of the trilemma envisages a trade-off between equality, employment, and budgetary restraint, with only two of these three political goals achievable simultaneously. The trilemma we will be pursuing in this section differs in that all three dimensions: coverage, subsidization, and public cost, can be directly altered by government policy, whereas the capacity of governments to directly influence equality and employment is less absolute in Iversen and Wren’s formulation, where economic actors may have equal power to determine these outcomes.
degree the service will be publicly subsidized. For a fixed budget constraint, any increase in one of these measures will force a decrease in the other. If the government wants more people to receive publicly subsidized dental care it must either reduce its share of the overall expense (that is make the subsidy to co-payment ratio smaller) or increase overall revenue collection (that is, break through the original budget constraint). Conversely, for a fixed budget constraint, if the government wishes to reduce its share of payment for dental service it must reduce the number of people receiving this subsidy.

Thus, we can conceptualize trilemmas in public services as the trade-off between any two of the budget constraint, the extent of service coverage, and the degree of subsidization, when the other variable is held constant. How does this pattern play out in the case of higher education? Leaving aside the issue of the budget constraint, which is simple to conceptualize, let us turn to examining the extent of coverage and the degree of subsidization. In higher education we can think of the extent of coverage in simple terms as the proportion of a given cohort who will attend higher education. In the current OECD this ranges between around one third of the population in Austria, Belgium, and Germany to over eighty percent in New Zealand and Sweden. It is worth noting that these are gross figures, which pick up multiple entries into higher education by the same person (e.g. re-enrolments, higher degrees, etc) and thus likely overestimate the true proportion of university-educated citizens. Nonetheless, the rank ordering of gross and net figures appears to be the same among countries: Germany and Austria near the bottom and the Scandinavian states near the top. Given the substantial range along this measure we can talk about elite higher education systems (those with gross enrolment rates of around one third of the population) and mass higher education systems (those with gross enrolment
over one half of the population). Transferring from an elite to a mass higher education system means moving along one side of the trilemma. The degree of subsidization is also fairly simple when analyzing higher education. Some systems are almost one hundred percent publicly funded – for example, Denmark, Norway and Finland – whereas others tilt towards private funding – for example, the United States, Japan, and Australia with private funding over half of all tertiary funding (and at the extreme, Korea, with eighty-five percent private funding).

Putting these tradeoffs together we emerge with the following picture. If a government wants to maintain budgetary stability, any expansion of the university system to include more students must be met by a reduction in subsidization. Thus, some governments will choose to facilitate this expansion by reducing subsidization as has been the case in both Australia and the United Kingdom over the past decade. Other governments will essentially suppress expansion by maintaining funding at a set level but keeping the subsidization rate constant: this has been the case in recent years in France and Germany. These binds cannot be broken unless the government chooses to expand overall public funding of higher education beyond the original budget constraint. This is, of course, an entirely tenable decision but these expansions must themselves be made at the expense of other public goods or through higher taxation. This decision appears to have been made by the Scandinavian states and perhaps also by Scotland.\footnote{Although the Scots have been able to channel money from the overall British purse to this end without facing the same hard budget constraints that the Scandinavians must face}

We can formalize these intuitions in a very simple manner. Imagine a state with a population normalized to one (this means that average revenues equal total revenues). We model the degree of subsidization using the parameter $p$, which varies between zero and
one, where $p = 1$ is a fully public system of higher education. We model the extent of coverage with the variable with the parameter $s$, which again varies between zero and one, with $s = 1$ being a higher education system where every individual attains a college degree. Finally, let us assume that every individual has income $y_i$ (distributed lognormally) with average income $\bar{y}$ and that a proportion $\tau$ of income is taxed to pay for higher education. Each individual receives $h$ (the uniform ‘good’ of higher education) only if $y_i \geq y_s$, where $\left(\frac{\partial y_s}{\partial s}\right) < 0$ - that is, as the coverage variable increases, the threshold individual who obtains higher education has a lower income.

At the aggregate level, the trade-offs are very simple to specify. If we assume that the government faces a fixed tax level $\tau^*$, then it is simple to show that expanding coverage and expanding the degree of subsidization are perfect substitutes. Assume that under the budget constraint, total revenues $\tau^* \bar{y} = sph$. This implies that the fixed tax is:

$$\tau^* = \frac{sph}{\bar{y}}$$

With this tax equation established we can now examine the first derivatives of the tax rate with respect to our parameters of interest: coverage $s$, and public subsidy $p$.

$$\frac{\partial \tau^*}{\partial p} = \frac{sh}{\bar{y}} \quad \quad \frac{\partial \tau^*}{\partial s} = \frac{ph}{\bar{y}}$$

We can use these two equations to derive the effect of increasing coverage on the degree of public subsidization for a fixed tax rate and the consequent elasticity of substitution:

$$\frac{\partial s}{\partial p} = -\left(\frac{\partial \tau^*}{\partial p}\right) = -\left(\frac{s}{p}\right) < 0 \quad \quad \varepsilon_{s,p} = 1$$
Thus, we see that for a fixed tax rate, coverage and subsidization are perfect substitutes. Some states will have high levels of coverage at a lower level of subsidization (e.g., the United States and Japan) whereas others, spending the same amount of public money, will have higher degrees of subsidization but lower coverage (e.g., Austria and Germany). Note that the other two trade-off dimensions follow from the same analysis. For a fixed level of coverage, states could trade off budgetary restraint versus subsidization. Some states will have mass systems with low levels of subsidization and low overall public cost (United States and Japan) whereas others will have mass systems with high levels of subsidization and high overall costs (Sweden and Finland). Finally, for a given level of subsidization, states can trade off coverage with overall cost. Some states will have low levels of private funding, low overall costs, but also low coverage (Austria and Germany), others will have similarly low levels of private funding but with high costs and high coverage (Sweden and Finland). We can graphically demonstrate these trade-offs using a series of iso-graphs, as in Figures 8.2a through 8.2c. These graphs are abstract representations of the trade-offs’ however, a few example states have been added to make clear the particular clusters of states making trade-offs on the three dimensions (Germany, Sweden, and the United States). The exact position of these states on the figures is not reflective of their true scores (which we will shall see in Figure 8.8) but is representative of the abstract trade-offs.
Figure 8.2(a): The Trilemma as Isocost

Subsidization

GER
SWE

Public Cost

USA

Coverage

Figure 8.2(b): The Trilemma as Iso-coverage

Subsidization

GER
SWE

Coverage

USA

Public Cost
Figure 8.2(c): The Trilemma as Iso-subsidization

At the aggregate level, consequently, we see different clusters of states, making tradeoffs between these three goals: budgetary restraint, public subsidization, and coverage. Before moving to the empirical analysis of how these patterns play out in the cross-sectional data we examine how this trade-off plays out at the individual level, and how political parties aggregate individual preferences leading to policy choices over higher education systems. We start by defining individual utility:

\[ u_i = (1 - \tau) \cdot y_i - (1 - p) \cdot h(y_i) + g(h(y_i)) \]

The constituent elements of this expression are as follows: a term for post tax individual income (with income distributed lognormally, as noted above), \((1 - \tau) \cdot y_i\); the proportion of the cost of higher education that must be paid privately (that is, the proportion that is not subsidized), \((1 - p) \cdot h(y_i)\); and a benefit attained from possessing
higher education \( g(h(y)) \). Note that the level of higher education received is dependent on individual income, that is, \( h = h(y) \). This relationship works as follows:

\[
\begin{align*}
    y_i \geq y_s & \implies h(y_i) = h \\
    y_i < y_s & \implies h(y_i) = 0
\end{align*}
\]

The key parameter here is \( y_s \), which is the income of the individual at the threshold of higher education provision. Any individual with income higher than \( y_s \) receives a uniform amount of higher education \( h \). Any individual with income lower than \( y_s \) receives nothing. There are two things worth noting about this setup. Firstly it introduces a discontinuity into higher education provision since at the point around the threshold individual, the amount of higher education received jumps from zero to \( h \). Secondly, this reverses the typical logic of Meltzer-Richard (1984) style models in that redistribution through the tax system goes from the poor to the rich (or at least from those not receiving higher education to those who do, with the former always poorer than the latter). However, among those who do receive higher education, the richer members will end up subsidizing the poorer members. Thus, as we shall see, this will look like an ‘ends against the middle’ model of political economy as explored in the model of coalitional politics discussed in Section 2.4. In order to examine how changes in coverage, subsidization, and the overall public cost of higher education affect preferences we first reframe the tax rate in terms of the higher education good by applying the budget constraint to the utility function:

\[
u_i = \left(1 - \frac{sp'h}{y}\right) \cdot y_i - (1 - p) \cdot h(y_i) + g(h(y_i))\]

We see two important changes in this formulation. Firstly, in the first expression, \( h \) is not dependent on individual income: this is the cost of providing a uniform amount of
higher education to each citizen who receives it and is paid through the tax rate by every citizen, regardless of their income. Secondly, we introduce the mean income variable, which will help us establish how the trilemma variables affect relative income. With these changes in hand, we begin by analyzing the effects of changes in the degree of subsidization on individual utility:

\[ y_i \geq y_s \Rightarrow \frac{\partial u_i}{\partial p} = -\frac{y_i}{\bar{y}} sh + h \]
\[ y_i < y_s \Rightarrow \frac{\partial u_i}{\partial p} = -\frac{y_i}{\bar{y}} sh \]

The second expression, for individuals with incomes below the threshold level is always negative. This is not surprising: those individuals who do not receive higher education do not benefit from paying for it. Notice that the very poorest individuals suffer less than those who are only just too poor to receive higher education because the latter must pay more income than the former to receive nothing.\textsuperscript{178} The first expression indicates that the marginal utility from public subsidization will be positive for many of those who receive higher education. This will, in fact, be true provided:

\[ \frac{y_i}{\bar{y}} < \frac{1}{s} \]

Thus, the impact of subsidization on individuals rich enough to receive higher education will be dependent on their income relative to the mean and on the degree of coverage existing. For an \( s \) of 0.1 we expect only those individuals with an income ten

\textsuperscript{178} We also make the debatable assumption here that the marginal utility of income is the same for all individuals. In fact, as Layard (2005) has noted, this assumption rarely holds. However, we might counter this criticism by pointing to the substantial tax credits generally received by the poorest members of society, which are not included in this model. It is certainly possible, though, that differing marginal utilities of income may make ends-against-the-middle coalitions more difficult to form than modeling appears to suggest.
times the mean to be opposed to further subsidization. For an \(s\) of one third, we expect only those individuals with incomes three times higher than the mean to oppose further subsidization. For an \(s\) of one half (a common figure in many mass higher education systems, for example, Australia), those individuals with incomes double then mean should disfavor subsidization, and so on. Note that this last example is instructive, because an \(s\) of one half implies the median voter has the threshold income. Given that we are assuming that median income is lower than mean income (because of the log normal distribution of income), we know that there must be a sizeable group of individuals possessing between the median and twice the mean income and receiving higher education who favor subsidization. To provide a further intuition about the politics of subsidization, Figure 8.3 compares the effects of subsidization on income for individuals of varying degrees of income (with an assumption of \(s\) of one half). That subsidization is a boon for the middle class but disfavored by the poor and the very rich is immediately apparent.

\(^{179}\) Of course since we have not specified the income distribution precisely, it is possible that the ten percent of the population who receive higher education all have incomes ten times higher than the mean if the variance of the distribution is large enough. In reality, this seems an unlikely possibility.
The same ends-against-the-middle pattern also plays out when we examine the effects of increased coverage on individual utility. Differentiating the utility equation with respect to coverage, we obtain the following differential:

\[
\frac{du_i}{ds} = -\frac{y_i}{\bar{y}} \cdot ph + \left[ g(h) - (1 - p)h \right] \frac{d\pi_i}{ds}
\]

Unlike the previous analysis, this equation contains \( g(h) \), the direct benefit of receiving higher education. It also contains a new variable \( \pi \), which represents the individual probability of receiving higher education for the first time during the expansion. Clearly, this will be zero for all individuals who are not first-time receivers. The probability will be one if expansion includes that individual. Note, that this zero / one formulation requires the use of difference operators rather than instantaneous differentials – we need to know the precise size of the expansion to be able to calculate its effects on utility. Graphical presentation in Figure 8.4 makes this analysis simpler to comprehend.
It is particularly noticeable that expansion of higher education has a stronger negative effect on the very rich than does subsidization. Subsidization benefits everyone who receives higher education to some degree (although those with very high incomes may end up losing too much of their high pre-tax income to make the trade-off worthwhile). Expansion, conversely, only directly benefits those who receive higher education for the first time. If it is the case that expansion produces additional benefits for every citizen this will push the line in Figure 8.x upwards, possibly making those who do not receive the expanded coverage still favor it. However, the pattern above of the relative preferences of the different groups will still remain the same, with a clear ends-against-the-middle dynamic. Finally, any increases in taxation – that is choosing to trade-off budget restraint against either increased subsidization or coverage – will lead to a mixed pattern of the graphs above, depending on the precise mix of coverage and subsidization chosen.
It is instructive to examine the impact of the three potential choices within the trilemma on individual utility. We shall see different patterns of potential coalitions within each choice. Figure 8.5 shows the following three configurations: a state with a mass higher education system ($s = 2/3$), low subsidization ($p = 1/2$) and moderate public spending – the Anglo-American model; a state with a mass higher education system ($s = 2/3$), high subsidization ($p = 1$), and high public spending – the Scandinavian model; and a state with an elite higher education system ($s = 1/3$), high subsidization ($p = 1$), and moderate public spending – the Continental model. It is notable that no one system is preferred by all individuals, no matter their income. Hence trade-offs within the trilemma mean trading off the interests of different groups of individuals against one another. That implies that choices within the trilemma are distinctly political. Furthermore, the preference ordering of individuals over the choice of system has four distinct
permutations. This implies that different coalitions could form around different systems between groups with very different levels of income. Note, in particular, that the ordering is not monotonic in income.

We now turn to discuss each particular permutation of preference orderings. The first section, for those individuals with income less than the 33rd percentile, has a preference ordering as follows: the Anglo-American and Continental models first with the Scandinavian model last. Thus the poorest third of society are most disadvantaged by a mass and fully public higher education system. This pattern may seem slightly counterintuitive since we are used to thinking of Scandinavian public services as benefiting the poor. In fact, what we are seeing is how the logic of Scandinavian ‘universalism’ (Rothstein, 2000) plays out for goods that are targeted not universal. In the Scandinavian case, because overall public spending is higher, and because low-income individuals do not receive higher education, the net tax rate of poorer individuals is higher than it would be in the Continental world (where coverage and hence cost is more limited) or the Anglo-American world (where subsidization and hence cost is lower).

However, this pattern reverses itself for those individuals with incomes between the 33rd and the 67th percentile (or more generally between the Scandinavian / Anglo-American cutpoint and the Continental cutpoint). In this group, the preference ordering is as follows: Scandinavian then Anglo-American then Continental. The reason for this reversal is that all of these individuals in the Scandinavian and Anglo-American systems are now receiving higher education and the attached utility benefit $g(h)$. However, those in the Continental model are still paying for the elite to attend higher education but are not receiving the benefit themselves. This group, one-third of the total population, can be
thought of as the middle-class and they are clearly the key beneficiaries of the transition from an elite to a mass higher education system.

The final two sub-sections occur for those individuals with incomes higher than the 67\textsuperscript{th} percentile, that is, the wealthy. For these individuals the Continental system is always preferred to the Anglo-American and Scandinavian systems. This comes as little surprise: the elite receive fully subsidized higher education in the Continental system, without having to pay for any of the middle group to receive higher education. This is the classic case of targeted expenditure, which we also saw in Section 4.5 for the broader dataset. Perhaps less obviously, the Scandinavian and Anglo-American systems shift in preference ordering around the individual with an income one and a half times the mean income. Below this point the Scandinavian system is preferred, whereas above this point the Anglo-American system is favored. Essentially, because subsidization is higher in the Scandinavian system, those individuals receiving higher education who have lower incomes are being more heavily subsidized by the elite than are the same individuals in the Anglo-American system. Since taxation is a proportion of income but higher education is a fixed benefit, at some point - in our example, at 1.5 times mean income – some individuals will prefer to pay some of the cost of higher education privately rather than subsidize those poorer than themselves. Thus, the very richest members of society unequivocally prefer the Anglo-American model to the Scandinavian model. The more general case for when the Anglo-American model will be preferred to the Scandinavian model occurs for individuals whose income is greater than \( y_i \) defined as:\(^\text{180}\)

\[^{180}\text{This cutpoint is decreasing in the level of Scandinavian subsidization, the level of Scandinavian coverage, and the level of mean American income. The cutpoint is increasing in the level of American coverage, the level of American subsidization, and the level of mean Scandinavian income.}\]
In terms of the politics of choice within the trilemma, we see the following patterns. The Continental model displays a clear ends-against-the-middle dynamic, with both the poor and the wealthy content with that system over the others and the middle group unhappy at exclusion from higher education. The Scandinavian model is the preferred outcome for the middle group and may be preferential to the Anglo-American model for a subsection of the wealthy. Thus, the Scandinavian model represents a coalition of the middle and upper-middle classes. The Anglo-American model is preferred to the Scandinavian model by the poor and the very wealthy but is less preferable for the middle and upper-middle classes. However, for the middle class it is preferable to the Continental system which would shut that group out of higher education. Thus, while the Anglo-American model looks like an ends-against-the-middle coalition in comparison to the Scandinavian model, it actually appears to be a middle-and-lower class coalition when compared to the Continental model.

We conclude our analysis of the formal model of the trilemma by examining the political dynamics that underpin institutional changes within between the three systems. We begin by considering a change from a Continental system to an Anglo-American system – a process undergone by the United Kingdom during the 1990s as discussed in Chapter Nine. The chief beneficiaries of this switch are the middle class, who previously did not receive higher education but paid for the children of the elite to receive it. The upper income group is a clear loser in this switch, since not only do they have to pay for the middle class to receive higher education but they also see the rate of subsidy
For the poor, the difference between a Continental and Anglo-American system is minimal, since the overall tax burden remains constant. To the degree that expansion is not uniform from rich to poor but more probabilistic (e.g. a coverage of fifty percent includes some proportion of the poor) they may favor an Anglo-American model. Thus, the shift from a Continental to Anglo-American system should be more likely under center-left governments, as was the case in the United Kingdom and Australia. How stable will such governments be against a turn to the right? Quite possible unstable, as the case of the Conservative party in the UK shows: in the 2005 general election they promised to remove fees and introduce quotas. However, we saw above that for the very rich, Anglo-American systems are preferred to Scandinavian systems. Thus, there may be some support on the right of center-right coalitions for retaining fees if enrolment cannot be reduced, which would stabilize an Anglo-American coalition.

A change from a Continental system to a Scandinavian model, conversely, is more likely to emerge as a center-right coalition of the middle class and rich, since the large increases in taxation are entirely negative for the poor, who fail to access higher education. This mirrors the outcome in Sweden during the late 1970s and early 1990s, where expansion was pushed by the bourgeois coalition government. It is important to note that such a change, happening against the wishes of the poor, is dependent on the capacity of political parties to pass legislation against the wishes of potential veto players like the poor. Even if a center-right coalition is able to develop a Scandinavian system, how stable would such an institution be against the tides of politics? A Scandinavian

---

181 It is possible that the very wealthiest individuals might prefer an Anglo-American system that reduced the rate of subsidy to zero to the Continental system, since they would no longer have to pay for the middle class, which now receives education. In practice, other than Korea, no OECD state has a subsidy rate below fifty percent.
system may appear to be such a burden on the poor that we might expect the re-election of a left-wing government to lead to its replacement with an Anglo-American system.

Such an outcome is certainly a possibility. Two potential factors might mitigate this occurrence, however. Firstly, if a move to a Scandinavian system means that higher education expands to a very large enrolment, approaching two-thirds, any future beneficiaries of expansion would be among lower-income individuals. Thus as expansion accelerates the preferences of left and right-wing parties gradually evolve, until eventually they become mirror images of those when higher education had been limited to a small elite. Thus partisan preferences over higher education funding are likely to be nonlinear with respect to enrolment. This means that beyond a certain threshold, Scandinavian systems may become self-reinforcing. Secondly, Scandinavian systems also happen to predominate in countries with a much higher tolerance for overall public spending than elsewhere. Although higher education, at least at conventional levels of enrolment, is regressively financed, sensitivity to this fiscal pressure may be lower in states that tolerate generally high levels of public spending. Thus, there are ample reasons to believe that Scandinavian higher education systems might become quite politically stable.

Finally, we might expect that those states which remain in Continental systems would be either those where the elite is more dominant in the political system or where an ‘ends against the middle’ coalition forms against expansion. It is not obvious that Germany or Austria are archetypes of such a system. In fact, the failure of the German system to expand is more likely a function of the decentralization of university policy to the Länder. However, considered differently, a transition from a Continental system to
either of the other types actually requires a major political shift away from encompassing
government, to split the potential rich-poor coalition. Thus political systems with large
numbers of veto points may find it difficult to undermine either the rich or poor by
moving away from a Continental system. The example of Germany is emblematic of this
dilemma: the Länder have significant veto power over higher education spending, the
Basic Law must be modified in order to change this state of affairs, and governments tend
to be formed as center-left or center-right coalitions, where ‘extremist’ parties of the right
and left can block change. Thus change out of a Continental system is extremely difficult
in systems with multiple veto players and is most likely to emerge under the rare
conditions of a ‘grand coalition’.

8.4: Empirical Analysis of the Trilemma

We begin our empirical analysis of the trilemma by returning to the simple
aggregate relationship between budget constraint, subsidization, and coverage. The
formalization above suggested that, for a fixed level of any one variable, the relationship
between the other two variables will be negative. In this section we test this proposition
on a small cross-sectional dataset of OECD states in 2002. In particular, we examine the
effects of increased enrolments (coverage) and public funding of higher education (public
costs) on the proportion of higher education that is privately funded (the inverse of the
degree of subsidization). We will see very strong relationships between these three
variables and, in the graphical analysis, very clear clustering of states around the
particular trade-offs.
Unfortunately the availability of time-series data on enrolments and funding for tertiary education is fairly poor. However, the trilemma argument suggests cross-national configurations of coverage, subsidization, and total cost as well as movements along these dimensions within individual countries. We thus begin our analysis with a nineteen country cross-national dataset from 2002, with the data taken from the OECD’s Education at a Glance dataset. This dataset includes countries from North American, East Asia, Australasia, Western Europe and Eastern Europe – thus, the regional coverage is fairly broad. However, the small number of cases means that we have relatively few degrees of freedom to play with, recommending a small number of key variables. We thus limit the key variables under analysis to coverage (net enrolment in tertiary education), subsidization (private spending on tertiary as a percentage of total tertiary spending), public cost (public spending on tertiary as a percentage of GDP), and a control for wealth (GDP per capita in $2002).

The formalization of the trilemma, as set above, makes it difficult to decide on the precise structural function to use in empirical analysis. Essentially, we have argued that, holding one of the three variables constant, the relationship between the other two variables will be negative. This is a different form of argument to the usual $x$ causes $y$ formulation, in that exogenous changes could occur in any one of subsidization, coverage, and budget restraint, thereby affecting the other two variables. Governments have policy instruments that can affect any of these three measures: they could choose to partially privatize the system (as in Australia), they could choose to expand the system (as in 1960s Britain), or they could choose to relax budget constraints (as in Scandinavia). Thus, we cannot assume all of these variables to be exogenous. Given that there is a chain
of relationship between all three variables and we have relatively few observations, we should approach any cross-sectional statistical analysis of the trilemma with some caution. However, in order to at least moderate the problem of endogeneity, I conduct a set of instrumental variable regressions using two-stage least squares (2SLS) as well as a set of OLS regressions for the sake of comparison.

Since most recent policy activity in higher education appears to have revolved around the choice as to whether to allow private money into the system (this debate was resolved in favor of partial privatization in New Zealand, Australia, and England, whereas the Scandinavian and Continental countries appear to have rejected private funding), we use private financing as our dependent variable and recognizing the potential endogeneity of coverage and total cost to the decision over subsidization, we instrument these variables using, respectively, the proportion of 15 to 64 year olds with tertiary education by 2002, and other government consumption. The former instrument, representing the ‘stock of higher education in the economy’ is fairly strongly correlated with the flow of net enrolment at a level of 0.4 and, importantly, represents the amount of higher education provided decades before the current debates over funding, and hence has good claim to exogeneity. The latter instrument, representing the general attitude of a state towards high levels of public spending, is correlated with the public cost of higher education variable at a level of 0.6. The equations are estimated as follows, where \( P \) is private spending, \( E \) is enrolment, \( C \) is public cost, \( W \) is wealth in GDP per capita, \( S \) is the stock of higher education, and \( G \) is other government spending (hats over coefficients imply estimates, asterisks imply fitted values of the dependent variable).

\[
\hat{E}_i = \hat{\alpha}_1 + \hat{\beta}_1 S_i + \hat{\beta}_2 G_i + \hat{\delta}_1 W_i
\]
\[
\hat{C}_i = \hat{\alpha}_2 + \hat{\gamma}_1 S_i + \hat{\gamma}_2 G_i + \hat{\delta}_2 W_i
\]
\[ P_i = \alpha + \beta E_i^* + \gamma C_i^* + \epsilon_i \text{ where } Cov(P_i, \epsilon_i) = 0 \]

Thus, the 2SLS technique estimates fitted values of enrolment and public cost, using the instruments, and then conducts a simple OLS regression of private spending on these fitted values. In this manner, we remove the correlation between private spending and the error term that may have arisen from the endogeneity of enrolment and public cost.\(^{182}\) We run four models, presented in Table 8.2: firstly, a simple OLS regression of private spending on enrolment; secondly, a 2SLS regression of private spending on enrolment, using the stock variable as an instrument; thirdly, an OLS regression of private spending on both enrolment and public cost; and fourthly, a 2SLS regression of private spending on both enrolment and public cost using both instruments. For ease of interpretation, two subsidiary models (Models D1 and D2) are included to show the results of the first stage regressions that generate the fitted values used in the 2SLS regression in Model D. All the models have Huber-White robust standard errors to adjust for heteroskedasticity.

We begin by examining Models A and B, which only include enrolment and the GDP per capita control variable. In neither model is enrolment a significant predictor of the degree of subsidization, although the sign of both coefficients is positive, implying a very weak bivariate trade-off between coverage and subsidization (note that the proportion of private spending is the inverse of subsidization, hence a positive coefficient implies a trade-off). The lack of a relationship should not surprise us – the trilemma

---

\(^{182}\) These instruments are far from perfect; they are in no sense ‘random assignment’ variables, which we can guarantee are themselves uncorrelated with the error term. However, given the aggregate nature of the data, the quest for effective instruments is likely to be futile. Instead, we should think of these 2SLS regressions as more robust than the OLS regressions that also follow but that both sets of tests are necessarily plausibility tests, rather than stringent tests of causation, operating on a fairly limited collection of data.
suggests that states with mass higher education systems can choose between low levels of subsidization or high overall public cost. Since we are not controlling for public cost, we have some states with mass systems and low subsidization (the Anglo-American states) and others with mass systems and high subsidization (the Scandinavian states) and thus the results are essentially a wash.

Models C and D, however, display a strikingly different pattern. Once the public cost variable is included, the enrolment variable becomes statistically significant in both models, as does the public cost variable itself (as does GDP per capita implying a possible ‘reverse Wagner’s law’). The difference between Model C and Model D is also worth dwelling on: once we adjust the regression to take account of the simultaneous relationship from subsidization to enrolment and public cost, we actually obtain larger predicted effects that increase in statistical significance. To get an idea of the impact of enrolment and public cost on subsidization we can examine their respective first differences. Model D predicts that, holding total public cost constant, a ten percent point increase in the net enrolment variable would be associated with a fifteen percent point increase in the percentage of overall funding taken from private sources. Similarly, holding enrolment constant, an increase of half a percent point in the amount of national income devoted to publicly financed higher education would reduce the private spending variable by 43 percent points. These may appear to be very large estimated effects but they mirror the recent experience of OECD states. For example, Australia has moved from a net enrolment of around 53% to 70% in the last decade and this has been accompanied by a similarly sized jump from 35% to 51% in the proportion of total funding from private sources. Comparing Australia in 2002 to Norway in the same year,
both had very similar levels of enrolment but Norway spent just over half a percent point of national income more, with a difference of forty-seven points on the private funding variable. Thus, the first differences implied by the regression do not appear particularly extraordinary when we examine the very real differences between states and large changes within individual states across time.

Table 8.2: The Determinants of Private Spending on Higher Education

<table>
<thead>
<tr>
<th></th>
<th>MODEL A</th>
<th>MODEL B</th>
<th>MODEL C</th>
<th>MODEL D</th>
<th>MODEL D1</th>
<th>MODEL D2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
<td>2SLS</td>
<td>OLS</td>
<td>2SLS</td>
<td>ENROL</td>
<td>COST</td>
</tr>
<tr>
<td>ENROLMENT</td>
<td>.194</td>
<td>2.313</td>
<td>.571</td>
<td>1.456</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.281)</td>
<td>(1.738)</td>
<td>(.177)**</td>
<td>(.432)***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUBLIC COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-51.708</td>
<td>-86.629</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(10.756)***</td>
<td>(12.360)***</td>
</tr>
<tr>
<td>GDPCAP</td>
<td>-.789</td>
<td>-1.253</td>
<td>.329</td>
<td>.945</td>
<td>-.270</td>
<td>.020</td>
</tr>
<tr>
<td></td>
<td>(.791)</td>
<td>(1.037)</td>
<td>(.535)**</td>
<td>(.374)**</td>
<td>(.441)</td>
<td>(.009)**</td>
</tr>
<tr>
<td>% POP TERT.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.093</td>
<td>-.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.571)*</td>
<td>(.011)</td>
</tr>
<tr>
<td>GOVT. EXP.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.083</td>
<td>.058</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.945)</td>
<td>(.019)***</td>
</tr>
<tr>
<td></td>
<td>(24.869)</td>
<td>(78.016)</td>
<td>(17.073)**</td>
<td>(20.710)</td>
<td>(21.309)</td>
<td>(.426)</td>
</tr>
<tr>
<td>Observations</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>19</td>
</tr>
</tbody>
</table>

Standard Errors in parentheses: * p < 0.1; ** p < 0.05; *** p < 0.01.

We now turn to examine the trilemma graphically, demonstrating how the abstract iso-cost lines from Figure 8.2(a) are manifest in the experience of OECD states. The first differences from the regression above can be analyzed graphically in Figures 8.6 and 8.7,
which are added variable plots showing the relationship between enrolment (Figure 8.6) or total cost (Figure 8.7) and private spending, controlling for other variables. Figure 8.6 shows that, controlling for overall public spending on higher education and national wealth, there is a strong positive relationship between net tertiary enrolment (as instrumented by the stock of higher education in the economy) and private spending. One thing that is particularly noticeable is that this positive relationship plays out in all three ideal types of the trilemma: Scandinavian states range from Norway to Sweden; Anglo-American states from the UK to Australia; and from Austria to France among the Continental states. Countries from East Asia and Eastern Europe like Japan, Korea, and Slovakia also appear to fit this logic, with East Asian states similar to Anglo-American states, and Slovakia more closely fitting the Continental model.

Figure 8.6: Added Variable Plot for Tertiary Enrolment (Instrumented)

---

183 Ireland is more similar to the Continental states in terms of its system structure, although there are some recent signs that it may be moving in a Scandinavian direction.
Figure 8.7 demonstrates a very tight relationship between total cost and private funding, once enrolment and wealth are controlled for. Again, we see a similar pattern even within the trilemma clusters of states: Anglo-American states range from the US which has lower public spending than predicted by its enrolment and wealth, but also higher private spending. Conversely, whereas the UK and New Zealand have higher public spending than predicted by their enrolment and wealth, they have commensurately lower private investment. Also worth noting is the clustering of Continental and Scandinavian states at the bottom right – both groups have higher public spending than predicted by their level of enrolment (especially the Scandinavians) and thus, commensurately lower private funding.

Figure 8.7: Added Variable Plot for Public Cost (Instrumented)
To get an idea of the relationship between all three variables in the same figure, Figure 8.8 plots net tertiary enrolment against the share of tertiary spending from private sources for 18 OECD states. For each state we label both its three-letter country code and its level of overall public spending. In bivariate terms there does not appear to be a strong relationship between the variables, as we saw in Model A above. However, once we examine the public cost variable we see an interesting pattern. There are three distinct southwest-northeast lines of states in the figure. In the northwest corner we have the two East Asian states with low levels of public funding. Along the main diagonal access we have around a dozen states spending between .8% and 1.2% of GDP on public funded higher education. These states include the Continental states like Belgium, Austria, France, and Germany. We then move along through the United Kingdom and Italy to the Anglo-American core at the other end: the United States, Australia, and New Zealand with high levels of enrolment and higher private spending but similar levels of public
spending. Finally we have a line of states in the southeast corner of the graph: the Scandinavian states, who all spend at least 1.4% of GDP on tertiary education, have high enrolments, and high levels of subsidization.

**Figure 8.9: Comparing the Scandinavian and non-Scandinavian Worlds of Higher Education**

The relationship between enrolment and private spending becomes clearer if we separate out these Scandinavian states into a separate graph. Figure 8.9 uses logged versions of the enrolment and private spending variables which allow us to get a better idea of the pattern in the Scandinavian states, which all have low private spending (it also compresses in the East Asian states toward the general mass). We immediately see strong linear patterns between enrolment and private spending in both Scandinavian and non-Scandinavian states, albeit at much lower levels of private spending in the former. Nonetheless, it is worth noting that the Scandinavian state with the highest public
spending—Denmark—is also the one with the lowest proportion of private funding. Similarly, Korea spends less public money on higher education than even Japan and therefore requires a higher degree of private investment in order to sustain higher enrolment rates than Japan. Thus, even at the extremes the trilemma patterns hold.

As noted earlier, unfortunately time-series data availability on tertiary enrolment is very poor, meaning that a full panel data analysis of the trilemma is not currently viable.\textsuperscript{184} However, we can examine graphically particular changes over the 1990s to see if the dynamic picture supports the trilemma theory. Figure 8.10 shows the four states in the data-set who saw an expansion of over ten percent points in net enrolment between 1995 and 2002.\textsuperscript{185} Two of these states are from the Anglo-American group and two from the Scandinavian group.\textsuperscript{186} The UK and Australia both significantly increased their enrolment figures and also increased their use of private funding by at least ten percent points. They thus appear to be moving along one side of the trilemma—from an elite and fully publicly subsidized higher education system to a mass system with around fifty percent private financing. Denmark and Norway, conversely have increase enrolment by around fifteen percent points each but are traveling horizontally on the graph; that is, they are not increasing private financing of higher education. Instead, they are moving towards Sweden and Finland, with their much higher levels of public funding than almost all

\textsuperscript{184} The case analysis in Chapter Nine of changes in Germany, Sweden, and the United Kingdom, provides a closer look at the dynamic logic of political choice within the trilemma.

\textsuperscript{185} There are almost certainly more than four states who had this experience but data availability for 1995 is poorer than for 2002

\textsuperscript{186} The absence of any state moving ten percent points from the Continental group is suggestive but this may reflect missing data rather than any overall trend. Still, at an anecdotal level there appears to be little movement by the Continental states, causing significant doubt to be cast at the fulfillment of the Lisbon Agenda’s ‘learning Europe’ objectives; see for example the recent warnings of Andreas Schleicher, the head of the OECD’s education bureau (Schleicher, 2006).
other states. Thus, they are moving along the other side of the trilemma triangle, from the Continental group with an elite, fully subsidized, and moderately expensive system to the Scandinavian mass, public, and highly expensive system.

**Figure 8.10: Changes in Selected States 1995-2002**

8.5 Conclusion

When education provision can be limited to upper income groups, we see the conventional redistributive politics of education flipped on its head. Suddenly, right-wing parties become major advocates of public investment, since it is now targeted towards their own constituents. This pattern of targeted redistribution, empirically tested in Section 8.2, underlies the variation in higher education systems that we see across the OECD and explains the pattern of institutional change. In Section 8.3 we showed that three potential configurations of higher education can emerge in a ‘trilemma’ that trades
off coverage, subsidization, and public cost: the Anglo-American model, the Scandinavian model, and the Continental model. Individuals with different levels of income are likely to have very different preferences over these systems, and consequently, there should be partisan differences in higher education policy. In particular, center-left parties should advocate Anglo-American systems and center-right parties advocate Scandinavian systems: a reversal of typical redistributive patterns of political economy (as in, for example, Esping-Andersen, 1990). Section 8.4 showed that the typology of the trilemma appears to play out robustly in the OECD, although dynamic data is fairly spotty. We will follow up the dynamic partisan argument about institutional change in the trilemma in the next chapter,
CHAPTER NINE: PARTISANSHIP IN THE OECD - COUNTRY CASES

9.1 Introduction
9.2 The United Kingdom: Education Policy since 1833
9.3 Sweden: Education Policy since 1842
9.4 The Higher Education Trilemma in Germany, Sweden, and the United Kingdom
9.5 Conclusion

9.1: Introduction

The partisan struggle over education policy in advanced industrial nations, discussed in the previous two chapters, has a storied history. Battles over public education have been fought on many different fronts over the past few centuries. From the sixteenth century onwards, sectarian conflict has raged over which churches could benefit from public money for schooling (Kalyvas, 1996) – a debate still alive in many of Europe’s multi-denominational states like Belgium, Northern Ireland, and increasingly between Christian and Muslim groups in the United Kingdom (Hewer, 2001). The arena of dispute has also moved from an inter-religious basis to struggles between secular and religious groups, most notably in France (Judge, 2004) and the United States (Gould, 1999). Religion has hardly been the only axis of conflict. Urban and rural splits have also been manifest in the politics of education funding, with farmers reluctant to fund the education of burghers and vice versa – a debate that had particular relevance in countries with a large and barely populated periphery like Sweden (Paulston, 1968). Furthermore, the politics of education have also been prey to the motivations of those leaders who wished to use schools as a form of indoctrination and cultural control (Sünker, 1997).
Education is, thus, a complex political animal. Yet amidst the many varied political motives for the supporters and opponents of the expansion of public education, one particular dimension has been apparent throughout the modern history of education spending – the divide between the rich and the poor over the level of education provision. Whether this split was made manifest as a battle between monarch and the people; aristocrats and commoners; or right-wing and left-wing parties, the general relationship between income, political power, and education – as specified in Chapter Two and tested extensively in the following chapters – also stands up strongly in the historical record of modern democracies. While the other factors noted above affecting education policy – religion, urban/rural splits, social control – are undoubtedly historically relevant factors, this chapter concentrates on the redistributive political dimension of education, as developed throughout this thesis.

This chapter begins by examining the partisan political hypotheses developed in Chapter Two and tested in Chapter Seven, by examining the historical record of education policy in two contrasting European nations – the United Kingdom and Sweden. The aim of this section is to use the significant ‘within-state’ variation in one hundred and fifty years of public involvement in education in the United Kingdom and Sweden to see how partisan preferences over education spending levels became manifest in policy and how electoral and political institutions limited the ability of governments to achieve their first-best policies. Of particular note are the electoral institutional differences between the UK, a majoritarian two-party state, and Sweden – a proportional system prone to multiparty coalition government. Chapter Seven suggested that the ability of parties to enact their policy preferences is more constrained under proportional electoral
systems than under majoritarian ones, a claim we shall see strongly supported by the different historical experiences of the UK and Sweden.

In Section 9.2, we will see that the absence of coaltional restraints on victorious parties in the British electoral system has meant that parties have generally been able to attain preferred policies with minimal compromise, leading to a volatile educational environment. Conversely, we shall see in Section 9.3 that education policy in Sweden has consistently reflected the preferences of minor coalition partners – for example the Liberals – as well as those of the governing party – typically the Social Democrats or the Moderates. Change in Swedish education policy has largely been glacial, consensual, and unidirectional in response to these constraints. Since both of these cases extend back to the mid-nineteenth century, our analysis of partisan preferences, and the electoral institutions that constrain them, is supplemented by an examination of the effects of increases in the electoral franchise and the gradual transition to democracy in both of these states. This dual focus – on the franchise and on partisan politics – means that this chapter dovetails with the case analysis of democracy in Chapter Six, extending our focus back in time to democratic transitions of the late nineteenth and early twentieth century.

Section 9.4 moves on to the analysis of higher education policy in the postwar era. As before we examine the UK and Sweden, with Germany added as an example of the Continental form of higher education structure. The higher education trilemma, described in detail in Chapter Eight, claims that countries can meet only two of the following three conditions: a fully public higher education system; a mass higher education system; and a relatively publicly inexpensive system. The UK has moved from an elite, fully public, and inexpensive system to a mass, partially private, inexpensive system in a number of
steps beginning with the Robbins expansion of 1964, followed by the Tory unification of
the higher education system in 1988, and culminating in the Blair government’s two-step
introduction of tuition fees between 1997 and 2003. As we shall see, the British case
amply demonstrates the Left’s overriding concerns with working class access and
increasing progressivity in funding, with Labour’s interest in expansion only germinating
once higher education had transitioned to a mass system. The Conservatives conversely
have been strong supporters of a fully public system and their initial interest in expanding
enrolment levels rapidly tailed off once around one third of the population – typically
Conservative constituents – had gained access, leading by 2005 to the advocacy of a
quota policy.

Sweden has also transitioned from an elite to a mass higher education system but
has made a different choice within the trilemma – retaining the system’s fully public
funding profile at the expense of increasing overall public cost by more than fifty percent.
Despite the different choice made in Sweden, partisan preferences were remarkably
similar to the UK. Thw Social Democrats were chiefly concerned with increasing
working class access within fixed enrolment limits rather than the expansion of enrolment
until the 1990s, by when enrolment levels had increased sufficiently that left-wing
constituencies were the main new beneficiaries of expanded coverage. It was the
conservative Moderates, instead, who were the chief advocates of expanding coverage
because the regressive fiscal nature of a fully public higher education system chiefly
benefited their constituents.

Finally, we turn to examining higher education policy in Germany since 1945.
Whilst Germany had Europe’s most extensive system of higher education in the late
nineteenth century, it has failed to extend beyond its relatively elitist enrolment structure during the last few decades. One key reason for this stasis is the critical role of the German Länder in higher education and the general disinterest of the CDU / CSU in expanding public higher education beyond their core constituencies. The SPD for their part, faced with a higher education system with few working class students, has concentrated its energies on increasing access and support for those poorer students who do enroll, rather than on expanding coverage to the middle class more generally. Since the last major expansion of German higher education – and the first case of Federal involvement – occurred under the last ‘grand coalition’ of the CDU / CSU and SPD in the mid-1960s, one plausible implication is that the current coalition government of Angela Merkel may constitute the greatest opportunity to expand the German system for decades. The chapter concludes with a reflection of the lessons learned from the cases of the UK, Sweden, and Germany about the partisan politics of education.

Before commencing the analysis it remains to set out the justification for the case selection made in this chapter. Chapter Six provided a detailed analysis of the chief aims of case studies in this project, namely, to trace the causal mechanism underlying within-case variation; to examine cases covering the potential range of counterfactuals; and to identify sharply defined changes on the independent variable and their effects on education policy. The case selection in this chapter hews to these earlier principles. The United Kingdom and Sweden are examined in the next two sections because both display enormous within case variation in regime type, partisanship, and education spending from the early nineteenth century onwards. Furthermore, they provide an explicit contrast on a key independent variable of interest: their electoral system. We will trace in detail
how the effect of partisan cycles on education policy differs between these systems, with switches in partisan control of government having a much stronger effect on education spending in the UK than in Sweden. Thus Sweden provides a useful counterfactual to the UK, since we see how within-changes in partisanship had quite contrasting effects on education spending. Furthermore, switches in partisanship provide an exemplar of sharp discontinuity in the independent variable under examination. We shall see that education policy change occurred in a similarly discontinuous fashion. The three case analyses in Section 9.4 also align with our principles of case selection justification. Firstly, Germany, Sweden, and the UK span the possible variation in the trilemma model. Secondly, both Sweden and the UK show within-case change, allowing us to examine the arguments made about institutional change in Chapter Eight. Finally, we also encounter discontinuities in higher education policy, particularly noticeable in the changes in the 1990s in both the UK and Sweden as long-time opposition parties finally gained office and immediately set about conducting major higher education reforms.

9.2: The United Kingdom: Education Policy since 1833

Although the United Kingdom has a reputation as the home of constitutional liberal government, it was not until the Reform Act of 1832 that political power was extended from the hands of the aristocracy to the rising bourgeoisie. Mirroring this relatively late extension of democracy, the British government had no official involvement in the provision of education until after the First Reform Act. Indeed, in the early nineteenth century, despite already being the world’s leading economic and military power, British educational provision was feeble by international standards, lagging
especially the new democracies of France and the United States of America. As Carr and Hartnett note, ‘uniquely, [Britain] had industrialized without a state-run education system’, (Carr and Hartnett, 1996). Thus, the development of public education in the West in the nineteenth century seems to be more closely related to democratic rights than to economic growth, with the USA, for example, educating well before industrialization.

Through even the Enlightenment, elite Britons remained wedded to a hierarchical view of education; in 1756 Soame Jenkins justified ignorance as ‘necessary to all born to poverty’ (Green, 1990). For the most part, the antipathy of the elite to public education was a function of a hierarchical worldview and a distaste for taxation. Added to this cultural and economic justification for limiting education was a further political motivation: the concern that education might facilitate revolt (as forcefully argued in Acemoglu and Robinson, 2006). The Tory Party (later the Conservative Party), as representatives of the landed aristocracy, were particularly fierce in their opposition to public education spending. The famous speech of Davies Giddy, Tory MP for Helston, in 1807 attacking a bill proposed by Samuel Whitbread, leader of the liberal Whigs, to establish parish schools, amply reflects the cultural, economic, and political arguments against education spending noted above:

‘…giving education to the labouring classes of the poor…would, in effect, be prejudicial to their morals and happiness; it would teach them to despise their lot in life, instead of making them good servants to agriculture and other laborious employment to which their rank in society had destined them; instead of teaching them the virtue of subordination, it would render them fractious and refractory, as is evident in the manufacturing counties; it would enable them to read seditious pamphlets…if the bill were to pass into law, it would go to burden the country with the most enormous and incalculable expense, and to load the industrious orders with still heavier imposts’ (cited in Chitty, 2004).
Giddy mentions several counterarguments to educating the poor: politically, it would heighten discontent and enable the organization of rebellion; culturally, it would be unsuitable to the poor’s role and morals; and economically, it would be costly and upset traditional economic arrangements. Which of these concerns was most important in shaping the preferences of the elite? Political concerns over sedition were certainly widespread amongst the elite – however, it is not obvious that revolt and rebellion were in any real sense collinear with the spread of education during this period. The political skirmishes of the early 1790s and the upheaval of the decade after the end of the Napoleonic Wars, culminating in the catastrophe of the Peterloo massacre in 1819, where cavalry charged a meeting of pro-suffrage protestors, all occurred substantially before the widespread availability of education (Thompson, 1980). Indeed, there was also good reason to believe that education might have the reverse political effect on sedition – that it might help in ‘gentling the masses’ (Carr and Hartnett, 1996). Cultural beliefs about hierarchy were more likely a critical restraint on expanding education spending – however, there is little reason to believe that these changed in anything other than a glacial manner over the nineteenth century and thus do not help in explaining the shift to an activist role for government in education. Instead, the key motivation behind restricting education spending appears to have been its negative economic impact on the elite both through taxation costs and because an educated workforce would mean fundamental changes in Britain’s economic structure, ones likely to threaten the privileged economic position of the aristocracy.

The distaste of the elite for the economic cost of providing public education was manifest even when the government first extended its remit into matters of education in
1833. This first foray directly followed the extension of suffrage to the upper middle class in the 1832 Reform Act which increased the franchise to around one in seven males and led to greater equalization of constituencies by removing so-called ‘rotten boroughs’ and enfranchising new industrial cities like Manchester and Birmingham (Phillips and Wetherell, 1995). In the spirit of reform following the franchise act, the Whig government of Earl Grey voted for the provision of £20,000 towards the voluntary educational sector led by the Anglican ‘National schools’ and the Nonconformist ‘British schools’. While this marked the first legislated extension of public education in Britain, the vote was controversial and opposed by Tories in the House of Commons and in the House of Lords. Moreover, the actual grant was fairly pitiful, less than a third of the amount that was promised to rebuild the stables at Windsor Castle in 1839 (Carr and Hartnett, 1996).

However, 1839 also saw an important development in the establishment of the Education Committee of the Privy Council, which was to have oversight over the modest government expenses on education (Paz, 1976). Led by the Whig civil servant James Kay-Shuttleworth, the Committee created a system of annual grants that had expanded from the miserly £20,000 of 1833 to £750,000 by 1859, during a period of Whig / Liberal dominance (sixteen of twenty-six years). Under the Liberal leader Lord Palmerston, the Revised Code of 1862 saw a transition to an early system of ‘payment by results’ where grants would henceforth be distributed according to attendance and exam passing (Doheny, 1991). This new incentive system, tying payment to enrolment, led to a wave of mass expansion in primary schooling, from 1862 to 1870 school attendance rose from 857,000 to 1,400,000. Overall, the expansion of the franchise, combined with the
parliamentary control of the middle-class Whig and Liberal parties had nurtured the creation of a mass education system between 1832 and the election of William Ewart Gladstone, the key figure of liberal politics in the late nineteenth century, in 1868.

The Second Reform Act of 1867, increasing male suffrage to one third of adult males, combined with the landslide electoral victory of Gladstone in 1868 were fertile political ground for the most important English educational reform of the nineteenth century: Forster’s Education Act of 1870. The Forster Act established full public responsibility for elementary education. The Act stipulated that the state must provide elementary education to all those children who were not already educated in the voluntary (most religious) sector. This reform was not tantamount to the creation of unitary, universal public education – it was, however, an unprecedented reform in terms of scale and legislative responsibility and has been traditionally claimed as the founding act of the British public education system. As a reflection of the Act’s importance, over one hundred year’s later, Margaret Thatcher’s second Education Secretary, Sir Keith Joseph, declared:

We have a bloody state system. I wish we hadn’t got one. I wish we’d taken a different route in 1870. We got the ruddy state involved… If we could move back to 1970, I would take a different route. We’ve got compulsory education, which is a responsibility of hideous importance; and we tyrannise children to do that which they don’t want…” (cited in Chitty, 1997).

But a different route was not taken. And the anathema in which Joseph held the 1870 Act was largely mirrored in Conservative opprobrium for public education, particularly in a unitary structure,\(^\text{187}\) from the late nineteenth century to the Thatcher

\(^{187}\) By “unitary structure” I mean a single non-streamed system of primary and/or secondary education. We can consider streamed systems to reflect targeting of resources to the elite, albeit in this case the targeting tends to be in terms of pupil’s income composition and teacher quality rather than overall funding. While
government. To this end, the remaining years of the nineteenth century saw the Conservatives shy away from education funding, while the Liberals continued to expand the state’s remit whenever they attained government. Particularly important were the 1880 Education Act in Gladstone’s second government, which made primary education compulsory and free from ages five to ten, and the 1893 Education Act in Gladstone’s fourth government, which raised the school leaving age to eleven. The latter act also followed a further critical political development, the Third Reform Bill which extended suffrage to most rural smallholders, pushing the male suffrage from one third to two thirds of adult males. This further extension of democratic suffrage increased parliamentary and popular pressure for government intervention in the realm of secondary education for the first time.

In response to these increased demands, and to their own partisan preferences for a state role in secondary education, the Liberal government of 1894 announced the Bryce Commission to examine the possibility of state funding and regulation of the secondary sector. The Commission stopped short of recommending free, compulsory secondary education, although it recommended that access be increased for the working class and that the three separate agencies governing education be merged into a single Education Board, which was achieved in 1899. The problem for the Bryce Commission was that their meritocratic impulses foundered on the hierarchical tripartite structure of existing secondary education: ‘first grade’ schools teaching a classical curriculum, including the famous ‘public’ schools of Eton and Harrow; ‘second grade’ schools with a commercial curriculum, open to the middle classes and represented by the ‘grammar’ schools; and

---

most of England’s schools are now ‘comprehensive’ unitary schools, some counties retain streamed systems of schooling along the German model. We shall see in Section 9.3 that the fight over unitary schooling was equally important in Sweden.
‘third grade’ schools which prepared students for careers as artisans. There was enormous social resistance to changing this system – and the attempts of the left to merge secondary education into a unitary system and of the right to maintain a differentiated system have marked British educational politics to the present day. The underlying redistributive argument was that differentiated schools meant de facto targeted education spending (whether in quantity of funding or quality of instruction) that favored the wealthy.

The secondary education debate was to meet a pre-emptive counterattack from the Conservative party under Arthur Balfour’s government of 1900 to 1906. The Balfour Education Act of 1902 and the 1904 Regulations for Secondary Schools provided the Conservative response to the Bryce Report. Balfour’s Education Secretary Robert Morant, who shepherded these bills through government, had a hierarchical, Platonic view of education. For Morant, the tripartite structure of British secondary public schooling, mirroring the Platonic division of society, was the only way in which Britain’s emerging democracy could be managed. Morant noted in 1898 that:

‘...the only hope for the continued existence of a democratic state [is] to be found in an increasing recognition, by the democracy, of the increasing need of voluntarily submitting the impulses of the many ignorant to the guidance and control of the few wise’, cited in (Carr and Hartnett, 1996).

The 1902 Act, despite nominally increasing governmental control over secondary education, has often been considered a ‘deeply reactionary piece of legislation’ (Manton, 2002), since it undermined the school boards created in 1870, merging them into newly created local education authoriries (LEAs) and buttressed the existing religious and endowed network of secondary schools. In conjunction with the 1904 Regulations, the
Act codified the tripartite structure of British secondary education and thus targeted resources and quality towards the upper middle class and aristocracy.

When the Liberal party was re-elected to government in the landslide 1906 election, Morant’s view of education was hastily dismissed: the Board of Education noted that ‘a class education in compartments after the fashion of Plato’s Republic is contrary to the essence of democracy’ (Kazamias, 1966). However, given the rigid, and recently codified, form of secondary education, the Liberals had to tinker around the edges of policy. Their main reform in 1907 created the ‘free places system’, which stipulated that public grants to secondary schools were to be made conditional on twenty-five percent of places at these schools being reserved for elementary school pupils. In order to manage entry into the ‘free places system’ the Liberals advocated meritocratic tests, in areas where demand outstripped supply. The ‘free places system’ met significant resistance from the secondary school sector and from Conservatives who argued that the policy would lower educational standards. Nonetheless the policy remained, and provided a Trojan horse by which working class children could enter any publicly supported school.

The 1907 reform marked the end of educational legislation in England’s pre-democratic era, since the end of the Great War in 1918 led to the full enfranchisement of British males and women over 30. The wartime Coalition government led by the Liberal politician David Lloyd George also passed a further educational reform on the transition to democracy in 1918, raising the school leaving age to fourteen. However, the key political story of the interwar years was the sudden replacement of the Liberal party by the Parliamentary Labour Party as the key opposition to the Conservative party in the two-party system (a transition famously chronicled in Dangerfield, 1961). The Labour
party were unable to form stable governments during the inter-war period but their increasing parliamentary influence and more radical proposals for education changed the parameters of the English educational debate significantly, forcing policy leftwards. The absence of coalitional government (save in wartime) under the British majoritarian electoral system meant that henceforth, with the more moderate Liberals essentially removed from policymaking, education reform would be extremely volatile, replacing the gradualism of the nineteenth century with greater swings in policy. Whereas the Liberal party in Sweden retained importance in educational policy until well into the postwar period, despite the dominance of the Social Democrats, because of the necessity of coalitional government induced by Sweden’s proportional electoral system, the British Liberals essentially drop out of our story in 1922. Their last government, in coalition with the Conservatives in 1922 (before a brief Conservative government) led to the approval of the famous ‘Geddes Axe’ of public spending, which recommended large cuts in public spending, including cuts in teacher salaries, pushed through by the coalition government and the Conservatives.

Labour’s reaction to the Geddes Axe was fierce. Their famous educational spokesman R.H. Tawney, fiercely denounced the program as leading ‘back to 1870… their aim is to re-establish and perpetuate the organization of education upon lines of class which has been the tragedy of the English educational system’ (Tawney, 1988). Tawney, instead, highlighted the importance of expanding education as a socialist principle, writing two pamphlets - ‘Secondary Education for All’ and ‘Education: the Socialist Policy’– which formed the basis of Labour’s education policy until the Second World War. In response to Tawney’s program, the short-lived Labour government under
Ramsey MacDonald in 1924 appointed the Hadow Committee on school reform. The Hadow Committee reported back in 1926, recommending increasing the extension of compulsory education to age fifteen and unifying the primary and secondary sectors. However, the dominance of Conservative government until the war meant that Hadow’s recommendations were largely ignored. This neglect of Hadow typifies English educational history – without the need to produce political consensus because of the structure of electoral institutions, parties have largely been able to ignore the recommendations of reports from commissions established by previous governments.

Major reform, in fact, had to wait until the closing years of the Second World War. The Churchill coalition government appointed the Norwood Committee to examine secondary education. Norwood reported back in 1943, with recommendations that the tripartite set-up of secondary education be retained. The resulting Butler Education Act of 1944, drafted under a coalition government but passed by the Labour government of Clement Attlee in 1945, reflected the compromises of wartime government – the only times at which British government has resembled the Swedish policymaking process - with the Conservative preference for a tripartite system and compulsory religious education retained but with Labour’s preferences for raising the school leaving age to fifteen and the establishment of a right to publicly provided secondary education (Lawton, 1992). The Butler Act would provide the framework for post-war education policy and the two decades following its passing were marked by a historically unique period of consensus in British politics – the era of so-called ‘Butskellism’ (named after the Conservative and Labour figures R.A. Butler and Hugh Gaitskell). Likewise, major
education policy lay dormant until political consensus began to collapse amid the upheaval of the mid 1960s.

Harold Wilson’s victory as Labour leader in 1964 led to the breakdown of political consensus and heightened partisanship was soon mirrored in education policy. In particular, Labour, as it turned leftwards over the 1950s and 1960s had come to advocate the ending of the tripartite educational system and its replacement with a set of ‘comprehensive’ schools. Anthony Crosland, Wilson’s educational secretary, continued in the fiery spirit of Tawney. Crosland’s barely disguised disgust for the tripartite system led to the issuing of Circular 10/65, which declared the Government’s aim to ‘eliminate separatism in secondary education’ and requested that local education authorities submit within a year ‘plans for reorganising secondary education in their areas on comprehensive lines’ (Department of Education, 1965). The attempt to introduce comprehensive schools met a fierce reaction among Conservative critics, a group of whom released the infamous ‘Black Papers’ in 1969 which denounced egalitarianism and ‘progressive’, pupil-centered teaching methods (Cox and Dyson, 1969). The Conservative party itself began to split between the ‘Wets’ – Establishment consensus Tories under the lead of Edward Heath - and ‘Drys’ – ‘conviction’ Tories under the lead of Margaret Thatcher (Lawton, 1994). The decision of Labour to abolish 154 selective grammar schools during Harold Wilson’s last year of government in 1975 heightened the conflict over education. Although, the election of James Callaghan as Labour leader and Prime Minister in 1976 led Labour to back away from progressive teaching, as announced in the famous Ruskin College speech of that year, the election of Margaret Thatcher as Leader of the Opposition in 1975 meant that partisan differences over education were at their highest level since the early century.
The end of the post-war political consensus was about to lead to a sharp shift away from comprehensivism.

The internal victory of the right-wing of the Conservative party in 1975 was followed by a resounding national victory in 1979 over Labour. Margaret Thatcher had previously been Education Secretary under Heath in the early 1970s (and had become famous for slashing the schools’ budget for free milk) and had strong views over the failures of public secondary schooling, many shaped by her mentor and choice for Education Secretary in 1981, Keith Joseph. Joseph was a virulent opponent of the public school system, as noted in the citation above about the 1870 Education Act, and the untrammelled ability of the Conservatives to make their preferred policy under the British electoral system, meant that education policy was about to shift sharply rightward. In fact, the future parameters of education in the 1980s would be set by intra-party differences rather than by negotiation with Labour, who had themselves turned sharply leftwards with the election of Michael Foot as leader (Lawton, 1994). That a new debate over education was emerging became clear in 1981 when Keith Joseph recommended the introduction of school vouchers for secondary school at the annual Conservative Party conference. Joseph was unable to push vouchers past opposition from traditionalist Conservatives but the Conservatives were able to shore up the private school sector by introducing the Assisted Places Scheme, which allowed high ability comprehensive students to attend private school with government assistance, amounting to a ‘cream-skimming’ scheme.

The key reform of the Thatcher era occurred under Joseph’s successor, Kenneth Baker, with the Education Reform Act of 1988. This Act was the largest change to
English education policy since the Butler Act of 1944 and amounted to a fundamental reshaping of secondary education. According to Chitty (2004) the Act ‘sought to erect a hierarchical system of schooling subject both to market forces and to greater control from the Center’. The key elements of the reform were the introduction of two new types of secondary school: the City Technology Colleges, and grant-maintained schools. The former were independent and partially privately financed technology colleges; the latter was the status given to any secondary school that wished to opt out of local education authority control and receive their funding directly from the central government. Both innovations were an attempt to introduce more selection and specialization in the secondary system and therefore both met with vigorous opposition from the left. By 1992, 428 schools had ‘opted out’ of local control and this had increased to 1,155 schools, or twenty percent of all pupils, by the time that Conservative government ended in 1997. By that date, education spending had plummeted from 5.3 % in 1979 to just 4.7% of national income by 1997.

The election of Tony Blair’s New Labour government in a landslide victory in 1997 marked the first time Labour had access to the levers of government for eighteen years. While Blair spent considerable political energy propounding the benefits of ‘education, education, education’ (Tight, 1998), the changes to the governance structures of education meant that longstanding Labour commitments to fully comprehensivize the secondary system had to be abandoned. Blair instead focused on increasing overall funding for education, targeting it particularly at the primary level of education, reducing drop-out rates from secondary education, and on partially privatizing the higher education system (discussed in Section 9.4). With this policy framework it is clear that Blair’s
preferences were for tilting education spending in a more progressive manner – focusing on universally received education and expanding enrolments. However, the Labour government of Blair was also radically different from the Labour governments of Wilson and Callaghan in terms of its general partisan preferences. While spending was to increase, Blair followed the Thatcher and Major governments’ emphasis on school specialization, culminating in the 2006 Education Act introducing ‘foundation schools’, which was only passed with Conservative support, against the wishes of the majority of his party. To this degree, both Parliament (especially since the tight election of 2005) and Labour opposition have penned in Blair’s ability to enact his partisan preferences. Certainly, the pattern of New Labour policy has moved rightwards as Conservative representation has increased, reflecting the institutional constraints in which Blair has operated. However, the overall pattern of education spending has certainly veered upwards under Blair’s leadership, increasing by over four percent per annum since 1997, to over 5.3 percent of GDP by 2003 (Emmerson, Frayne and Love, 2004) and will rise to 5.6% by 2007 (HM Treasury, 2004). Education spending since Thatcher has, thus, been tossed and turned on the waves of partisanship. But, as we have seen, this volatility in education policy is a hallmark of British politics. Without veto players who can block reform and without the need to form inter-party consensus, education has been a political plaything of the governing classes since the mid-nineteenth century. Full democracy in 1928 did not end the story of public education, it merely changed the playing field from battles over suffrage to battles through the ballot.
9.3: Sweden: Education Policy since 1842

Like Britain, Sweden introduced its first public education policies in the first half of the nineteenth century. Furthermore, the political splits over Swedish education policy have largely revolved around the same rich-poor dimension in England, with the wealthy favoring minimal public intervention and different systems of secondary education for the elite and for the mass, and the poor favoring expansion of public funding and the transition to a unitary system of secondary education. Beyond these general similarities in the timing of reform and the balance of preferences, the history of Swedish education reform differs quite dramatically from that of Britain. The key difference is a result of Sweden’s proportional electoral system and consensual policymaking process as opposed to the volatility and partisan policymaking induced by Britain’s majoritarian electoral institutions. Following Sweden’s transition to democracy in 1918, the governing party has generally been forced to rely on coalition partner support in order to maintain a parliamentary majority, forcing compromise over policy choices including those in education. Moreover, the policy development process is channeled by special parliamentary committees that permit opposition involvement in policy design. Thus, education policy over the last century in Sweden has been marked by gradualism rather than the kinds of policy swings that mark, for example, the period from Wilson through to Blair in Britain. Minor parties in Sweden, especially the Liberals, consequently have significantly more power in the policymaking process than their equivalents in the United Kingdom (Bergman, 2000). Despite these differences between Britain and Sweden created by electoral institutions, the rise of democracy during the nineteenth century bears a number of similarities in regards to its impact on education.
Sweden in 1842 was a parliamentary monarchy with a highly limited franchise. Political debate in the riksdag – the Swedish parliament – in the early nineteenth century was confined to the Liberals and Conservatives, with the Social Democrats not founded until 1889. To this extent, then, Sweden’s political arrangements during this time closely mirrored those in the United Kingdom and consequently, education provision was similarly limited. Unlike the United Kingdom, however, Sweden in 1842 was a backwards, poor country with a scattered, largely rural, population. At this time, less than one percent of students attended nine years of school (Landquist, 1959) and education in rural areas was controlled solely by the Lutheran church, whose ecclesiastical law of 1686 nominally made literacy compulsory, although this edict was utterly over-ambitious and barely followed by the clergy. Both the church and the nobility steadfastly opposed any demands for state-supported elementary education. The councils of bishops were particularly opposed: in the words of the Bishop of Lund, ‘the proposed system of public schools cannot be introduced into Sweden… although by such means we may acquire an intelligent folk it does not thereby follow we shall have a good folk’ (Paulston, 1968). However, farmers and burghers lobbied strongly for some form of education policy and they had an ally in the benign despotism of Crown Prince Oscar who led the demands for the establishment of state elementary schools, called folkskola, which was passed in 1842. The Bill required that all Swedish children attend school, with every parish in Sweden required to maintain at least one school with a seminary trained teacher. However, as in the UK reform of 1833, these good intentions were undermined by the pitiful availability of resources to support these objectives, since funding was expected to come from parish resources with very limited grants from the riksdag. By the late
century, at least a third of students remained home schooled or in ‘ambulatory’ schools which rotated between communities.

As Sweden industrialized in the late nineteenth century, the state, under Conservative rule, began to invest in elite secondary schools and universities, targeting money to the scions of the wealthy. Funding for these schools was taken from the central budget and financed largely by duties on common staples like sugar and tobacco. Conversely, parish elementary schools were funded at the local level through fees, charity, and tithes. As such, the great mass of the citizenry were paying not only for their local elementary schools but for the education of the elite, to which their own children were not entitled. This provides a telling example of the politics of education targeting discussed in Chapter Two, where the elite benefit from a publicly funded but limited coverage education system. In 1868, when Sweden introduced a new bicameral parliament, replacing its four estates of the nobility, clergy, burghers, and peasants, and thereby beginning the transition to democracy, education spending was still highly imbalanced. In 1870, eighty percent of state grants to education went to secondary and higher education. However, the gradual liberalization of Swedish politics over the remainder of the century, as the Liberal and Conservative parties, and later the Social Democrats, formed, was mirrored by a change in this balance. By 1900, even though the franchise was limited to around one in seven adult men, elementary education was receiving over fifty percent of available funding (Paulston, 1968). Particularly important in terms of achieving this goal was the 1894 Education Act, passed through the efforts of the Liberal and Social Democrat parties, which made three years of education at the folkskola a prerequisite for entering secondary education, thereby linking the previously
disconnected systems and allowing working class children into secondary education (Boucher, 1982).

The early twentieth century was a period of great political upheaval in Sweden, with the passing of universal male suffrage in 1909, the replacement of monarchical by parliamentary power in 1918, and universal suffrage for men and women in 1921. As Paulston (1968) notes:

With the voting reform … proposals for comprehensive compulsory schooling became less utopian and increasingly more realistic because of the new possibilities of bringing popular support to bear on the reform of public education through democratic procedures.

Reformers met immediate success through the Education Act of 1918, which created a new group of practical trade schools directly linked to folkskola. This provided the first connection between general and vocational streams of education, an area that would prove a permanent current in the Swedish educational debate. This Act was the work of Varner Ryden, the Socialist minister of education, whose preferences would be a key driver of postwar Swedish policy. Ryden’s ambitions did not stop at the creation of trade schools. His main aim, which he managed to get included for the first time in the Social Democratic official program in 1920, was for an expanded comprehensive, fully publicly funded, folkskola. In 1918, Ryden requested a School Commission to look into creating such a system, just one month after suffrage reform. Among the aims of the Commission, carefully shepherded by Ryden, were the expansion of schooling to girls and the transition to a single elementary folkskola for all students. When the Commission reported back in 1922 it held faithfully to Ryden’s suggestions, recommending a six-year unitary folkskola to age thirteen with compulsory co-education.
However, the political power of the Social Democrats did not match the
grandiosity of Ryden’s plans. The Commission’s recommendations were hugely
controversial and the right-wing press accused the Social Democrats of attempting ‘social
leveling’. The government of the Social Democrats in fact depended largely on support
from the Liberal party, who were unhappy with the ambition of Ryden’s plan. The Prime
Minister Hjalmar Branting, a Social Democrat, was unwilling to risk defeat on school
reforms, and never brought the proposals to a vote, in order to preserve the support of the
Liberals. By 1924, the Conservative education minister Sam Clason was able to reject the
Commission’s suggestions entirely. During the brief conservative government of 1923 to
1924, Clason instead established a committee tasked with studying how to prevent the
extension of elementary schooling and how to expand the freedom of private schools
(Paulston, 1968). Clason’s committee reported back in 1927, when the Liberals were
leading the government, with support from the Social Democrats. This time reform would
by necessity be made of compromise.

The 1927 Education Act, the most significant of the first half of the century, was a
classic product of consensus. In particular, although all parties now agreed that
elementary and secondary schooling should be joined together, there had been particular
debate over the precise length of each. The Conservatives and Agrarians favored a short
four year folkskola, followed by five years of secondary schooling (realskola). The Social
Democrats, conversely, favored a long folkskola of six years and a short realskola of four
years. In essence, the longer was elementary education the more favorable would be the
balance of funding to the working class. The Liberal party’s compromise solution split
the difference by permitting two streams of folkskola, one along Conservative lines and
the other along Social Democrat lines. This peculiar form of logrolling meant that the Swedish system of primary education had an unusual parallel structure. In reality, the Social Democrats were able to use their more advantageous cabinet position vis-à-vis the Conservatives by inserting a legislative privilege for their favored six-year system. The consensual nature of policymaking, in any case, held off calls for further reform until the 1940s, at which point the adherents of a unitary system came once more to the forefront.

The 1930s are typically considered to be the key decade for the establishment of Social Democratic power in Sweden. Yet, despite the transformation and socialization of the economy during these years, the Social Democrats were content to leave education alone after the struggles of the late 1920s. Partly, this was a result of the distraction of the depression and the onset of European war. To the Left of the party there was concern that Social Democrat constituents were unlikely to benefit from any piecemeal expansion of secondary education. Hence the Social Democrats were generally less favorable to increased secondary funding in comparison to the more centrist Liberals. With their focus on universal policies rather than on the administration and structure of secondary education, the Social Democrats’ major reform of the 1930s was their expansion of compulsory schooling from six to seven years; a reform undertaken with the support of the Agrarians who were concerned about the paucity of education in rural areas. (Paulston, 1968)

The Second World War led, as elsewhere, to coalition government, although Sweden remained neutral. In charge of education policy was Gosta Bagge, a Conservative politician who established a Commission in 1940 to look at further reform to secondary education. By the time of release in 1944, few fresh ideas had emerged.
Conversely, the Social Democrats had begun to revise their educational policies, conscious of the increased importance of education for the welfare of the working class in a modernizing economy. Critical was the Social Democrats’ tenth congress in 1944 which forged a six point program proposing (1) the elimination of all fees in public schools; (2) a common folkskola for all children; (3) improved continuation schools for vocational occupations; (4) guaranteed admission of all qualified students to secondary and higher education with state support; (5) elimination of instruction for confirmation to the Lutheran church; and (6) government support for scientific research (Paulston, 1968). This program for the first time proposed a massive expansion of state funding of education and the telescoping of all elementary education into one unitary system. Following the end of the War, Tage Erlander, the Social Democrat education minister, established a Commission, representing all parties in parliament to examine the possibility of enacting these reforms. The Commission reported back in 1948 with the recommendation that primary and secondary schooling be merged into a nine-year comprehensive schooling, with selection happening only after the age of sixteen for upper secondary education.

The Education Act of 1950, passed by Erlander, who had become Prime Minister in 1946, developed this unitary system of education in a largely consensual manner. The opposition to the Act was largely fragmentary, confined to the upper secondary schools and conservative newspapers, and no major political party unequivocally opposed it. However, both the Conservatives and Agrarians raised a set of concerns about the change. In particular they insisted that any change be proven superior through ‘scientific evaluation’ and that some differentiation between and within schools be permitted. They
were also concerned over rising costs, with the Agrarians concerned that national income growth might not support the cost of the plans. The Social Democrats were themselves concerned that the system be thought of as a natural evolution and thus sought support from the other parties through the establishment of a Special Committee representing ll major parties to try and reconcile views of the Act. As part of the ensuing compromise it was agreed that the nine year comprehensive’s introduction should be nominally provisional on a set of experiments and evaluations. This assuaged the Conservatives, although the Liberals and Social Democrats did not really intend that the reform be provisional. The compromise meant that the system did pass but that full implementation had to wait until 1962, once the experiments had run their course; although it is doubtful that any ‘failure’ in the experiments would have led to the reversal of this reform (Boucher, 1982). This highly consensual policy-making may appear both unusual and unnecessary since the Social Democrats had an unbroken stretch of government from 1946 through to 1976. However, particularly in the earlier period, the Social Democrats had fairly thin margins and were reliant on at least the Liberals. It was considered critical to avoid the mistakes of the 1920s where Social Democrats had ended up with an unfavorable outcome because of their parliamentary weakness.

As Social Democrat parliamentary strength increased in the 1950s and 1960s, education policies became ever more progressive. In particular, 1968 saw two major steps with the forming of the ‘Wendy House Commission’ to explore public funding of preschool education and the decision to unify all upper-secondary education in the gymnaiseskola, which was achieved in 1970 (Lundahl, 2002). Now, all levels of Swedish education followed a unitary line, with the only break being at age sixteen where students
could decide whether to attend upper secondary. With the extension the length of compulsory education to nine years in 1972, the Social Democrats had shepherded into existence a highly progressive and universalistic education system, leading to public education spending of around nine percent of national income by the end of the 1970s, one of the highest levels in the world (Marklund and Bergendal, 1979).

However, the increasingly massive cost of the Swedish welfare state, combined with worldwide recession, led to the election of a bourgeois coalition for the first time in a generation in 1976. This government, led by Thorbjorn Falldin began the first series of cutbacks in Swedish education spending in 1980, reducing the education budget by four percent. However, further cuts would have been politically dangerous for the shaky coalition of non-Socialists and though they managed to redraft the national curriculum, its passage into law meant it had to pass through Conservative, Liberal, and Socialist government, leading to a highly consensual document. The return of the Social Democrats to government in the mid 1980s led to a leveling out of education spending, partly as a result of demographic shifts, partly as a reaction to the dominance of the Social Democrats’ right wing - the ‘Chancellery Right’ - but also in recognition that the 1970s peak of nine percent of GDP was probably an upper (Ball and Larsson, 1989). The Social Democrats’ major reform in the 1980s was an extension of schooling downwards to age six, available at parents’ request. Furthermore a grand reform of upper secondary education was initiated in the late 1980s and enacted in 1991, which forced all municipalities to provide upper secondary education for students following the end of compulsory schooling at sixteen and simplified courses into a sixteen-strand system, where both academic and vocational education courses would take place in the same
school. Consequently, while the era from 1975 to 1991 saw a deceleration in education spending, ‘the principle of a relatively strong State was defended in order to protect equality of education’ (Lundahl, 2002).

This principle was come under sudden attack when a Moderate-led coalition returned to power in 1991, under Carl Bildt, with a more dramatic series of reforms. In particular, Bildt and his education minister Per Unckel allowed private schools to receive the same per student funding as public schools in an attempt to create further differentiation (Gingrich, 2006). While this reform certainly did not cut costs it did make likely a redistribution of education quality towards the upper middle class. Moreover, the reforms granted control of school funding to local municipalities in the form of block grants – another attempt to increase differentiation and choice. This was a continued period of budgetary stress as Sweden entered its worst post-war recession in the early 1990s. This crisis certainly eased the passing of Bildt’s controversial reforms and the Social Democrats acquiesced as Sweden moved from having one of the most centralized to one of the most decentralized education systems among industrialized nations (OECD, 1998). The introduction of a Swedish quasi-market in education by the Moderates meant that by the end of the 1990s, ‘Swedish upper-secondary education showed larger variation in regards to school achievement, gender and social class divisions in education were more distinct and a hierarchy between different programmes was more obvious than 10 years before’ (Lundahl, 2002).

Following the fall of the ‘bourgeois’ coalition in 1994, the Social Democratic governments of Ingvar Carlsson and Goran Persson have emphasized increased public
support of education. However, Carlsson was relatively timid in his response to Bildt’s reforms. It was not until 1998 that budgetary stress had been replaced by growing prosperity, permitting Persson’s government to re-engage in a series of expansionist reforms. In 2001 the Social Democrats introduced targeted subsidies of €100 million per annum to increase teacher numbers - this reform began a gradual reassertion of state control over public education, following the transfer of power to the municipalities in the early 1990s. The Social Democrats have also focused on the expansion of funding for universal pre-school education and childcare, access to which has expanded from 64% in the early 1990s to 82% after a decade (Lundahl, 2002). Thus, the Social Democrats have attempted to reverse the increasing education inequality produced by the Bildt government’s reforms. However, while partisan patterns in education spending continue to be distinct in Sweden, the trend of the last two decades has also been driven by the steep economic cycle in Sweden during this period. Moreover, education spending has adjusted gradually to partisan control, unlike in the United Kingdom. Instead, debate has centered around second-order issues like governance and syllabus construction. This moderate debate is symptomatic of the gradualist, consensual pattern we have seen marking Swedish education policy since the advent of parliamentary democracy in the late nineteenth century.

9.4: The Higher Education Trilemma in Germany, Sweden, and the UK

This section changes gear by addressing partisan politics in the arena of higher education, where public education spending can be targeted towards the rich, reversing

---

188 Interestingly, both Carlsson and Persson had previously been Ministers of Education before their rise to the head of the party as had been Tage Erlander.
the normal redistributive logic of education spending. Chapter Eight argued for the existence of a ‘trilemma’ in higher education policy but noted that data availability problems meant that dynamic analysis of change between higher education systems would be best served through careful case analysis. In this section we examine three states that are emblematic of the three ideal types of the trilemma: Germany, Sweden, and the United Kingdom. In fact, all three had very similar higher education systems in 1945. However, whereas the Germans have retained an essentially elitist higher education system, both the Swedes and the British have moved rapidly towards a mass system since the late 1980s. The method of financing this expansion differs substantially between the UK and Sweden, with the New Labour government of Tony Blair enacting a series of reforms introducing tuition fees, while the Swedes have opted for a prolonged expansion of public funding at the tertiary level. This section explores the choices made by these states, focusing on the partisan determinants of change and stasis in higher education.

Higher Education in the United Kingdom

In 1950 British higher education was more of a rite of passage for the children of the elite than a necessary educational step for would-be professionals. In the postwar era, fewer than three percent of children went on to university (Chitty, 2004) and most individuals who ended up in professions that we would today think of as classic ‘college-level’ careers, for example, engineers, journalists, and stock brokers, never entered the university system. Generally, most students who attended university were either beneficiaries of the elite British ‘public school’ system (meaning, in actuality, fee-paying schools of considerable antiquity) or increasingly, those middle and working class
children who had attended the publicly funded grammar school system. The relative affluence of the 1950s and the success of those children who were products of the grammar school system, led to increases in applications to university. However, the existing structure of British higher education, constructed around the ‘ancients’ (Oxford, Cambridge, Durham, and the Scottish schools) and the nineteenth century urban ‘redbricks’ (London, Manchester, Birmingham, Bristol, and Leeds), could not easily absorb such expansion. While eighty percent of students applying to university in 1956 obtained places, this had dropped to sixty percent by 1964 (Layard et al, 1969).

The strains on the system presented a quandary for the Conservative party, by 1961 reaching a decade of unbroken government. On the one hand, most Tory ministers were themselves products of both the elite university system (typically Oxbridge) and the elite public schools (typically Eton) and were thus direct beneficiaries of the rationing of higher education. However, on the other hand, the Tory electoral base would be the chief beneficiaries of any limited expansion of higher education, given that they were starting from such a low point of coverage (by 1961, around five percent of the population). The subsidization of higher education was beyond debate at this time, and certainly a fully public system of funding was in the Conservative interest given its regressive fiscal structure. The chosen resolution was the establishment of a Committee led by Lord Robbins in 1961, which reported back in the closing year of Conservative rule, 1963.

The Robbins report was the single most dramatic change in higher education policy to date. A system that had developed organically was to fall under greater government control, with all universities and colleges of technical education to be

---

189 The grammar school system was the top stream of English public secondary education, access to which was determined by the ‘Eleven Plus’, an exam taken at the end of primary schooling.
governed under a unitary system, calls for the construction of six more universities, and the declaration of the ‘Robbins principle’ that ‘courses of higher education should be available for all those who are qualified by ability and attainment to pursue them and wish to do so’ (Ministry of Education, 1960). In the shadow of a forthcoming General Election, the Robbins report’s recommendations were accepted within twenty-four hours of publication. The report envisaged the transition from an elite system to one where around fifteen percent of the population would attain higher education – a figure not dissimilar than that of many Continental countries today. It is not surprising, then, that the Tory party was so quick to accept the report: this percentage of the population was likely to be fairly coterminous with the Conservative party’s base electoral support.

While Labour also declared support for the Robbins report – perhaps not surprisingly, given the large number of ‘dons’ in Harold Wilson’s government, including Wilson himself – they soon departed from Robbins orthodoxy. Anthony Crosland, Wilson’s education secretary, rejected the call for a unitary system of higher education, instead establishing a ‘binary policy’, whereby the traditional split between universities and technical colleges (sometimes labeled ‘polytechnics’) would be retained, with the latter under direct public control. Moreover, Labour rejected Robbins’ calls for the construction of six new universities. Why did Labour choose to undermine Robbins in this fashion? While the party was not unsympathetic to the universities, the technical colleges better suited both their constituency (in this case the lower-middle class) and their economic strategy (this was the era of Wilson’s attempted ‘white heat’ revolution).

190 Universities, conversely, have long had a peculiar relationship to the state in the UK, with nominal autonomy in the area of governance but funded largely from public sources, until Labour’s Teaching and Higher Education Act of 1998. In practice, through the Research Assessment Exercise and other funding devices, the government has been able to acquire considerable indirect control over university governance.
Expanding university access by the new construction of universities was undesirable for two reasons: firstly, it overly favored Conservative constituents, and secondly, it promised to draw away students and resources from the technical colleges.

Labour were not the only enemies of expansion in the late 1960s. In response to Labour’s successful attempts at expanding the use of ‘comprehensive’ secondary schools and also in reaction to the increasing acceptance of ‘progressive’ teaching methods and student participation at the university level, a group of right-leaning iconoclasts, led by C.B. Cox and A.E. Dyson published a series of anti-progressive pamphlets known as the ‘Black Papers’ between 1969 and 1970. Their complaints against the universities were legion, including a general aversion towards student protest and participation (Amis, 1971). The most pointed attack on university expansion was Kingsley Amis’s well-known assertion that ‘more will mean worse’ (Amis, 1971; Cox and Dyson, 1971). In particular, their claimed concern was not with expansion per se but with the ‘reduction in appropriate resources’ per student. Certainly this reflected the elite’s concern that the regressive structure of higher education would be ‘progressivized’ to the detriment of their offspring. Thus, despite rhetorical caveats that they were not recommending quotas, their underlying preferences are best summed up by Kingsley Amis and Robert Conquest’s remark that ‘For our part, we believe in giving everyone all the education which he can take: we only wish it to be education not eyewash’.

This hierarchical view of higher education - to be limited only to those with exceptional academic aptitude - became a stock phrase in the Tory armory over the coming decades, particularly among the ‘Establishment Tories’ whose socio-economic

---

191 Kingsley Amis’s famous phrase ‘pernicious participation’ summed up the Black Paper authors’ attitudes towards student democracy (Amis, 1971).
status was far removed from the majority of the Tory’s voting base. Indeed, the ghost of quotas re-emerged under the Conservative opposition of Michael Howard as recently as 2005. The enemies of university expansion in the 1960s and 1970s, then, look remarkably similar to those in Figure 8.5, with an ‘unnatural alliance’ between the working and lower middle classes - Labour supporters whose best hope of post-secondary education was in the technical colleges – and the upper classes, whose hold on higher education was threatened by its expansion to the middle classes. This split in the Tory party between the upper and middle classes over higher education exists to this day.

The Tory schism over higher education flared up once more during the next key period of higher education reform, the late 1980s. There was considerable concern by the late 1980s that the limited expansion after Robbins had left the UK lagging in international terms with only fifteen percent attended universities or polytechnics as compared to over thirty percent in the USA and thirty-seven percent in Japan. The 1988 Education Act, passed by Margaret Thatcher’s education minister Kenneth Baker, attempted to kickstart the university sector by ending the binary system, and in 1991 allowing polytechnics to become universities. Baker also called for a doubling of enrolment, from fifteen to thirty percent over the next twenty-five years and suggested that private tuition fees might be a suitable mechanism for financing this expansion. This proposed change in both coverage and subsidization met resistance with the Tory base and among other ministers. Baker’s successor, John MacGregor, abandoned these policy

\[192\] Indeed, at this time, even Germany had more students in universities or polytechnics, as a proportion of their cohort, than the UK. This parity at the end of the 1980s stands in stark contrast to the current twenty point gap between the UK and Germany.

\[193\] Almost every polytechnic changed their status to university by the mid-1990s in response to the perceived higher status of the university sector – hence the rise of ‘Metropolitan’ universities like Manchester and Leeds Metropolitan universities, which used to be their cities’ polytechnics.
aims almost immediately on taking office in 1989. The Tory dilemma over the university sector ended up in an ineffective compromise, with MacGregor diluting the expansion promise to be kept ‘only on a realistic and affordable basis, with the necessary funding coming from a variety of sources’ (Chitty, 2004).

In fact, unlike the case of subsidization or overall funding, the government had fairly little control over enrolment by this point, with the universities financed on a per student basis. Baker’s target was met by the mid-1990s as a mass expansion threatened to overwhelm university finances. The 1988 Act had unleashed pent-up demand for university education, almost unintentionally, and the Tory party was left with an undesirable dilemma if they were to maintain per student expenditure: either to increase public funding and thus overall taxation or to rely on private sources like tuition fees. The former was dashed by Conservative distaste for increased taxation or public spending. The latter foundered on the inconvenient fact that such fees were likely to hit Tory constituents hardest, since their children were the predominant group in university education. The Tories thus chose the path of least resistance: they maintained overall funding levels while permitting enrolment to increase, thus reducing per student spending by around fifty percent and academic salaries by nearly forty percent in real terms (Lawton, 1998).

The ensuing decline in the quality of British higher education presented New Labour, elected in a landslide in 1997, with a particular dilemma. The last Labour government in power, Callaghan’s administration in the late 1970s, had faced a very different post-secondary landscape. In place of the binary system, where Labour could manage their favored technical colleges, was an autonomous unitary sector. Overall
enrolment had more than doubled and was now close to a third of all students and rising rapidly. Yet, the social composition of university had changed very little: between 1973 and 1980 the proportion of university students who were children of manual workers had in fact declined. Even by 1997 private schools, accounting for only seven percent of all secondary education, accounted for nearly forty percent of the students of the ‘top’ thirteen universities. Although New Labour was no enemy of the upper middle class, it can hardly be said that the new expanded university population was representative of their traditional political base.

To New Labour the politically most attractive solution was to attempt to reduce the regressivity of higher education funding and to channel future expansion so that their own constituents were better served. Neither policy was uncontroversial. Labour’s two Higher Education Acts, in 1998 and 2004 proved extraordinarily difficult to pass, even given their huge parliamentary majority. The Act of 1998 altered the student loan and grant system (in favor of the former) and introduced up-front tuition fees, the first time private funding had been sought for university education in the UK. Although these fees were extremely limited - around £1,000 per annum – they enraged students, many Labour traditionalists, and both opposition parties. Yet this controversy was minor in comparison to that which followed Labour’s announcement in 2003 that they intended that universities should be permitted to charge up to £3,000 per annum in ‘top-up fees’. This measure was to be accompanied by a series of progressive payment policies, including the return of the student grant for poorer families and a repayment income threshold for fees following graduation to ensure that those individuals who failed to find moderately paid work as graduates would not be indebted. The government also announced the
establishment of an Office of Fair Access to ensure that working-class and state-school children were supported in entering higher education. Simultaneously, the government announced a ‘soft target’ of 50% enrolment by 2010.

All four policies: the ‘top-up fees’, the changes in payment, the access regulator, and the fifty percent target, proved highly controversial and the Bill barely scraped through, against Conservative, Liberal, and Labour backbench opposition, in 2004 (Stevens, 2004). However, the contents of the Act were generally beneficial to Labour’s core constituency. Public funding of higher education is, of course, a highly regressive form of public spending. Moreover, evidence that externalities exist at the higher education level is far less convincing than most advocates of free higher education generally claim (see, for example, the econometric analysis of these externalities in Haskel, Hawkes and Pereira, 2005). The slanting of student support to benefit those who either come from poor families (the new grant) or end up in them (the payback threshold for fees) is also highly progressive. Finally, Labour has combined emphasis on increased enrolment with the establishment of an access regulator to ensure that this increase benefits the poorer members of society (although the new regulator has not been granted the teeth its adherents had hoped for). Given the progressive credentials of the reform, it is surprising it was opposed so vehemently by traditionally left-wing groups like the National Union of Students (led by the son of the then Home Secretary, Jack Straw), Labour backbenchers, and the educationalist establishment (especially Chitty, 2004).

The reactions of all three major parties to the 2004 reforms mirrored those suggested by the trilemma in Chapter Eight. Labour advocated the transition from an elite Continental system to a mass Anglo-American one, which would benefit the poor and the
middle class. The Conservatives argued, instead, for the retention of the system as was, campaigning on the basis of revoking all fees and instituting a quota on admissions instead. This would have amounted to retrenching into a Continental system and was popular with their core constituency of the upper middle class. Finally, the Liberal Democrats demanded the revoking of fees but campaigned for increased overall funding of higher education on the Scandinavian model, a position popular with students and many middle class voters but unpopular with both the poor and the elite. Following the 2005 election, the Conservatives appear to be generally moving towards the political center with the election of David Cameron. This centripetal pattern has been mirrored by Cameron’s acceptance of fees on principle, along with a variety of other more progressive fiscal politics. Thus, the political battles over higher education in the UK appear to be temporarily over, with the acceptance of the Anglo-American model. As Robert Stevens (2004) notes, ‘English Higher Education has undergone a remarkable transformation… In 1960, the visible part of the English university system was small, academic, liberal arts oriented and socially elitist. Today it is an extensive system where the emphasis is on mass higher education with a practical bent’. This change was enormous in scale, yet its final shape was politically determined. We move now to Sweden, which has taken a very different route from the UK and where politicians made very different choices in moving from an elite to a mass higher education system.

**Higher Education in Sweden**

Swedish higher education looked remarkably similar to that of the United Kingdom in the pre-expansion era. Like the UK, in 1945 fewer than five percent of
Swedes attended university. Moreover, also like Britain, Sweden had a fragmented post-secondary education system, which was split into universities, university colleges (smaller universities without postgraduate training), research institutes (for example, the Royal Institute of Technology and the famous Karolinska Institute of Medicine), and vocational colleges. Unlike the UK, however, the postwar period has largely been dominated by the Social Democrats, whereas Conservative hegemony was the norm in the UK until 1997. The preferences of the Social Democrats regarding higher education were not dissimilar to Labour’s. There was a general desire for improved access for poorer groups in society but little emphasis was placed on expanding the higher education sector from elite to mass.

As in the UK, there was little concerted parliamentary interest in higher education until the mid-1960s. Most reforms tinkered with curricular and governance issues: for example, drawing a finer line between professors, readers, and research assistants, who conducted research and postgraduate training, and lecturers and assistant lecturers who taught undergraduates. However there were two important steps conducted by the Social Democrats in this period. The first was a higher education finance bill passed in 1965, which provided study assistance for all full-time students in higher education (set at 25% grants and 75% loans, see Salerno, 2002). This reform achieved the Social Democratic goal of ensuring that those poorer students who did attend university would be able to afford it independently, although as with many Swedish welfare reforms, the policy was provided ‘universally’ and thus benefited all students, both rich and poor. The second step was the appointment of an education commission in 1968, charged with an overall evaluation of the higher education system. Unlike the Robbins report, however, when the
commission reported back its strongest recommendation was to limit total resources in the higher education sector. Thus the unbroken period of Social Democratic rule through to the late 1970s saw very little change away from an elite higher education sector (except for some expansion of the university colleges), although financing was adjusted to aid students who could not afford it.

The period of the ‘bourgeois coalition’ from 1976 to 1982, however, marked a significant change in Swedish higher education policy. In particular, 1977 marked the most major reform of the system to date. The 1977 Higher Education Act unified the four systems of higher education – the universities, university colleges, research institutes, and vocational colleges – into one nationwide system: the hogskola. This system would now be run under the aegis of the Ministry of Education, which would also define enrolment levels. It also devolved higher education governance to some degree by creating regional boards in order to further regional development (OECD, 1993). The most interesting aspect of the reforms was their impact on access. Although a nominal quota was established (the numerus clausus system, also used in Finland and Germany) there was also a major effort made to integrate the adult population into the higher education system. For the first time people over twenty-five were put on equal footing with school-leavers, leading to a massive increase in adult enrolments. The 1977 reform then displays some similarities with the pattern of higher education reform in the UK from the 1960s to the 1980s. Like the Conservatives, the Moderate-led coalition unified the higher education system for the first time. They also had a similarly ambiguous relationship with enrolment. On the one hand they attempted to limit it through the numerus clausus system, which introduced an exam-based quota (Salerno, 2002). On the other hand, their
The return of the Social Democrats to power in 1982 was accompanied by little major reform, as before. Enrolment levels remained fairly steady throughout the 1980s because of the *numerus clausus* system and the most major piece of reform was a further adjustment to student grants and loans coming in 1989. This reform increased the size of grants and made loans income-contingent, mirroring New Labour’s 2004 Education Act. Despite this small act of progressivity, the Social Democrats did not undertake any more major reforms, although there was increasing concern that Swedish enrolment levels were lagging by international standards (another parallel with the UK; OECD, 1993). As Salerno (2002) notes, ‘it would eventually take change in government before calls for reform turned to action’. When Carl Bildt led the Moderate party to victory in the 1991 election, little time was spared in rethinking higher education policy. In 1992 the bourgeois coalition released its *Memorandum on Independence of Universities and University Colleges*, which resulted in the Higher Education Act of 1993. This Act granted universities considerable autonomy in their running and, in particular, in their admission standards, thus marking the end of the *numerus clausus* era. Financing, henceforth, would be undertaken on a per-student basis, rather than on the basis of national demand forecasts (Marton, 2000).

This reform led to an enormous increase in enrolments, leading to a doubling of new entrants from 1990 to 2000. Unlike the British Conservatives, the Swedish Moderates permitted the overall university budget to rise along with enrolments. By 1998, Sweden ranked fourth among OECD nations (behind the USA, Canada, and...
Switzerland) in per student funding: at $13,224 per student (at least a third higher than the UK). Thus the Swedish Moderates sparked a series of enrolment and funding increases that mark the Scandinavian model. While the final transition to a mass system in the UK was enacted by Labour (with the Conservatives simply putting off the issue of funding), leading to an Anglo-American system, it was reform by the Moderates in Sweden that really underpinned the transition to a mass system, and in this case a Scandinavian model emerged, whose chief beneficiaries were the middle classes.

Since the Scandinavian model of higher education is generally favored by the middle classes (although less popular among the elite and the proponents of private higher education, in particular the Stockholm School of Economics and think-tanks like TIMBRO), the Social Democrats, following their return to power in the mid-1990s have supported the transition to a mass system. However, they have emphasized somewhat different reforms to the Moderates. The most important development was the enactment of the 2001 ‘Open Higher Education’ Bill, with an aim to widen access and participation. In a similar vein to New Labour’s 2004 Act, the Bill aims for a fifty percent participation rate and established a recruitment commission to help broaden access and develop courses for students who fail to meet traditional entry requirements. Funding for the sector has increased further, with Sweden now spending over 1.5% of GDP on higher education, and with the tipping point of fifty percent enrolment reached, it is now the Social Democrats who are the chief advocates of increased enrolment and increased funding (Marton, 2000).

Still, as with education policy more generally in Sweden, left-right volatility is less pronounced than in the UK. Tuition fees remain off the table even for the right.
Henrik von Sydow, a Moderate, told the Guardian in 2003 that ‘there may be some good arguments for having such a system but it is not on the agenda […] we don't want to have a system where students have to pay for higher education. It's not the Swedish model and it's not the way to go’ (Guardian, 2003). Of course, von Sydow is not alone among European right-wingers in his antipathy towards fees – the UK Conservatives wanted to revoke them – but unlike New Labour, the Social Democrats have no interest in tuition fees. Instead the higher education system has become part of the ‘Nordic model’ over the past decade – on its way to becoming an expensive but productive universal entitlement. Higher education in Germany, conversely, may be free but it is far from universal.

**Higher Education in Germany**

Germany has a storied tradition of higher education, with William von Humboldt having established the system of research universities in early nineteenth century Prussia that would become a model for the research focus of many of the world’s best universities, especially in America (Fischer-Appelt, 1996). Although the Nazi regime neutered German universities, converting them into Nazi educational institutions, the post-war era of German higher education saw significant expansion under the control of the Länder, who were granted control over university education by Germany’s Basic Law, since higher education landed in the realm of ‘cultural autonomy’. In fact, in 1960 German higher education looked remarkably similar in scope to that obtaining in the United Kingdom and in Sweden. Around four percent of each cohort of school-leavers would enter the higher education system, which like the UK and Sweden was divided
into an academic sphere of universities and a vocational sphere of technical colleges, named *Fachhochschulen*, as well as a variety of theological and administrative colleges.

Unlike the UK and Sweden, however, Germany faced a set of conditions that would make future expansion and reform of higher education much more difficult. Firstly, the Federal structure of university governance and financing meant that Germany had sixteen higher education systems rather than one. Coordination between Länder was slow and piecemeal: Helmut Kohl referred to the council of Länder education ministers (the KMK) as ‘the most reactionary institution in the Federal Republic’ (Hüfner, 2003).

Secondly, all Länder use line-item financing of universities, meaning that each year’s budget was negotiated in the Länder legislations as a lump-sum, rather than through per-student formula funding as in the United Kingdom and Sweden. Not only did this mean that university financing was at the behest of intra-Länder politics but also that expansion of student numbers would not necessarily be met by a commensurate increase in funding. Thirdly, the structure of German law, based on the Basic Law, meant that reform to the higher education system would have to be achieved through constitutional mechanisms, leading to the kind of reform deadlock – or *Reformstau* as it would come to be known by 1997 – that prevented radical changes to the framework. Finally, German universities themselves were based on the Humboldtian doctrines of ‘academic freedom’ and ‘the unity of research and teaching’. While these may not appear dissimilar to the principles underlying American research, in practice they have led to an ill-structured system of undergraduate and graduate training, where students typically take seven years to finish their first degree, with high drop out-rates of around thirty percent. Thus, the costs of per student funding to degree are likely to significantly exceed those in the USA or UK.
(though perhaps not Sweden, which also tends to have long first degrees). There has been a general concern that German graduates are neither systematically prepared for the job market nor for further study, weakening incentives for students to enroll and leading to generalized cost creep in the system (Schleicher, 2006).

Although German enrolments expanded at a healthy rate in the 1960s (to around ten percent by 1970), there was already incipient concern at the universities’ ability to meet this rising demand and at the need for national strategic input. In 1969, the CDU / CSU / SPD grand coalition government passed an amendment to the Basic Law which stipulated a new role for the Federal government in higher education, particularly in terms of funding university expansions, for which the Federal government would pay fifty percent. This expansion of Federal control reflected a cross-party concern that German universities were not adequately supporting national economic development. As Section Three noted, attaining direct legislative expansion of higher education is difficult and requires that the interests of the middle class predominate over the poor and the rich who might both oppose expansion. The grand coalition thus permitted legislative expansion of higher education in a moment of diluted partisanship. However, partisan preferences became much more distinct following the victory of Willy Brandt’s Social Democrats in late 1969. The SPD government that controlled German government until 1982 introduced a variety of higher education reforms reflecting their particular ideological concerns.

Chief among these reforms was the introduction of the famous BAFöG (Bundesausbildungsförderungsgesetz) system of student financing in 1971 by Willy Brandt. This provided the first system of student grants in Germany, aimed at low-
income students and funded two-thirds by the Federal government. This was followed by the SPD in 1974 with the introduction of student loans. As in the UK and Sweden, then, the chief reform interest of the Left was ensuring that working class children would be able to access higher education, rather than any particular interest in increasing overall per-student financing or overall coverage, which would mostly benefit the wealthy. The countervailing position of the CDU / CSU became clear in 1983, one year after entering office, when they changed the BAFöG system into an interest-free loan instead of a grant. The BAFöG system was then altered once more in 1990 to permit grants once more in response to the massive influx of East German students into the university system. However, in response to this increased demand for assistance, the CDU / CSU were content to let income inflation reduce the number of eligible recipients from 44.6% in 1972 to just 12.6% by the time the Social Democrats returned to power in 1998 (Hüfner, 2003). Gerhard Schröder’s government reacted to this starving of the BAFöG system by increasing the generosity of grants and eligibility significantly in 2002.

Thus, in terms of increasing the progressivity of access to university, partisan patterns played out in Germany in a similar manner to the UK and Sweden, with the left pushing grants and access by the working class and the right limiting such financial support. In terms of overall expanded access, neither party has been willing to encourage the transition to a mass system. The size of the overall system essentially stagnated under CDU / CSU rule in the 1980s and 1990s an increase from eighteen to twenty-five percent of the cohort attending university from 1985 to 1995 (as compared to an increase from fifteen to over thirty percent in the UK). Moreover, the SPD government does not appear willing to finance substantial further expansion: by 2000 the rate of attendance had risen
only to 27%, by this point almost twenty points lower than the UK and Sweden, who had looked similar to Germany as recently as the late 1980s (Hüfner, 2003). One of the reasons behind this stagnation was one of the Kohl government’s final acts of legislation: the 1998 Amendment to the Higher Education Framework Act. This amendment, although it included a set of much-needed calls for greater deregulation and performance incentives, solidified by the Länder *numerus clausus* quota system, which artificially limited German enrolments. This reform established national quotas on the number of students who could enter any of the following fields: medicine, veterinary medicine, dentistry, biology, architecture, business management, and psychology). While limitations on entry to medical training are hardly rare – the Dutch have a similar system and the British Medical Association is regularly accused of limiting entry into their profession – the limits on the latter four courses seem particularly unusual (particularly business studies). These types of restrictions allowed the CDU / CSU to significantly limit entry into a number of the professions best represented in their constituency and this strategy closely resembles that of UK Conservative party in the 2005 General Election and the introduction of *numerus clausae* by the first Moderate coalition in Sweden.

Thus, German higher education has not transitioned yet from an elite to a mass system. While this may be related in part to the highly streamed nature of German secondary schooling, wherein a large group of students undertake vocational training in the ‘Dual System’, which has no direct entry path into university, the resultant system also bears the hallmark of political decision-making, especially the continuation of quotas. Many Germans now believe a crisis point has been reached. In 1997 there were widespread national protests over the under-funding of higher education and the CDU /
CSU and the SPD both agreed that reforms were necessary. However, as in many areas of labor market policy, the SPD were unable to break the endemic Reformstau blocking change. Nor is there any real consensus on whether an Anglo-American or Scandinavian path is the way forward. The SPD appeared to reject the former option by passing a bill preventing tuition fees in 2002. The CDU / CSU conversely have made some rhetorical nods towards fees. Nonetheless, they are unlikely to be able to enact these fees, since they would directly hurt their own constituency of the upper middle class who are the vast majority of university students (by 1999, only twelve percent of university students had working class parents). Ironically, coalition government, as in the mid-1960s – could be the savior of expansion, though neither party seems keen on this issue. Meanwhile, as in the UK, universities and students are at loggerheads over financing. On the one hand Humboldt University in Berlin has been lobbying for fees since 2000. On the other hand, the head of the student union at Humboldt University in 1993, Thomas Sieron, denounced fees, claiming that the ‘perfect solution is to smash capitalism […] the need to smash capitalism has become even more obvious over the past three or four years’ (Guardian, 2003). The German system then remains in stasis – the quota system and line-item funding have prevented an organic transition to a mass system of higher education. Without this impetus it is unlikely that choices between the Anglo-American and Scandinavian model will have to be made, despite the promises of politicians.

9.5: Conclusion

Changes in the provision of mass education in the OECD are not merely functional responses to economic growth or solutions to the market failures of private
education. Education in advanced industrial states is deeply political and has been so since the advent of public education in the nineteenth century. We saw in Sections 9.2 and 9.3 that democratization was the key spur to the founding of public education in the United Kingdom and Sweden. However, since that time the politics of education have hardly been quieted. If anything, the last two decades in the UK have seen the most upheaval in education policy under Thatcher and Blair, with education spending swinging by a full percent point of national income. Change in Sweden, conversely, has been far more gradual as the exigencies of coalition formation induced by the proportional electoral system have meant that major educational reforms have been highly consensual, in the case of the 1950 Education Act, taking twelve years of experiments for all parties to sign off. Section 9.4 examined the politics of the trilemma as laid out in Chapter Eight. In particular, we analyzed how partisanship affected institutional change out of a Continental system in England and Sweden. Perhaps surprisingly, it was New Labour who introduced privatization and the Moderates who expanded public sector funding of higher education. However, on a second glance, these patterns were to be expected, since higher education is typically highly regressive in its funding formulae. Germany, for its part, remains wedded to a Continental elite higher education system. While there is increasing concern among education scholars (Schleicher, 2006) that this elite system is untenable, the importance of the Länder in higher education funding and the difficulty in altering the Basic Law mean that veto players can effectively block change. As noted above, perhaps only a grand coalition that favors the German middle class can enforce expansion to a mass higher education system.
CHAPTER TEN: CONCLUSION

We began this project with an intriguing puzzle. If creating a mass education system, and enjoying the fruits of economic growth that accompany it, is a simple collective action problem, why do countries vary so greatly in their education spending? Surely, the massive positive externalities associated with public education ought to override whatever institutional costs there are in creating and maintaining a mass education system. Yet, education spending differs so massively between states, that at the extreme, Denmark spends twenty times more on public education as a proportion of national income than Equatorial Guinea and three times more than its near-neighbor Greece. Education may be the engine of growth but many countries appear willing to sacrifice these potential gains. Why do states engage in such self-defeating behavior?

Throughout this study we have seen that redistributive politics, in multiple guises, underlies the observed variation in education spending. Solving collective action problems is difficult in the best of circumstances, when all citizens pay the same tariff and receive the same benefit. But when providing a public good like education, despite its potentially vast effects on positive externalities and economic growth, because people pay different fees and receive different amounts of education, the politics of redistribution overwhelm the political economy of efficiency. Public education has fiscally redistributive effects under progressive taxation, yet the rich receive the same universal education as everyone else. Like most public goods, it is no surprise that the rich might, all else equal, prefer to buy the good on private markets if possible. But education has even more undesirable impacts for the elite. Where only the elite are educated, they reap the benefits of the scarcity of education. As education provision
expands, their prized and exclusive education is diluted by the skilling of the masses. Furthermore, not only does education expansion threaten the rents to education but it also undermines the hereditary transmission of income and status. Education has a ‘lottery effect’ in that it substitutes meritocracy for birthright, allowing the clever poor-born to replace the duller elite. All in all, education poses threats to the rich and opportunities to the poor like no other public good.

And this menace to the rich does not go unnoticed. Many options exist for the elite to prevent public education from sapping their income. The simplest tactic would simply be to block education spending and cut its undesirable redistributive effects off at the source. And where the elite can rule by decree, or where they have temporary control of the wheel of political decision-making, such an outcome is highly likely. However, the demands of the masses for public education may not be politically feasible to ignore. If the elite cannot directly reduce public education spending they can, instead, try to manipulate what spending there is to their best advantage. Many forms of education are limited to a subset of the population, typically the richer members of society, and if spending can be targeted towards these areas and away from universally provided education, the elite may be able to curtail the negative effects of increased education spending. Typically universities have been the domain of the elite, whereas primary education has been accessible to the nation at large. Hence, the rich will try to bias spending in the direction of the former, while the masses advocate for the latter. To the extent that any public good can be made excludable through targeting, its redistributive effects can thus be curbed. The final option left open to the rich is explicitly political: to form an anti-education coalition with the poor. Where the middle classes are the chief
beneficiaries of education expansions, as in many developing or democratizing states, the poor may be unlikely to benefit greatly from increased education provision. Instead, the poor are likely to prefer government to spend tax revenues on other nonexcludable public goods or on simple redistribution. This opens the possibility for the elite to outflank the middle-class by allying with the poor in an ‘ends against the middle’ coalition that biases public spending away from education: the final option left open to the rich is bribery.

Thus the battle between the rich, the middle classes, and the poor over education spending may take many forms. As we saw in Chapter Two’s formal model, education is a field with many crosscutting paths of redistribution, which alter the economic effects of education on different groups and open up different political possibilities for manipulation. The key implication of the formal model is that redistribution underlies all preferences over education but that the impact of redistribution is itself delimited by the ability to target education, the relative magnitude of the fiscal, scarcity, lottery, and externality effects of education, and the pattern of political decision-making. The model suggested a variety of hypotheses that were empirically tested through both statistical and case analysis in the following chapters.

In Chapters Three and Four we examined the impact of regime type on education spending. The basic redistributive politics of education spending, with the elite attempting to curtail it and the masses advocating expansion, played out with both statistical robustness and substantive magnitude in Chapter Three. Statistical analysis of 115 states from 1960 to 2002, using a variety of panel data analysis techniques, led to estimations that a state moving from a full autocracy to full democracy would see its education spending expand by a full percent point of national income over ten years. For
China, a transition to democracy might increase education spending by up to fifty percent—an enormous predicted jump. Furthermore, the prediction that education spending would increase dramatically following democratization was not an artifact of a more generalized rise in public spending. In fact, public spending, as a whole, was predicted to remain almost constant following democratization, with the balance of government spending tilting sharply towards education. This result supports the baseline assertion in the formal model that education is fundamentally more redistributive than most other forms of public spending. The chapter concluded by showing that the impact of democracy on education spending that we saw in dynamic analysis was also manifest in cross-sectional analysis of the difference in education spending between autocracies and democracies and was robust to a simpler dummy measurement of democracy.

Chapter Four extended the analysis of the effects of regime type on education by disaggregating both variables. We saw that the key elements of democracy in terms of affecting education were the extent of popular representation and the responsiveness of the executive to popular demands, rather than other candidate facets of democracy like stability and the reduction of factionalism. We also found that regime type differs among autocracies, with communist governments associated with much higher education spending than oil exporting autocracies. Finally, we turned to disaggregated measures of education spending, finding that private spending was dramatically lower in democracies than autocracies, as was targeted spending on university education.

Chapter Five moved from the analysis of political liberalization to economic liberalization. While many political economists view globalization as a threat to public spending, we found in contrast that education spending was predicted to rise significantly
following integration with the global economy, particularly among developing countries and autocracies. There are two mechanisms underlying this surprising finding. Firstly, globalization attenuates the scarcity effects discussed in Chapter Two, whereby increasing skills supply reduces the return to education. Under globalization, the skill premium is determined by global demand for, and supply of, skills rather than by domestic market forces. Hence, the incentive of the elite to block education spending because of its negative scarcity effects is massively reduced under globalization. In all states, but particularly in autocracies, this reduction in supply effects should galvanize higher education spending. The second mechanism acts on the demand side of education policy. When states open up to the international economy, they are exposed to technologies from more advanced states through international competition. Since these technologies tend to be skill-biased, for example computing, they lead to an increased demand for educated workers, particularly in developing states. Chapter Five showed that doubling openness to the international economy is estimated to drive an increase in education spending of over 0.6% of GDP. However, this effect is far more pronounced in states like autocracies and developing states, where the supply and demand side mechanisms of globalization are more pronounced.

Chapter Six provided flesh to the bones of the empirical analyses of the previous three chapters by examining several case studies of the impacts of democracy and globalization on education spending. We began with the Philippines, noting that its fluctuations in regime type and trade policy over the past century have been closely correlated with outcomes in education policy. Particularly, noteworthy is the collapse of education funding under the period of marital law under Ferdinand Marcos, and the
actual insertion of a demand for education spending to reach six percent of GDP in the post-democratization constitution. We then turned to a case comparison of India and Malaysia, two states that lay ‘off the diagonal’ of open democracies and autarkic autocracies. Even in these ‘extreme’ cases we saw the expected effect of changes in trade policy on education policy with the replacement of the Indian ‘permit Raj’ by liberalization accompanying a long-awaited increase in education funding and Malaysia’s export-led development strategy leading to a massive investment in skills. Finally, we examined three states where democratic transitions and trade liberalization were distinct: Portugal, Spain and Greece. In each case we saw that democratization in the 1970s was followed by a jump in education spending which then stagnated until entry into the European Community, following which education spending again spiked upwards.

From Chapter Seven onwards we moved to the analysis of partisan preferences over education spending in the OECD. Chapter Seven focused on aggregate education spending, both in terms of campaign promises and actual policy outcomes. The formal model was extended to the analysis of political parties, noting that they face potential constraints from below, in making commitments to voters, and above, through electoral and parliamentary institutions. Empirically, we found that the latter constraint was much more effective than the former. Party rhetoric over education spending matches closely to party type and more general ideology. Where rhetoric differs from cabinet partisanship it does not appear to have any substantive effect on the actual level of education spending. At most, it appears that pre-election promises only signal to voters the party’s priorities between education spending and other forms of public goods. However, rhetoric is a strong predictor of whether minor coalition partners are likely to receive the education
ministry, indicating that education preferences matter for inter-party bargaining over cabinet portfolios. When we turned to the size of the effect of cabinet partisanship on education spending, we found that a ‘typical’ change in partisanship in the OECD would be associated with a four year change in education spending of almost one percent point of national income, a predicted effect not dissimilar to that produced by democratization. Clearly, the rise of democracy hardly ends the redistributive politics of education. However, institutional constraints appear to have a stronger effect on parties’ ability to enact their preferred levels of education spending than do voters. We saw that parliaments can constrain cabinets to a moderate degree but more, critically, that the effects of partisanship are radically different in majoritarian electoral systems compared to proportional ones. The latter electoral systems force consensus building to the degree that changes in party control of government have a negligible effect on education.

Chapter Eight moved from the analysis of aggregate education spending to partisan preferences over higher education policy. The chapter began by showing that right-wing control of government is associated with a significant tilt in education spending towards tertiary education and away from universal primary education. The logic of education targeting was spelled out in this chapter, with the typical redistributive preferences over education spending flipping when one considers selective education like universities. We examined how different configurations of university systems could be constructed through the lens of a ‘trilemma’ describing a trade-off between coverage, subsidization and public cost. We saw how the three corners of the trilemma were represented by Anglo-American, Scandinavian, and Continental systems of higher education and derived the preferences of individuals of differing income between these
three systems. Finally, we examined the empirical pattern of higher education systems across the OECD, noting that the ‘trilemma’ typology held up robustly, even within the three types of system.

The arguments explored statistically in the previous two chapters were accompanied by a set of extended case studies in Chapter Nine. We first compared the history of education policy since the early nineteenth century in the United Kingdom and Sweden. While both countries showed significant variation in regime type and partisanship across the decades, which corresponded closely to within country changes in education policy, they displayed a dramatic difference in the volatility of policy change, largely as a result of their differing electoral systems. Proportionality in Sweden forced compromise between parties over major education reforms, even during the period of Social Democratic dominance. Conversely, during just the last two decades, education spending in the United Kingdom has fluctuated by 1.5% of national income, with partisan policymaking more resembling a ‘scorched earth’ tactic than consensus. We concluded with an analysis of the higher education trilemma in the United Kingdom, Sweden, and Germany. We saw that the former two countries had both transitioned from a Continental system of higher education during the 1980s and 1990s. However, they made very different choices, with the UK moving to an Anglo-American privatized model and the Swedes establishing a high-public cost Scandinavian model. Despite the traditional image of the UK as favoring center-right policies and Sweden as preferring center-left ones, the politics of higher education expansion reversed this trend, with New Labour introducing a more progressive system of higher education funding and the Moderates supervising the expansion of higher education in Sweden. Germany in contrast to both the UK and
Sweden has not yet moved to a mass higher education system partly because the number of veto players at the state level has facilitated a poor-rich coalition against expansion. Ironically, Germany’s best chance of transition to a mass system may come from a grand coalition that overrides these veto players.

In the previous seven chapters we have thus seen ample confirmatory evidence of the redistributive theory of education developed in the formal model of this study. Given that the mechanisms within the model can be successfully extended to so many areas of education, different types of political institutions, and economic effects from taxation to globalization, the question arises as to what the model can tell us about areas of politics other than education. Put simply, what are the lessons of this study for politics at large? Three lessons stand about most boldly. Firstly, in order to clarify how political institutions affect public policies like education we need to disaggregate broad and blunt concepts like democracy and partisanship and to specify and test more precise mechanisms. Secondly, we have seen that globalization has powerful impacts on seemingly purely domestic policies like education; thus, other ‘domestic’ policies like healthcare, pensions, and marginal tax rates might also be impacted by international forces. Thirdly, the study of education suggests that we distinguish between different types of public goods, excludable and non-excludable, to more closely examine where the logic of redistributive politics replaces that of economic efficiency and market failure.

The importance of disaggregating political institutions was emphasized in Chapters Four and Seven, which explored how political institutions affect education policy at a finer grain than the kind of aggregate analysis common to studies of public spending. Many studies in political economy merely correlate democracy or government
partisanship at a national level with a spending variable of interest (Lake and Baum, 2001; Rudra and Haggard, 2005). The problem with this approach is that multiple potential theoretical mechanisms could connect a political institution as multifaceted as democracy and spending variables. For example, in Chapters Three and Four we identified several competing theories of democracy: the stability theory, the contestation theory, the monopoly theory, as well as the redistributive theory laid out in this study. In order to sift among these competing explanations to verify the precise causal mechanism produced by democratization we have to break down aggregate variables like the Polity index into the constituent elements of democracy. Similarly, as we saw in Section 4.3, not all forms of autocracy are identical. Repressive government is not synonymous with tyrannical government, a lesson as old as Aristotle’s distinctions between tyranny, aristocracy, and timarchy. Communist government, while distasteful in a variety of manners, was nonetheless not always unfriendly to the interests of the poor and in education it was positively benign. Conversely, natural resource dependent regimes care little for their human resources. Solely relying on broad aggregates like the Polity index elides these distinctions between different theories of regime type and hence can hardly move beyond declarations of general correlation.

Similarly, the analysis of partisanship and electoral institutions would benefit greatly from a more fine-toothed analytical comb. As we saw in Chapter Seven, broad aggregates of cabinet ideology are useful predictors of public spending but they neglect institutional constraints like the ideological balance within parliament or the prevalent electoral institutions, which can moderate partisanship. Simple analyses of whether socialist parties are in government (Boix, 1998; Bradley et al, 2003) as a proxy for all the
potential impacts of partisan preferences on social policy appear to be blunt instruments indeed. Instead, this study has attempted to define the particular preferences over education spending of different types of political party – unearthing counterintuitive findings like the distaste of Communist and green parties for education spending – and whether stated preferences actually match policy outcomes. Furthermore, this study has examined whether changes in education policy are reflective of changes in voter preferences or simply of switches in the control of government between different parties. This analysis helps us to distinguish whether parties are run by ‘partisan politicians’ (Persson and Tabellini, 2000) or orient towards the median voter, thus better testing the assumptions that underlie many formal models of partisan politics. Finally, this study has developed a set of models precisely defining how electoral institutions impact partisan policymaking. Many studies of electoral institutions either simply make broad correlatory statements about the relationship between electoral institutions and public spending, without specifying clear causal mechanisms (Persson and Tabellini, 2003) or rely on purely cross-sectional data which does not permit us to distinguish how electoral institutions affect partisan changes in government within any one state (Rogowski and Kayser, 2002). But electoral institutions do not just impact policy by themselves – they matter in as much as they channel existing patterns of partisanship in different ways.

The second chief lesson of this study is that globalization affects many more public policies than might superficially appear to be the case. Traditionally, political economists have examined the ‘first order’ impact of globalization on political preferences: how trade affects employment, prices and wages and how governments attempt to facilitate or block these changes. What this study shows is that globalization
also matters in how it changes the feasibility of different types of policies. We are examining not whether the skilled and unskilled are trying to block trade policy or insure themselves against it but instead how globalization, by altering the size of the relevant labor market determining wages, affects the interest of various groups in blocking education policy.

This logic, seeing globalization as altering the structure of the labor market or of product markets, could be used fruitfully to examine a variety of other seemingly domestic policies. For example, if public health policy is related to economic inequality, we might expect to see worsening public health issues in countries like China, where inequality is expanding rapidly because of trade-led growth, and for health outcomes to improve in countries like Sweden that have managed to use global trade to push towards a fairly compact high-skill economy. Similarly, changes in product markets are likely to undermine national monopolies, leading to second-order outcomes in areas like public transportation and wireless telephony (as domestic national champions are forced to compete with foreign national champions). Finally, the global mobility of not only goods and services, but labor itself, might have significant impacts on a variety of social policies including marginal tax rate convergence, pensions, asset price bubbles (as housing bubbles in one country free up resources for investment in others), and indeed in education (if states are unable to ‘capture’ the education that they provide to citizens). Scholars in the unnecessarily distinct fields of international political economy and comparative political economy would do well to think more closely about how global market forces might interact with traditionally domestic policies.
The third chief lesson of this study is its broadest. Education is commonly thought of as a public good with the potential to produce large positive externalities, provided that public funding resolves the market failures that lead to underinvestment in a private educational market. However, this classic public goods tale, where the only relevant political question is how to resolve the collective action problem efficiently, is undermined by the fundamentally redistributive nature of education. Just resolving the market failure of education is not enough to guarantee a mass education system because it might remain in the interest of the rich and already educated to block increased spending. Even when a mass education system is provided, redistributive politics will likely determine the precise mix of education arrived at – for example, if the rich are politically dominant, higher education is likely to be a larger part of the mix. Thus, the simple economic efficiency question of achieving a Pareto optimal output where the externalities from mass education are maximized is a severely limited view. Two other questions are as important. Will political groups deliberately block arriving at a Pareto optimal solution? And where on the Pareto frontier will the mix of education policy end up?

These questions demand the analysis of redistributive politics as a precursor to the question of the efficient provision of public goods. In a sense, they are similar to Krasner’s (1991) well known rejoinder to liberal institutionalists that the analysis of the efficient reduction of transaction costs and information asymmetries is secondary to the distribution of resources between players or their incentives to block the arrival of an efficient solution. Turning from education to the analysis of other public goods problems, we are likely to see the power of redistributive forces swamp efficiency concerns in other policies too. For example, the analysis of public defense typically assumes that its
benefits are equally distributed and nonexcludable. However, one could argue that the wealthy in society will be more likely to suffer predation and that the insurance premium they would have to pay on a private market would hence be significantly higher than that for the poor. Furthermore, it is quite possible that national defense could be made excludable, at least for certain regions. Thus redistributive politics may have a crucial impact in terms of defining the optimal level of military spending, which may be higher in autocratic states or those democracies with poor electoral turnout among the poor.

The issue of excludability from a potential public good like education also sets up interesting potential political coalitions like an ‘ends against the middle’ alliance. Chapter Two discussed how such a coalition could emerge and the situations under which it would be more likely. Targeted spending in terms of public goods thus implies peculiar coalitions that might undermine standard patterns of redistribution and potentially of electoral politics more generally. Thus, it would be intriguing to extend the lessons of targeted spending and ‘ends against the middle’ coalitions to other areas of social policy like healthcare and unemployment protection. Since Ross (2005) has noted that the poor often benefit little from democracy, if the middle class becomes the chief decision maker, the ‘ends against the middle’ coalition could be a powerful way of overriding this dominance of the middle class. In the case studies in Chapter Six we saw such coalitions emerging under Joseph Estrada in the Philippines and it is quite possible that populist governments elsewhere, for example Latin America, experience similar patterns emerge in education and other policies that benefit the middle class.

The study of education then provides several lessons for the study of public policy more generally. But whether these other public policies are likely to have a larger impact
on economic growth and human welfare than education is open to question. Education is a critical area of study for political economists not merely because of its intriguing analytical nature but because it has enormous potential to improve the lot of the developing world, as testified to by the recent interest in development through education propounded by international agencies like the World Bank. However, the good intentions of international institutions may be for naught if the underlying reasons for educational elitism are not rectified. Many groups have a direct interest in limiting education for quite individually justifiable reasons. It will require political and economic liberalization for the path to mass education to be cleared. Even then, education is likely to be tossed on the political tides, as it has been in the developed world, for it is a public good with deep private impacts.
### Appendix 3A: List of Countries Analyzed in Chapter Three

<table>
<thead>
<tr>
<th>Country</th>
<th>Mean Level of Public Education Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>5.49</td>
</tr>
<tr>
<td>Algeria</td>
<td>6.92</td>
</tr>
<tr>
<td>Angola</td>
<td>5.50</td>
</tr>
<tr>
<td>Argentina</td>
<td>4.00</td>
</tr>
<tr>
<td>Armenia</td>
<td>3.18</td>
</tr>
<tr>
<td>Australia</td>
<td>4.92</td>
</tr>
<tr>
<td>Austria</td>
<td>5.45</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>3.83</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1.59</td>
</tr>
<tr>
<td>Belarus</td>
<td>6.17</td>
</tr>
<tr>
<td>Belgium</td>
<td>5.16</td>
</tr>
<tr>
<td>Benin</td>
<td>2.95</td>
</tr>
<tr>
<td>Bolivia</td>
<td>3.35</td>
</tr>
<tr>
<td>Botswana</td>
<td>6.70</td>
</tr>
<tr>
<td>Brazil</td>
<td>4.51</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>5.08</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>2.26</td>
</tr>
<tr>
<td>Burundi</td>
<td>3.63</td>
</tr>
<tr>
<td>Cambodia</td>
<td>1.62</td>
</tr>
<tr>
<td>Cameroon</td>
<td>3.05</td>
</tr>
<tr>
<td>Canada</td>
<td>6.77</td>
</tr>
<tr>
<td>Chad</td>
<td>1.97</td>
</tr>
<tr>
<td>Chile</td>
<td>3.70</td>
</tr>
<tr>
<td>China</td>
<td>2.33</td>
</tr>
<tr>
<td>Colombia</td>
<td>2.94</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>4.62</td>
</tr>
<tr>
<td>Croatia</td>
<td>4.66</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>4.94</td>
</tr>
<tr>
<td>Denmark</td>
<td>7.20</td>
</tr>
<tr>
<td>Ecuador</td>
<td>2.75</td>
</tr>
<tr>
<td>El Salvador</td>
<td>2.55</td>
</tr>
<tr>
<td>Estonia</td>
<td>7.05</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>3.62</td>
</tr>
<tr>
<td>Finland</td>
<td>5.86</td>
</tr>
<tr>
<td>France</td>
<td>5.44</td>
</tr>
<tr>
<td>Gabon</td>
<td>3.24</td>
</tr>
<tr>
<td>Country</td>
<td>Value</td>
</tr>
<tr>
<td>--------------</td>
<td>-------</td>
</tr>
<tr>
<td>Georgia</td>
<td>2.26</td>
</tr>
<tr>
<td>Germany</td>
<td>4.65</td>
</tr>
<tr>
<td>Ghana</td>
<td>3.75</td>
</tr>
<tr>
<td>Greece</td>
<td>2.39</td>
</tr>
<tr>
<td>Guatemala</td>
<td>1.68</td>
</tr>
<tr>
<td>Guinea</td>
<td>1.88</td>
</tr>
<tr>
<td>Haiti</td>
<td>1.43</td>
</tr>
<tr>
<td>Honduras</td>
<td>3.59</td>
</tr>
<tr>
<td>Hungary</td>
<td>5.26</td>
</tr>
<tr>
<td>India</td>
<td>3.16</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1.46</td>
</tr>
<tr>
<td>Ireland</td>
<td>5.26</td>
</tr>
<tr>
<td>Israel</td>
<td>7.00</td>
</tr>
<tr>
<td>Italy</td>
<td>4.34</td>
</tr>
<tr>
<td>Jamaica</td>
<td>4.93</td>
</tr>
<tr>
<td>Japan</td>
<td>4.66</td>
</tr>
<tr>
<td>Jordan</td>
<td>6.07</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>3.91</td>
</tr>
<tr>
<td>Kenya</td>
<td>6.05</td>
</tr>
<tr>
<td>Kuwait</td>
<td>5.51</td>
</tr>
<tr>
<td>Latvia</td>
<td>5.75</td>
</tr>
<tr>
<td>Lebanon</td>
<td>3.24</td>
</tr>
<tr>
<td>Lesotho</td>
<td>7.30</td>
</tr>
<tr>
<td>Lithuania</td>
<td>5.33</td>
</tr>
<tr>
<td>Madagascar</td>
<td>2.75</td>
</tr>
<tr>
<td>Malawi</td>
<td>3.55</td>
</tr>
<tr>
<td>Malawi</td>
<td>3.55</td>
</tr>
<tr>
<td>Malaysia</td>
<td>5.61</td>
</tr>
<tr>
<td>Mali</td>
<td>2.96</td>
</tr>
<tr>
<td>Mauritania</td>
<td>4.53</td>
</tr>
<tr>
<td>Mauritius</td>
<td>3.96</td>
</tr>
<tr>
<td>Mexico</td>
<td>3.89</td>
</tr>
<tr>
<td>Moldova</td>
<td>7.98</td>
</tr>
<tr>
<td>Mongolia</td>
<td>7.14</td>
</tr>
<tr>
<td>Morocco</td>
<td>5.50</td>
</tr>
<tr>
<td>Mozambique</td>
<td>2.58</td>
</tr>
<tr>
<td>Namibia</td>
<td>8.84</td>
</tr>
<tr>
<td>Nepal</td>
<td>2.66</td>
</tr>
<tr>
<td>Netherlands</td>
<td>6.20</td>
</tr>
<tr>
<td>New Zealand</td>
<td>5.84</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>3.37</td>
</tr>
<tr>
<td>Niger</td>
<td>2.58</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1.13</td>
</tr>
<tr>
<td>Country</td>
<td>Value</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>Norway</td>
<td>6.65</td>
</tr>
<tr>
<td>Oman</td>
<td>3.46</td>
</tr>
<tr>
<td>Pakistan</td>
<td>2.39</td>
</tr>
<tr>
<td>Panama</td>
<td>4.69</td>
</tr>
<tr>
<td>Paraguay</td>
<td>2.51</td>
</tr>
<tr>
<td>Peru</td>
<td>3.15</td>
</tr>
<tr>
<td>Philippines</td>
<td>2.47</td>
</tr>
<tr>
<td>Poland</td>
<td>5.42</td>
</tr>
<tr>
<td>Portugal</td>
<td>3.78</td>
</tr>
<tr>
<td>Romania</td>
<td>3.36</td>
</tr>
<tr>
<td>Rwanda</td>
<td>3.31</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>6.72</td>
</tr>
<tr>
<td>Senegal</td>
<td>3.73</td>
</tr>
<tr>
<td>Singapore</td>
<td>3.49</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>2.84</td>
</tr>
<tr>
<td>Slovenia</td>
<td>5.65</td>
</tr>
<tr>
<td>South Africa</td>
<td>5.89</td>
</tr>
<tr>
<td>Spain</td>
<td>3.71</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>2.93</td>
</tr>
<tr>
<td>Sweden</td>
<td>7.41</td>
</tr>
<tr>
<td>Switzerland</td>
<td>5.03</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>9.00</td>
</tr>
<tr>
<td>Tanzania</td>
<td>2.82</td>
</tr>
<tr>
<td>Thailand</td>
<td>3.88</td>
</tr>
<tr>
<td>Togo</td>
<td>4.65</td>
</tr>
<tr>
<td>Tunisia</td>
<td>6.09</td>
</tr>
<tr>
<td>Turkey</td>
<td>2.40</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>3.94</td>
</tr>
<tr>
<td>Uganda</td>
<td>2.24</td>
</tr>
<tr>
<td>Ukraine</td>
<td>6.59</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5.17</td>
</tr>
<tr>
<td>United States</td>
<td>5.82</td>
</tr>
<tr>
<td>Uruguay</td>
<td>2.83</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>8.75</td>
</tr>
<tr>
<td>Vietnam</td>
<td>2.46</td>
</tr>
<tr>
<td>Zambia</td>
<td>3.54</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>6.62</td>
</tr>
</tbody>
</table>
Appendix 5A – Factor Price Equalization and the Stolper-Samuelson Theorem

In order to show that skill supply has a more negative effect on already skilled workers in a closed economy rather than an open economy, the Factor Price Equalization Theorem (Samuelson, 1948) is invoked. However, it is easy to confuse this effect with the better-known Stolper-Samuleson Theorem (1941), which claims that opening to trade benefits holders of domestically abundant factors and harms holders of scarce factors. It might appear then that this latter theorem counteracts the former in terms of the preferences of the skilled in developing states. Since human capital is relatively scarce vis-à-vis unskilled labor in most developing states, the skilled should be negatively affected by opening up the economy under the Stolper-Samuelson Theorem’s conditions.

Nothing in this chapter argues against this point. Rather, the key condition is not whether trade improves or worsens relative wages for a particular distribution of skills. Instead, the issue is how an exogenous opening of the economy affects the factor supply effect and thereby reduces the negative effects of moving toward a new skill distribution. Thus, I argue that exogenous opening to trade may well have a net negative impact for the skilled because of Stolper-Samuelson effects but it will also indubitably reduce the supply elasticity of skilled wages because of the expansion of the size of the potential market on which skills are sold. Hence, trade may reduce the skill premium on the one hand through relative prices, while increasing it on the other (for a given skill distribution) by lessening the supply elasticity. The net result for the skilled will thus be determined by three elements: the change in wage premium from relative prices, the slope of the skill supply profile, and the current distribution of skills in the economy.
However, the marginal cost to the already skilled of further expanding the provision of skills is always lower in an open economy than in a closed economy.

Figure A1 demonstrates this argument. Note that although opening the economy lowers the relative wage of the scarce factor it also reduces the impact of an increase in the country’s endowment of skills. The skilled wage in an open economy is lowered when the country has a scarcity of skills (that is, when the skill endowment is a lower proportion than $S^*$). This is the well-known Stolper-Samuelson effect. However, after opening the economy, because the factor supply effect asymptotes toward zero, increased skill provision has no effect on skilled wages. Hence, beyond $S^*$ the skilled wage is higher in the open economy than in the closed one (factor abundance). The reverse results hold, of course, for unskilled wages. The key message of Figure A1 is that whatever the net effects of openness on skilled wages (which depend on the slope of the closed economy supply schedule, the present skill endowment, and the difference in the intercept), the effect of increased skill provision on skilled wages is always negative in the closed economy but zero in the open economy. Hence skill provision is preferable in an open economy.
In order to develop this intuition formally, I show that under the assumptions necessary for the Stolper-Samuleson Theorem (perfect competition, full employment of factors, identical technologies, and constant returns to scale), factor returns are perfectly determined by world prices and changes in factor endowments affect the relative output of skill-intensive versus labor-intensive industries but not relative wages\textsuperscript{194}. The key logic behind the Factor Price Equalization Theorem (FPE) is that because prices are competitive they must equal marginal costs. Since marginal costs are constant, because of the assumption of constant returns to scale, we can derive isocost functions for different mixed of inputs of skilled and unskilled labor. For a given unit cost in a particular industry there are a variety of possible mixes of skilled and unskilled wages. To give an example, for an isocost of $10, an industry might employ two skilled workers at $4 each.

\textsuperscript{194} Feenstra, (2004), Chapter Two, provides an excellent guide to the interaction between the FPE theorem, the SS theorem and the Rybczynski Theorem.
plus two unskilled workers for $1 each. Given different wage prices (say $3 for skilled workers and $1 for unskilled), the same company adjusts its production mix to three skilled workers and one unskilled. Because of perfect competition, market prices must equal costs for goods – hence for any particular price there are a variety of relative wages that can hold, as above. In a world with only one good the position on the isocost curve would be derived from the relative supply of factors in a given nation. However, with two goods we have two isocost curves (a skill-intensive good and a labor-intensive good) that will cross at one single point – see Figure A2. In the figure we see the labor intensive good is good one, and the skill intensive good is good two. The only point at which these isocost / isoprice curves cross is at the equilibrium wages of $w_s^*$ and $w_u^*$. Since prices are equalized in both countries, so too are costs, and thus so too are factor wages, which are therefore not dependent on endowments.

**Figure A2: Factor Price Equalization**
Why do wages change? Changes in wages in the two good / two factor model derive entirely from price changes. Take our perfect competition assumption that:

\[ p_i = c_i(w_u, w_s) \]

We can take the total derivative of this expression to see how changes in prices affect changes in wages:

\[ dp_i = \frac{\partial c_i}{\partial w_u} dw_u + \frac{\partial c_i}{\partial w_s} dw_s \]

Note that the derivative if costs with respect to input prices are the amount of inputs it takes to produce one unit of each good (e.g. if we increase wages by one dollar per hour, the increase in the cost of one good equals the number of hours it takes to produce the good). We refer to this input requirement as \( a_{ij} \), where \( i \) indexes the good and \( j \) indexes the input (skilled or unskilled). Thus we have:

\[ dp_i = a_{iu} dw_u + a_{is} dw_s \]

Dividing by price (which equals cost) we get the familiar Jones algebra:

\[ \frac{dp_i}{p_i} = \frac{w_u a_{iu}}{c_i} \frac{dw_u}{w_u} + \frac{w_s a_{is}}{c_i} \frac{dw_s}{w_s} \text{ or } \hat{p}_i = \theta_{iu} \hat{w}_u + \theta_{is} \hat{w}_s \]

The \( \theta_{ij} \) parameters stand for the cost share of each input and thus sum to one – this in turn implies that price changes are a weighted average of wage changes. The matrix formulation of the two good, two factor model is:

\[
\begin{bmatrix} \hat{p}_1 \\ \hat{p}_2 \end{bmatrix} = \begin{bmatrix} \theta_{iu} & \theta_{2u} \\ \theta_{2u} & \theta_{2s} \end{bmatrix} \begin{bmatrix} \hat{w}_u \\ \hat{w}_s \end{bmatrix} \quad \text{which implies} \quad \begin{bmatrix} \hat{w}_u \\ \hat{w}_s \end{bmatrix} = \begin{bmatrix} \theta_{iu} & \theta_{2u} \\ \theta_{2u} & \theta_{2s} \end{bmatrix}^{-1} \begin{bmatrix} \hat{p}_1 \\ \hat{p}_2 \end{bmatrix}
\]
The solution to how wages are affected thus depends entirely on price changes and the input mixes for each industry (i.e. how skill or labor intensive they are). The solution for skilled wages is as follows:

\[
\hat{w}_s = \frac{\theta_2 s - \theta_1 s}{\theta_2 s - \theta_1 s} \hat{p}_2 - \theta_2 u \hat{p}_1 - \hat{p}_2
\]

If we assume, as in Figure A2, that good two is more skill intensive: \( \theta_2 s > \theta_1 s \), then provided that the price of good two increases relative to good one, the returns to the factor used intensively in the production of good two also increase: in this case skilled labor. *The returns to skills are entirely determined by world prices and the relative intensity of factor use in production, not by endowments.*

What effect do endowments have then? The Rybczynski Theorem suggests that the effect will only be on the relative output of each industry, rather than on wages. Similar to the Jones algebra for the Stolper-Samuelson case, the full employment conditions imply (with \( U \) being the stock of unskilled labor, \( S \) being the stock of skilled labor and \( y \) being output for each good):

\[
\begin{align*}
a_{1u} dy_1 + a_{2u} dy_2 &= dU \\
a_{1s} dy_1 + a_{2s} dy_2 &= dS \\
\frac{y_1 a_{1u}}{U} \frac{dy_1}{y_1} + \frac{y_2 a_{2u}}{U} \frac{dy_2}{y_2} &= \frac{dU}{U} \\
\frac{y_1 a_{1s}}{S} \frac{dy_1}{y_1} + \frac{y_2 a_{2s}}{S} \frac{dy_2}{y_2} &= \frac{dS}{S} \\
\lambda_{1u} \hat{y}_1 + \lambda_{2u} \hat{y}_2 &= \hat{U} \\
\lambda_{1s} \hat{y}_1 + \lambda_{2s} \hat{y}_2 &= \hat{S}
\end{align*}
\]
In this case the $\lambda_j$ are the fraction of endowment $j$ used in production of good $i$. As before, the Jones algebra can be solved to receive the following expression that determines the effects of an endowment change in $S$ (with $U$ remaining constant):

$$\hat{y}_1 = -\frac{\hat{\lambda}_{2u}}{\hat{\lambda}_{2s} - \hat{\lambda}_{2u}} \hat{S}$$

$$\hat{y}_2 = \frac{\hat{\lambda}_{3u}}{\hat{\lambda}_{3s} - \hat{\lambda}_{3u}} \hat{S}$$

Since we know that industry two is skill intensive the denominator of these equations is positive and thus an expansion of skill provision increases the output of the skill-intensive good and decreases the output of the labor-intensive good. Note, though that factor incomes remain constant because they derive purely from internationally determined prices. Thus, increased human capital investment in an open economy will lead to a shift toward skill-intensive production (e.g. computing) and away from labor-intensive production (e.g. agriculture or textiles) but wage returns to factors will remain constant.
### Appendix 5B: States in the Hiscox Kastner Dataset

<table>
<thead>
<tr>
<th>Argentina</th>
<th>Colombia</th>
<th>Haiti</th>
<th>Morocco</th>
<th>Senegal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Costa Rica</td>
<td>Honduras</td>
<td>Netherlands</td>
<td>South Africa</td>
</tr>
<tr>
<td>Austria</td>
<td>Denmark</td>
<td>India</td>
<td>New Zealand</td>
<td>Spain</td>
</tr>
<tr>
<td>Belgium</td>
<td>Ecuador</td>
<td>Indonesia</td>
<td>Nicaragua</td>
<td>Sri Lanka</td>
</tr>
<tr>
<td>Benin</td>
<td>El Salvador</td>
<td>Ireland</td>
<td>Niger</td>
<td>Sweden</td>
</tr>
<tr>
<td>Bolivia</td>
<td>Ethiopia</td>
<td>Israel</td>
<td>Nigeria</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Brazil</td>
<td>Finland</td>
<td>Italy</td>
<td>Norway</td>
<td>Thailand</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>France</td>
<td>Japan</td>
<td>Pakistan</td>
<td>Togo</td>
</tr>
<tr>
<td>Cameroon</td>
<td>Gabon</td>
<td>Jordan</td>
<td>Paraguay</td>
<td>Tunisia</td>
</tr>
<tr>
<td>Canada</td>
<td>Ghana</td>
<td>Madagascar</td>
<td>Peru</td>
<td>Turkey</td>
</tr>
<tr>
<td>Chad</td>
<td>Greece</td>
<td>Mali</td>
<td>Philippines</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>Chile</td>
<td>Guatemala</td>
<td>Mauritania</td>
<td>Portugal</td>
<td>United States</td>
</tr>
<tr>
<td>China</td>
<td>Guinea</td>
<td>Mexico</td>
<td>Saudi Arabia</td>
<td>Uruguay</td>
</tr>
</tbody>
</table>


Cox, C. B., and A. E. Dyson. 1971. The black papers on education: (Broadwick House, Broadwick St., W1V 2AH), Davis-Poynter Ltd.


Esping-Andersen, G. 1985. Politics against markets: the social democratic road to power.


Machin, S., and J. Van Reenen. 1998. TECHNOLOGY AND CHANGES IN SKILL STRUCTURE: EVIDENCE FROM SEVEN OECD COUNTRIES. Technology 1215.


Mill, J. S. 1861. Considerations on Representative Democracy: South Bend, IN: Gateway Editions.


Parsons, T. 1957. The Distribution of Power in American Society. World Politics. 10 (1).


Schleicher, Andreas. 2006. The Economics of Knowledge: Why Education is Key for Europe’s Success.


Sianesi, B and E. Leuven. 2004. PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing. Statistical Software Components s432001, Boston College Department of Economics, revised. Volume 30


Synott, J. P. 2002. Teacher unions, social movements and the politics of education in Asia: South Korea, Taiwan and the Philippines: Ashgate.


