

THE DEVELOPMENT OF EDUCATION SYSTEMS
IN ADVANCED CAPITALIST SOCIETIES

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ABSTRACT

**BENJAMIN DANFORTH: The Development of Education Systems
in Advanced Capitalist Societies.
(Under the direction of John D. Stephens)**

Although mass education has become a common feature of all advanced capitalist societies, it has not developed uniformly across these societies. Significant divergences have arisen in the types of education that these societies emphasize and in the levels of effort that they devote to promoting and improving education for all. To understand these divergences and their causes better, this dissertation comparatively analyzes two important phases in the development of mass education in more affluent societies: the pre-World War II expansion in secondary education and the postwar growth in tertiary education. For both of these phases, the dissertation argues that notable institutional differences in these societies' education systems arose from political struggles that were largely driven by distributional concerns.

To evaluate this general argument and its more specific parts, this dissertation employs a mixed-method approach combining broad statistical analysis with focused case-study analysis. For the statistical component of this approach, two new sets of cross-national data on political economy and education systems covering 17 advanced capitalist societies for the years from 1880 to 1985 are examined. In the case-study component, historical analyses of educational development in Germany, Sweden, the United Kingdom, and the United States during the nineteenth and early twentieth centuries are carried out. The combined results of these analyses show that prewar struggles over secondary education were heavily shaped by two factors: the structure of state authority over education and the strength of coordination legacies in training. It is found that variation in these two variables mostly

accounts for the emergence of different mixes of general education and vocational training at the secondary level. For the postwar phase of educational development, the results show that partisan government incumbency and constitutional veto points were key determinants of cross-national differences in the generosity, distribution, and coverage of public education systems. Among other things, it is found that right government involvement and pervasive veto points are associated with distributional arrangements in education that are skewed toward tertiary education. On the whole, these findings underscore the importance of political institutions and partisan politics in spurring the rise of distinct models of mass education.

For Emily

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TABLE OF CONTENTS

LIST OF TABLES.....	xii
LIST OF FIGURES	xiii
1 INTRODUCTION, THEORY, AND APPROACH.....	1
1.1 Theoretical Inspirations	4
1.1.1 Power Resources Theory	5
1.1.2 Varieties of Capitalism.....	7
1.1.3 Historical Institutionalism	9
1.2 Theoretical Framework.....	10
1.2.1 Prewar Period: 1880–1939	11
1.2.2 Postwar Period: 1950–1985	17
1.3 Analytical Approach.....	26
1.4 Conclusion	28
1.5 Tables and Figures	34
2 THE POLITICAL ORIGINS OF EDUCATION-TRAINING REGIMES	35
2.1 The Historical Emergence of Education-Training Regimes	37
2.2 Hypotheses	39
2.2.1 Economic Development	39
2.2.2 Political Engagement	42
2.2.3 Authority Structures and Coordination Legacies	44
2.3 Methodology	48
2.3.1 Data	48

2.3.2	Estimation	51
2.4	Results	54
2.5	Discussion.....	58
2.6	Tables and Figures	62
3	THE COEVOLUTION OF EDUCATION AND TRAINING: HISTORICAL EVIDENCE	71
3.1	Germany	73
3.2	United States	79
3.3	United Kingdom (England)	87
3.4	Sweden	94
3.5	Discussion.....	101
4	THE DISTRIBUTIONAL POLITICS OF EDUCATION IN THE POSTWAR ERA	105
4.1	Postwar Patterns of Change in Education Systems	107
4.2	Hypotheses	110
4.2.1	Political Agency.....	110
4.2.2	Political Institutions.....	114
4.2.3	Economic Development	117
4.2.4	Education-Training Regimes	119
4.3	Methodology	119
4.3.1	Data	120
4.3.2	Estimation	124
4.4	Results	126
4.5	Discussion.....	132
4.6	Tables and Figures	135
5	CONCLUSION	150
5.1	Findings	151

5.2 Implications	153
A APPENDIX A: MEASURES FOR OUTCOME VARIABLES, 1880–1939	156
A.1 Concept	157
A.2 Dimensions	159
A.3 Indicators.....	161
A.4 Vocational Training Indexes.....	161
A.4.1 Scoring.....	162
B APPENDIX B: MEASURES FOR EXPLANATORY VARIABLES, 1880–1939.....	166
C APPENDIX C: MEASURES FOR ALL VARIABLES, 1950–1985	170

LIST OF TABLES

1.1	Historical Underpinnings of Education-Training Regimes, circa 1900	34
2.1	Institutional Development of Education and Training at the Secondary Level in Early Developing and Democratizing Societies, 1880–1935	63
2.2	Hypothesized Effects of Explanatory Variables on Secondary Education	64
2.3	Measure Selection and Summary Statistics for Explanatory Variables Used in Analyses of Secondary Education	65
2.4	Determinants of Institutional Development of Education and Training, 1880–1939	66
4.1	Enrollment Rates by Educational Level in Advanced Capitalist Societies, 1950–1985	135
4.2	Public Expenditures on Education in Advanced Capitalist Societies, 1950–1985	136
4.3	Public Expenditures per Student by Educational Level in Advanced Capitalist Societies, 1960–1985	137
4.4	Hypothesized Effects of Explanatory Variables on Education Systems	138
4.5	Measure Selection and Summary Statistics for Explanatory Variables	139
4.6	Determinants of Public Expenditures on Education, 1950–1985	140
4.7	Determinants of the Distribution of Public Expenditures on Education, 1950–1985	141
4.8	Determinants of Public Expenditures per Student by Educational Level, 1950–1985	142
4.9	Determinants of Enrollment Rates by Educational Level, 1950–1985	143
A.1	Scoring Scheme for Firm-Based Vocational Training	164
A.2	Scoring Scheme for School-Based Vocational Training	165
B.1	Measures for Explanatory Variables, 1880–1939	166
C.1	Measures for All Variables, 1950–1985	170

LIST OF FIGURES

2.1 Comparative Development of General Education at the Secondary Level, 1880–1939	62
2.2 Marginal Effect of Federalism on Firm-Based Vocational Training	67
2.3 Marginal Effect of Federalism on School-Based Vocational Training	68
2.4 Marginal Effect of Unitary System on School-Based Vocational Training	69
2.5 Marginal Effect of Federalism on General Education	70
4.1 Relative Effects of Explanatory Variables on Public Expenditures on Education	144
4.2 Relative Effects of Explanatory Variables on Tertiary Share of Public Expenditures on Education.....	145
4.3 Relative Effects of Explanatory Variables on Public Expenditures Per Student at Preprimary, Primary, and Secondary Levels.....	146
4.4 Relative Effects of Explanatory Variables on Public Expenditures Per Student at Tertiary Level	147
4.5 Relative Effects of Explanatory Variables on Enrollment Rate at Preprimary, Primary, and Secondary Levels	148
4.6 Relative Effects of Explanatory Variables on Enrollment Rate at Tertiary Level	149

1 INTRODUCTION, THEORY, AND APPROACH

After it was first made compulsory in eighteenth-century Prussia by Frederick the Great, education has grown to become one of the most essential functions performed by modern states. Although it only applied to elementary schooling in one country and was loosely enforced at first, this seminal decision set in motion a process of expansion in public education that still has not reached its zenith. Across the more affluent regions of Europe and North America (and later Oceania), Prussia's educational model inspired actors of many different ideological stripes to launch their own public education initiatives, and, consequently, systems of mass education gradually appeared in these societies as well. Once mass education at the primary level had taken hold in these parts of the world by the late nineteenth century – the United Kingdom was a surprisingly late adopter – it subsequently spread to other educational levels, particularly the secondary and tertiary levels.¹ Now, at the beginning of the twenty-first century, many of these societies provide their citizens with educational opportunities across the entire life course, ranging from early childhood education to continuing adulthood education. And as knowledge becomes a more central part of modern economies, the pervasiveness of state-sponsored mass education is likely to continue to increase.

While this long upward trend in the development of mass education is remarkable, it has not impacted all advanced capitalist societies to the same degree or in the same manner. From a broad perspective, it is clear that some of these societies now devote significantly more of their total resources to education than their peers do. Moreover, a

¹ This dissertation is primarily concerned with educational institutions. Therefore, terms like “educational levels” and “educational outcomes” are used in reference to institutions rather than individuals.

closer look at the composition of education in these societies reveals that some societies offer their members both general education and vocational training while other societies focus almost exclusively on the provision of general education. Likewise, a comparison of public investments in education by level (i.e. primary, secondary, tertiary, etc.) shows that some societies prioritize higher levels of education over lower levels while other societies adhere to a more balanced distribution of public resources. When these three patterns are considered together, it is evident that affluent societies have followed several different paths in developing their education systems, and yet little is known about key aspects of these long-run divergences. Why have the education systems in affluent societies evolved so differently? How have political factors influenced the trajectories of these systems?

This dissertation contends that these broad variations in education systems can mostly be attributed to cross-national differences in collective political engagement tied to class-based politics, constitutional structures, and coordination legacies. A central theme of the arguments made in this dissertation is that education has been the object of struggles infused with class tensions ever since it became a state function and was deemed a national priority. Although the origins of these struggles over education predate the rise of socialism, they have long been waged by actors representing different socioeconomic strata. In the earlier phases of these struggles, liberal reformers and conservative elites fought over the development of mass education at the primary and secondary levels. It is only in more recent phases that working-class movements and left parties have led the charge for expansions and improvements in mass education. Another prominent theme found in this dissertation is that political institutions have strongly shaped these struggles over education and their impact on education systems. The constitutional structures of modern states and the enduring legacies of old economic orders have been especially important in determining the opportunities available to proponents and opponents of educational change. In struggles over secondary education, these factors have heavily influenced the nature and success of

elite strategies to manage pressures for educational expansion. Similarly, in broad conflicts over educational resources, constitutional structures have strengthened the political position of higher education compared to other forms of education. All in all, the arguments advanced by this dissertation underscore the importance of political factors in explaining long-term developments in education systems.

To evaluate these arguments, this dissertation uses a mixed-method approach to analyze a wide range of cross-national data covering 17 economically advanced societies and the years from the early 1800s to 1985. In its investigation of pre-World War II developments in secondary education, the dissertation combines broad statistical analysis with focused case-study analysis to examine the roles of constitutional structures and coordination legacies in generating different institutional mixes of general education and vocational training. In its study of post-World War II changes in education systems, the dissertation employs extensive quantitative analysis to explore the role of political partisanship and constitutional structures in shaping the distributional arrangements found in these education systems. Both of these studies make use of new data gathered and assembled for this dissertation. For the prewar study, the quantitative data come from a new political economy dataset covering the six decades leading up to World War II, and the qualitative data are drawn from an array of primary and secondary sources. For the postwar era, several new and extended data series measuring the size and structure of education systems are analyzed. Together, these two studies provide a sweeping view of the changing educational landscape in the more affluent parts of the world.

The purpose of this opening chapter is to lay out the theoretical and analytical frameworks that guide the rest of the dissertation. With the aim in mind, the chapter proceeds in four parts. First, it discusses the three theoretical perspectives that have served as sources of inspirations for this multi-part comparative inquiry. Second, it identifies the core arguments advanced by this dissertation and discusses their underlying logics. Third, it provides an

overview of the mixed-method approach used to examine empirical differences in education systems and describes the process used in selecting cases for these analyses. Finally, the chapter concludes with a summary of the dissertation's main contributions and its remaining chapters.

1.1 Theoretical Inspirations

Comparative research on the development of political economies has produced a number of rich lines of social inquiry, but they have seldom been applied to education. Scholarly work on social policy in modern political economies has often avoided issues involving education because education policy does not neatly fit the standard mold of social policy. First of all, the initial establishment of public education occurred long before the creation of prototypic social policies, such as sickness insurance and old-age pensions, which only started to appear in the late nineteenth century. Moreover, education serves many different purposes, some of which fall outside the narrow conceptualization of “welfare” frequently used to distinguish social policy from other forms of public policy.² Although these and other distinctions have led some to deem education policy as something distinct from social policy (e.g. Wilensky 1975, 3–7), others have argued that there is less cause for this differentiation (e.g. Castles 1989, 431–432). As T. H. Marshall and others have pointed out, if one uses the concept of social rights to delineate the bounds of social policy, then education policy should be considered a form of social policy (Marhsall 1950; see also Stephens 2010).

In thinking about the emergence of distinct education systems, this dissertation adopts the view that education policy is a type of social policy and that it has real distributional consequences for societies. With these points in mind, this dissertation draws on three lines of inquiry from work on comparative social policy to help elucidate the political origins of the long-run divergences in education systems observed in advanced capitalist societies.

² For example, the use of education to increase social cohesion and human capital does not immediately improve the material wellbeing or “welfare” of students.

The first is power resources theory, which recognizes that competing class-based interests have varied capacities to shape policy outcomes, particularly when matters related to social policy are involved. The second, varieties of capitalism, emphasizes the importance of complementarities between social policy and labor markets in sustaining broad political economic arrangements. The third, historical institutionalism highlights the many ways in which political institutions alter and absorb movements in social policy over varying time horizons.

1.1.1 Power Resources Theory

In explaining cross-national differences in political economies, particularly in their welfare components, power resources theory has become a widely used approach. This theoretical perspective holds that social policy largely reflects the distribution of power among competing forces in the civil and political spheres of society. With its emphasis on class-based politics, this approach frames competition over economic and social policy as a struggle between lower-class groups, particularly organized labor and left parties, and their upper-class counterparts, namely employer organizations and center and right parties (Esping-Andersen 1990; Huber and Stephens 2001; Korpi 1980, 1983; Stephens 1979). The relative power of these two sides are derived from different sources: the power of the left forces is based on their capacity to organize the working and lower-middle classes while the power of the center and right forces is tied to their ability to amass physical and financial resources from the upper-middle and upper classes. In the end, the side that accumulates and maintains the larger share of power resources is expected to exert principal control over the direction of social policy in a given society.

A focus on the allocation of power among class-based groups can shed some light on the origins of modern education systems and their differences. During the nineteenth century, when political rights remained highly restricted in most societies, right forces enjoyed

significant advantages in the competition for political power and retained substantial control over the formulation of public policy. Given their strong ties to the upper echelons of society, these forces had a vested interest in preserving institutions, like those in education, that supported and reproduced existing systems of social stratification (Lindert 2004, 100–101; Ringer 1979, 12–22). With the progression of industrialization, however, new economic and social conditions undermined the conservative order endorsed by right forces, particularly as an increasingly large and radical working class made its entrance on to the political scene. Education reform was not initially a top priority for left movements that arose with the working class, but the movements' strengthening presence elevated issues of democratic citizenship, human capital, and social control, all of which related to education. Eventually, by the mid-twentieth century, these left forces did assume a more prominent role in educational politics, and the balance of power between the left and right became an important factor in the development of education policy.

While class struggles have impacted many aspects of educational reform, they alone cannot explain the divergent paths taken by affluent societies in developing their education systems. For instance, despite initially having similar education systems and facing similar reform pressures, the conservative-led governments of late-nineteenth-century Germany and Sweden took very different approaches in developing their secondary education systems. Whereas German conservatives chose to revive old institutions of vocational training, the Swedish conservatives were slow to implement any major policy changes. Furthermore, in this period of history, liberal forces were often the main challengers to conservative elites, particularly on matters concerning education. Although liberal groups were not firmly associated with the lower classes, moderate liberals were usually quite sympathetic to the basic needs of the impoverished masses. Viewing universal education as an antidote to many social ills and a requirement for robust democratic participation, these progressive liberals often became leaders or supporters of movements to expand and

desegregate public education. Therefore, in defending a restrictive, class-based education system, conservative elites had to deal with challenges from both radical liberal forces and budding leftist forces.

1.1.2 Varieties of Capitalism

The varieties of capitalism (VoC) approach offers a more functionalist logic for explaining the development of cross-national differences in the organization of modern political economies. According to this theoretical perspective, social policy can serve as an important tool for developing and maintaining long-term commitments between economic actors in the labor market, particularly industrial firms and skilled labor. A central premise of this approach is that businesses and labor face a number of coordination risks that favor the development of institutions and policies, including social policies, that facilitate and support informational exchange and economic collaboration (Hall and Soskice 2001). The need for coordination is especially strong when industrial firms pursue production strategies requiring large pools of labor endowed with very specific skills. Evidence of this coordinative logic is most visible in the German economy and other coordinated market economies (CMEs), where firms and labor, backed by generous social policies, have established durable communication and training networks that facilitate intensive skill development among workers. By contrast, in liberal market economies (LMEs), such as the American economy, meager social policies have encouraged firms and labor to rely on market forces to regulate the labor market. In these environments, the persistence of coordination risks supports the extensive development of highly transferable general skills rather than firm-based specific skills. In outlining these distinctions between LMEs and CMEs, the VoC approach draws attention to how the interplay of political and economic arrangements, such as social policies and production strategies, can foster the development of complementary institutions and practices across different spheres of society.

Although the VoC perspective is generally used to understand contemporary patterns in

skill production, its underlying logic has relevance for explaining the emergence and endurance of different institutional configurations in education. In the preindustrial economies of Europe, state-sanctioned guilds played a central role in managing labor markets through the supply of skills. Even after governments, under the sway of market liberalism, abolished most of their privileges and monopolies during early phases of industrialization, guilds continued to have lasting effects on labor markets, particularly in the coordination of training (Iversen and Soskice 2009; Thelen 2004). When public and private actors later sought to establish modern institutions of vocational training, these lingering arrangements proved to be a critical asset in making durable systems. In the United Kingdom and the Anglo-settler countries, the weakness or absence of guild legacies posed a continual obstacle to governments seeking to impose training arrangements that required substantial cooperation from market actors. On the whole, the presence or absence of existing complementarities in the labor market strongly bounded the potential paths of education systems, particularly in the development of training institutions.

The simple logic of the VoC approach may offer some insight into the ultimate consolidation of distinct education models, but it is less capable of elucidating the political origins of these models. The theoretical emphasis on skill specificity in managing relations between businesses, workers, and state actors leaves little space for politically motivated change and innovation, yet history shows that these relations and the institutions that support them have been strongly shaped by factors other than functional needs. Although the production of skills has been an important driver of education policy (Boix 1997, 1998; Iversen and Stephens 2008), concerns about social order and status have also broadly impacted the course of this policy area (Meyer 1977; Ringer 1979). The initial establishment of mass education was, for instance, as much about reinforcing social control as it was about edifying the peasantry. Conflicts over the roles and objectives of education have been a prominent feature of modern politics, so it is not unreasonable to assume that political

forces have been instrumental in guiding the development of education systems.

1.1.3 Historical Institutionalism

As an approach to understanding the origins and evolution of political economies, historical institutionalism is concerned with both institutional structures and institutional change. In examining institutional structures, this theoretical perspective stresses that the design and makeup of states and markets can dramatically shape outcomes in social policy (Immergut 1992; Skocpol 1992; Weir, Orloff, and Skocpol 1988; Iversen and Soskice 2006). In this vein, historical institutionalism has called attention to the role of constitutional structures in creating veto points that heavily skew the power of different political actors and interest groups and thus alter the potential for broad policy change (Hicks and Swank 1992; Huber, Ragin, and Stephens 1993; Huber and Stephens 2001; Immergut 1990, 1992). Recognizing that institutions themselves are products of social forces, historical institutionalism has also looked closely at the catalysts and processes of institutional change. The notions of timing and sequencing figure prominently in this line of research, and significant attention is paid to concepts like historical contingency and path dependence (Pierson 2000, 2004). One important insight from this historical institutionalist work is the idea of punctuated equilibrium, which emphasizes the importance of political agency at critical junctures in producing dramatic and enduring changes in institutions. This logic has often been used to explain long-term developments in political economy and social policy.

The notion that institutions powerfully influence political opportunities and policy outcomes is fully applicable to educational politics. At various times in the nineteenth century, Germany, France, and the United States each held the mantle of educational leader at one point, and much of their success probably lies with the specific layout of their constitutional structures (Goldin 1999, 2001; Goldin and Katz 2009; Lindert 2004, 104–127). In all three of these countries, constitutional clauses or legal statutes guaranteed (temporarily in the case of France) a significant degree of local control over general education at the primary

level, giving proponents of educational expansion many opportunities to move their cause forward.³ Under such decentralized systems of educational control, barriers to reform and growth in one area did not inhibit, but perhaps encouraged, expansionary efforts in other areas. Decentralized authority is often seen as barrier to the development and implementation of top-down social policies, but it can have a protective effect in situations where social policy is cultivated from the bottom up. The notable divergence in the education and training profiles of education systems around the beginning of the twentieth century is also consistent with the concept of punctuated equilibrium. Prior to this point in history, public efforts in mass education were largely limited to primary education in common schools. As a consequence, despite some differences in their quality and coverage, early systems of mass education exhibited low variation in their institutional profiles. In the decades leading up to the onset of the twentieth century, however, the economic and social arrangements underpinning these early systems started to fracture, creating opportunities for profound and broad educational change. At this critical juncture, the choices made by political actors on education policy had long-lasting effects on the paths of education systems.

1.2 Theoretical Framework

Incorporating elements of these three theoretical perspectives, this section presents the two-part theoretical framework employed in this dissertation. Each part of this framework deals with a different historical phase in the evolution of education systems in advanced capitalist societies: the first part focuses on the rise of different models of secondary education during the prewar period from 1880 to 1939 while the second part addresses the development of distinct distributional arrangements in education during the postwar period

³ Although France is often viewed as the epitome of a centralized state, the French national government did loosen its control over primary education for a time in the nineteenth century. With the passage of the Guizot Law of 1833, responsibility for the organization and financing of elementary schools was transferred from the national government to local communes. This transfer of authority was further enhanced through the law of 10 April 1867, which granted communes complete freedom in raising taxes for their schools. As a result of these legal changes, there was substantial yet uneven growth in the public provision of primary education in France, particularly during the 1870s. Yet, this moderate level of local control did not last long, as the central state reasserted much of its authority over primary education during the 1880s (see Lindert 2004, 110–113).

from 1950 to 1985. The explanations developed in each part are evaluated in later chapters of the dissertation.

1.2.1 Prewar Period: 1880–1939

Existing accounts for the emergence of modern education systems have largely discounted the high degree to which the histories of general education and vocational training are intertwined. In examining the evolution of education systems in advanced capitalist societies, it has become common practice in political analyses to focus on either general education or vocational training without paying much regard to the other. For the most part, comparative analyses of educational expansion have restricted their attention to aspects of the former, general education. Older contributions to this research program, for instance, focus almost exclusively on early patterns of institutional growth in general education (e.g., Archer 1984; Green 1990; Heidenheimer 1974, 1981; Ringer 1979). This tendency is also seen in a more recent batch of comparative studies looking at the development of postwar education systems (e.g., Ansell 2008a,b; Busemeyer 2007, 2009; Castles 1989, 1998), though some small efforts have been made to incorporate vocational education (e.g., Ansell 2010). Separate inquiries into the origins and evolution of vocational training have only appeared fairly recently (e.g., Busemeyer and Trampusch 2012; Thelen 2004; Trampusch 2010), and they have limited their attention to small subset of affluent societies. While these studies have succeeded in raising the profile of vocational training in scholarly discussions of education systems, they have not challenged the strong division made between these two basic forms of education. In fact, in emphasizing the distinct skills produced by general education and vocational training, these studies have helped to reinforce the perception that general education and vocation training are fundamentally distinct and share few if any connections.

One of the central aims of this dissertation is to challenge this perception by analyzing the early rise of modern education and training systems together. Breaking with prior

research on educational development, this dissertation contends that these systems have overlapping roots and that these roots lie in class-based politics. If the core institutions of general education and vocational training have shared origins, then tracing the rise of one set of institutions requires examining the genesis of the other set. In looking at both forms of education, this dissertation argues that cross-national differences in the institutional mixes of general education and vocational training originated in nineteenth-century political struggles heavily infused with class tensions and strongly shaped by constitutional structures and coordination legacies. As economic and social changes brought by high industrialization accentuated the need for richer forms of mass education beyond basic schooling, conservative elites across the economically advanced world faced a common dilemma: how could the overall standard of mass education be raised without undermining the privileged position of elite education? Although this dilemma was primarily centered on general education, vocational training emerged as a promising instrument for reconciling the two competing demands captured by the dilemma. As will be elaborated below in a theoretical manner, promoting vocational training on a mass scale constitutes one approach to addressing the need for more extensive education while preserving the integrity of existing social structures. This dissertation claims that the desirability and viability of this strategy as an elite response to the pressures for educational expansion hinged on two essential factors: the degree to which state authority over general education was decentralized and the extent to which traditions of coordinated vocational training existed. The interaction of these two factors ultimately determined the trajectories that affluent societies followed in developing their secondary education institutions.

Before discussing the logic of this argument in more detail, it is first necessary to specify a few key assumptions.

First, it is assumed in this argument that conservative elites have the capacity to stall or block policy changes initiated at the central level of government. Conservative elites

have this power because limited democracy and divided power (e.g., bicameralism) at the national level ensures that they are overrepresented in central government.

Second, it is assumed that divisions in authority over education and training are, for the most part, constitutionally defined. As elites and reformers compete for control over education policy, the authority structures established by constitutions heavily shapes the strategies each side pursues. In particular, these authority structures determine whether conservative elites, with their significant power at the political center, can easily intervene in decision-making at the political periphery.

Third, it is assumed that policy developments in secondary education unfolds in two stages. In the first stage, conservative elites choose a policy response to exogenous pressures for educational expansions at the secondary level. Then, in the second stage, institutional circumstances determine whether the selected policy response succeeds and whether it generates unintended consequences. Constitutionally defined authority structures for general education play a central role in the first stage while legacies of non-market coordination in vocational training figure prominently in the second stage.

When conservative elites are confronted with mounting pressures for educational expansion, the level of dispersion in educational governance plays a central role in shaping their political responses. To begin with, the amount of dispersion strongly conditions the threat of change to existing institutions of general education if conservative forces do not react to rising popular demands for extended mass education. With conservative elites well entrenched in central governments, the extensive decentralization of authority over education creates openings for reform that may run counter to the conservative elites' educational agenda. In this decentralized authority environment, more democratic and progressive regions and localities can move forward on their own with changes to general education that open and expand it for the lower strata of society. By contrast, if authority over education

is strongly centralized, then political actors at lower levels have few opportunities to implement reforms that undercut the educational objectives of conservative elites at the top level. In other words, there is less room in this centralized authority environment for regions and localities to expand and reform general education. On the whole, decentralized authority over education policy is more conducive to democratizing expansion and reform efforts than centralized authority is.

Besides affecting the potential for bottom-up innovation and expansion, the extent to which educational governance is dispersed also powerfully shapes the capacity of conservative elites to exert top-down control over institutions of general education. The thorough decentralization of authority hinders conservative representatives from using direct interventions in education policy-making as a reliable means to advance and protect their educational agenda. Where authority over education policy is highly decentralized, top-down operations are likely to be ineffective in both interrupting progressive reforms and propagating conservative reforms among subnational units. Conversely, the firm consolidation of authority over education policy gives conservative elites meaningful powers to guard and enhance social restrictions and segregation in general education. When conservative elites have direct control or serious sway over national policy-making, they can cripple, block, and delay policy reforms that challenged their educational vision when the central government has eminent authority over education policy. At the same time, under these conditions, conservative actors can draw on a wide range of state powers to implement their own reforms and compel others to respect them. All in all, education systems based on dispersed governance limit the capacity of conservative elites to set the course and pace of educational expansion and thus maintain their educational advantages.

With extensive decentralization in educational authority making it both imperative and difficult for conservative forces to assert control over education policy, the promotion of vocational training becomes an important tool in steering the development of education

systems. In contrast to general education, vocational training regularly falls under the jurisdiction of central governments because of its prevailing ties to industry and commerce. This centralized authority provides conservative elites with meaningful opportunities to establish and direct institutions of vocational training while keeping political resistance to these reforms to a minimum. As alluded to above, conservative actors are likely to exploit these opportunities when decentralized authority makes the risks of inaction and the barriers to action in the area of general education high. From the elites' perspective, the expansion of vocational training is preferable to the extension of general training because training imparts less status than education. A broad shift toward vocational training also satisfies the twin conservative objectives of improving the economic productivity of the lower classes while keeping down the costs of such improvements to the state. With its emphasis on applied learning and practical skills, vocational training provides obvious benefits in terms of labor productivity. At the same time, the expenses associated with such training can often be shifted to participating non-state actors, particularly when the training takes the form of firm-based apprenticeships.

Although conservative forces use it as a strategy to maintain social barriers in education, the advancement of vocational training might also be pursued by mass-oriented reformers as a means to compensate for these social barriers. If the centralization of authority gives conservative elites unassailable control over public education, then competing forces have few opportunities to effect change in this policy area via the state. Consequently, to meet growing demands for additional education, these actors are compelled to seek educational solutions outside of the state. The solutions they devise are typically centered on vocational training because this form of education can generate immediate returns through higher productivity and its costs can be dispersed among students, firms, and other involved parties.

Yet, given their remedial objectives, these solutions also tended to incorporate many elements of general education, causing some of the distinctions between training and education to blur. Moreover, the responses are likely to appear as school-based programs unless economic and legal conditions are particularly favorable for the expansion of apprenticeships. As these independent initiatives develop a record of success, they are eventually appropriated by states and become important elements of public education. This process of increased state involvement is likely to coincide with the weakening of the conservative elites' grip on centralized authority.

Regardless of their origins, modern institutions of vocational training are only likely to take hold in settings where traditions of non-market coordination in training are strong. Vocational training is only attractive to workers and firms if there are clear and positive expectations about the benefits and standards of such training. More specifically, workers need to know that the completion of training will lead to gainful employment in their selected vocations and firms require assurances that the provision of training will endow workers with genuine and relevant skills. Moreover, when firms and workers are asked to help finance and manage institutions of vocational training, even stronger guarantees are needed because there will be heightened concerns about cheating – workers fear being exploited by their employers and firms fear having their trained labor be poached. Overcoming these suspicions and fostering positive expectations about training requires extensive coordination, both in the sharing of information and the policing of actions, between workers and firms and between firms themselves. Building these coordinative mechanisms requires substantial investments of time and energy from many actors, most of which reside outside of the state. On the one hand, this means that the barriers to establishing new coordinative mechanisms are high and that the adoption of vocational training cannot easily be imposed in uncoordinated environments. On the other hand, this implies that new institutions of

vocational training face fewer issues of acceptance when coordinative practices already exist. These traditions of coordination can come from past systems of guild-based vocational training or prior experiences with state-sponsored vocational education.

Joining these lines of reasoning on the dispersion of authority over education and the prevalence of coordination in training leads to a rather simple way of parsing out discrete education-training regimes (see Table 1). A high dispersion of educational authority and a strong legacy of coordinated training tends to produce education systems with dualized programs of general education and apprenticeship-focused programs of vocational training at the secondary level. The combination of high dispersion and weak legacies tends to engender education systems that feature extensive general programs and failed vocational programs in secondary education. A low dispersion of educational authority and strong legacies of coordinated training typically leads to education systems with dualized programs of general education and school-based programs of vocational training at the secondary level. Low dispersion coupled with weak legacies tends to produce education systems with dualized programs of general education and failed programs of vocational training. In terms of expansion, decentralized systems usually exhibit more growth in their areas of educational emphasis than centralized systems do.

1.2.2 Postwar Period: 1950–1985

Besides overlooking the important linkages between general education and vocational training in the development of education systems, existing research has also fallen short in elucidating the distributional politics that underpin these systems. Although education systems have increasingly been studied as components of welfare states, it remains unclear whether the political logics used to explain the development of most forms of social policy also apply to education. Whereas some studies of the effects of partisanship on public expenditures on education have found that conventional theories of left-right politics do explain cross-national differences in the generosity of education, others have reached

opposite conclusions

(e.g., Castles 1998; Busemeyer 2007; Iversen and Stephens 2008; Huber and Stephens 2014). Similarly, it remains an unsettled question as to how political institutions fit into this theoretical context and whether they account for some of the distinct distributional patterns observed among modern education systems. Although there is good reason to believe that institutional factors like territorial decentralization and veto points do matter, the few studies to consider them have produced mixed findings (e.g., Cameron and Hofferbert 1974; Castles 1998; Busemeyer 2007). On the whole, it is clear that many gaps remain in the limited research that has been done on the distributional aspects of education politics.

With the aim of filling in these lacunas, this dissertation reexamines the roles of partisan politics and constitutional structures in shaping the development of education systems in the postwar era. To help untangle the complex relationships between these political factors and institutional outcomes, this dissertation considers three dimensions of education systems: generosity, distribution, and coverage. In looking at these dimensions, this dissertation does not simply focus on institutional changes in the aggregate, but also explores how education has evolved at different levels. Using this more comprehensive approach, this dissertation contends that certain elements of partisan politics and constitutional structures matter more depending on which dimension and which level are considered. In particular, it is argued that left government incumbency is the main political determinant of an education system's generosity and coverage while right government incumbency and constitutional veto points are the key determinants of an education system's distributional features. Before this argument is further elaborated, however, it is first necessary to define the objects and scope of the dissertation in greater detail.

Recognizing that education systems develop in complex ways, this dissertation approaches these systems from several different angles. In particular, the analyses compare education systems along three different dimensions – generosity, distribution, and coverage

– and at two different levels – an aggregate of the preprimary, primary, and secondary (PPS) levels and the tertiary level. Generosity and coverage are two dimensions that regularly appear in cross-national comparisons of social policy and are straightforward to understand: the former represents the quality of a given social benefit or service and coverage captures the degree to which this benefit or service reaches a relevant population. Distribution is more ambiguous as a dimension for comparison, but in this dissertation it refers to the way in which resources are shared among different parts of an education system – in this case, the lower and higher levels of formal education. Given that access to these levels has varied significantly throughout history – with the higher levels being less accessible and more elite oriented than the lower levels – an examination of resource allocations across lower and higher education can shed light on the distributional aspects of education systems and highlight differences between them. The boundary between secondary and tertiary education is deemed important in this dissertation because the drive for mass education started to shift its focus from the secondary level to the tertiary level in all rich countries during the postwar era.

This dissertation closely examines the initial four decades after the conclusion of World War II because they constitute a critical period in the formation of modern education systems. Although this period of educational development has not been extensively studied using comparative approaches, existing research and data do suggest that this period featured significant growth and change in the education systems of affluent countries (Ansell 2010; Castles 1989; Huber and Stephens 2014). It is also well established that this early postwar period was a formative phase in the development of advanced welfare states and states in general (Castles 1998; Huber and Stephens 2001), of which education systems are important parts. Moreover, prior research has shown that the welfare state politics of this expansionary period were markedly different from those of the retrenchment and recalibration period that followed (Pierson 1996, 2001; Huber and Stephens 2014). Taken together,

these points make it clear that the early postwar period represents an important stage in the evolution of education systems and that it should be examined on its own.

To explain cross-national difference in educational generosity, distribution, and coverage for this early postwar period, this dissertation emphasizes the role of class-based partisan competition over education policy. Drawing heavily on power resources theory, this dissertation argues that the partisan coloring of national governments over the long run has a strong effect on the development of each of these three educational dimensions. The partisan forces that matter most in this context are those that have dominated postwar politics in most affluent countries, namely left parties, Christian democratic parties, and right parties.⁴ Each of these broad party families draws its power from a different set of classes: left parties are rooted in working and lower-middle classes, right parties are based in the upper-middle and upper classes, and Christian democratic parties are tied to elements of all classes.⁵ Besides serving as the main sources of partisan power, these classes, with their distinct interests, influence the ideologies and positions of the three party families. Assuming that these class-party ties are firm, political competition over the nature and scope of public education should exhibit a powerful class dynamic.

Using this partisan framework, this dissertation contends that left parties are the strongest proponents of generous education systems while right parties are the weakest.

Left parties seek to improve the socioeconomic standing of their working- and middle-class constituents, and they view education as an important instrument in achieving this goal. To maximize the number and quality of educational opportunities available to the

⁴ Left parties have regularly been identified as key drivers of social policy development (Brady, Beckfield, and Seeleib-Kaiser 2005; Hicks 1999; Huber and Stephens 2001; Korpi 2003). Christian democratic parties are also frequently considered in historical analyses of social policy because they have been shown to play a distinctive role in shaping social policy (Huber, Ragin, and Stephens 1993; Kalyvas 1996; Van Kersbergen 1995). Right parties have not been examined as much as the other two party families, but recent research suggests that right parties impact the development of social policy in distinctive ways (e.g., Allan and Scruggs 2004; Brady and Lee 2014; Brady, Beckfield, and Seeleib-Kaiser 2005; Castles 2004).

⁵ For a more detailed discussion of the class bases of these party families, see Huber and Stephens 2001: 17-19.

lower classes, left parties favor high levels of public investment on all levels of education – from preprimary education up to tertiary education and beyond. Right parties, however, are generally opposed to broad increases in public spending on education, particularly at the lower levels of education. Although right parties do not wish to see publicly financed education for the masses entirely eliminated, they do support the wide use of targeted funding schemes and private funding sources in education. Christian democratic parties, with their cross-class bases of support, have a position that lies in between these two extremes. While they do not support, as left parties do, the use of education to break down existing social orders, Christian democratic parties are sympathetic to the notion that a good basic education is essential for sustained self-sufficiency. Consequently, Christian democratic parties favor modest levels of public spending on education and oppose efforts to undercut mass education at the lower levels.

In terms of the relative distribution of public resources across different levels of education, this dissertation argues that left parties maintain a mostly balanced approach while right parties prioritize the tertiary level over lower levels. With the aim of eliminating class-based disparities in educational attainment, left parties push for highly generous and accessible educational opportunities across the entire life course – from early childhood (preschool) to late adulthood (continuing education). In this all-encompassing arrangement advocated by left parties, public resources are spread across all levels of education to help facilitate the progression of more students to higher levels. By contrast, right parties, with their strong ties to the upper classes, promote distributional arrangements in education that enhances the position of elites relative to the masses. Given the historically elite nature of higher education, right-supported arrangements shift public resources away from the lower levels toward the tertiary level. This tertiary skew not only makes higher education more generous, but also more exclusive, as there are fewer public resources available to help students progress through the lower levels. Christian democratic parties are also inclined to

support an arrangement that gives relatively more resources to higher education than lower education, but to a lesser degree than their right counterparts. Although they accept social stratification in education as a natural feature of human society, Christian democratic parties are reluctant to back actions that substantially exacerbate social disparities or hurt the lower classes.

Turning to the final dimension, this dissertation contends that left parties strongly support expansions in the coverage of education at all levels while right and Christian democratic parties generally do not. As part of their efforts to improve educational outcomes for the working- and middle-class masses, left parties strive to increase the number of educational opportunities available to these masses. In their push to broaden the coverage of education systems, left parties do not limit their attention to any one level. Instead, they seek to transform all levels of education, including tertiary education, into mass institutions that are basically open to all. Right and Christian democratic parties, on the other hand, are much less enthusiastic about further increasing the coverage of education systems, particularly at higher levels. Neither of these party families contests the idea that the masses have a right to public education, but they do not agree with the notion that this right extends to all levels of education. Instead, right and Christian democratic parties favor restricting mass education to the two forms that are typically compulsory now, namely primary and secondary education.

In addition to partisan factors, this dissertation considers constitutional structures to be an important determinant of educational change. In taking this position, the dissertation adopts the historical institutionalist view that constitutional structures play a decisive role in deciding whether efforts to expand and reform social policy ultimately succeed. Applying this view to the area of education in a postwar setting, this dissertation posits that constitutional features that disperse authority, such as bicameralism and federalism, create veto points that aid efforts to enhance elite-oriented education and hinder efforts to improve

mass-oriented education. These differences in policy success rates, in turn, skew the distribution of public resources within education systems away from mass-oriented lower levels of education toward the elite-oriented tertiary level of education. Three different mechanisms associated with veto points contribute to these disparities in outcomes, and they are discussed below.

First, given the ways in which education systems are typically organized, veto points have more potential to hinder the advancement of existing forms of mass education. While tertiary education is usually administered on a national or regional basis, primary and secondary education – the two prominent forms of mass education – are generally handled to some degree at the local level. Since the number of jurisdictions increases with each move down the territorial ladder, this organizational structure implies that there are more institutions involved in the policy-making process for lower levels of education than the policy-making process for tertiary education. When constitutional arrangements, such as federalism, formalize and strength this dispersion of authority across different levels, jurisdictions, and institutions, they provide minority interests, including elite educational interests, with more opportunities to block education reforms, especially those that broadly improve educational opportunities for the masses.

Second, by creating barriers to policy reform, veto points help protect existing policy advantages for elite-oriented tertiary education. For much of its history, tertiary education has been an elite enterprise, and it has often received preferential treatment in the allocation of public funds for education and other aspect of education policy. Efforts to end this policy bias and transform tertiary education into a mass public good are least likely to succeed when there are significant numbers of veto points in the policy process. These veto points allow small but influential minority groups to block policy changes that they oppose, and this has the effect of maintaining the status quo in public policy. In the case of education policy, this obstructive process helps preserve distributional arrangements that favor tertiary

education over lower education.

Third, when educational interests compete for public resources and policy changes, veto points strengthen the influence of elite-oriented interest groups and weaken the influence of mass-oriented interest groups. With the development of multiple levels within education systems, separate sets of interest groups – school associations, labor organizations, and parent/student organizations – have formed to represent and promote these different levels. As part of their advocacy efforts, all of these groups seek to increase the allocation of public resources made to the educational levels they represent. Although the distribution of funds is not inherently a zero-sum game, there are nonetheless instances when the desires of these groups clash. In these situations, elite-oriented interest groups should have the advantage because veto points give better funded and organized groups more direct access to the policy process and more bargaining power over policy decisions. In early phases of educational development, elite-oriented groups tend to have more established resource bases and be less territorially fragmented. To some extent, this mechanism is a derivative of the prior two.

Operating through these three mechanisms, veto points essentially help produce education policy outcomes that mirror existing social disparities. Veto points permit relatively small groups of elites and their allies to intervene in the policy-making process to protect their existing advantages and secure new ones. Interest groups representing the underprivileged masses are, for the most part, unable to challenge this elite dominance because veto points cause significant fragmentation in their support bases and thus weaken their capacities to organize. Under these conditions, public education resources should increasingly flow to the form of education most closely associated with elites, namely tertiary education. Conversely, if there are few or no critical veto points in the policy-making process, then education policy and public allocations should generally reflect the interests of the masses. In this type of environment, the policy-making process tends to be more rational

and balanced, as a wider array of societal interests are typically consulted and financial resources usually carry less political sway. In the end, this type of process should lead to a more proportional distribution of public resources within education system.

Although it might appear that the above logic contradicts the argument made earlier about the protective effects of dispersed authority on the development of general education, it is important to remember that there are a few key differences between the pre- and postwar environments that inform these arguments. First, and most importantly, democracy was much more limited in the prewar period, particularly before the onset of the twentieth century. This gave conservative elites a significant built-in advantage in the policy-making process, particularly in countries with unitary systems of government. Once democracy became more developed, these advantages were weakened and disappeared entirely in some cases. With the advancement of democracy, centralized authority became favorable for the development of policies that benefited the underprivileged majorities. Second, the nature of educational demands and expectations were markedly different in the two periods of history. In the prewar period, low demands and expectations made it relatively easy for regions and localities to expand public education systems with minimal public investment. However, once the emphasis in education reform moved away from expanding coverage and toward improving quality, educational development became more resource intensive. This change created strains on many subnational units responsible for public education, especially if dispersed authority inhibited the redistribution of resources among these subnational units. In sum, broad changes in politics and society between the late nineteenth and mid-twentieth centuries are responsible for the reversal in the relationship between authority structures and educational outcomes.

1.3 Analytical Approach

To evaluate the validity of this two-part theoretical framework, this dissertation employs a nested analytical approach. This mixed-method approach combines broad statistical analysis with intensive case-study analysis to maximize both the generalizability and validity of new theories (Fearon and Laitin 2008; Lieberman 2005; Seawright and Gerring 2008; Goertz 2008). The main role of the broad, or large-N, analysis in this approach is to establish that there is indeed an empirical basis for a set of theoretical claims. With this type of analysis, it is possible to evaluate this set of claims against a host of alternative explanations in an efficient manner and to estimate the levels of confidence one can have in these claims in a systematic way. Once the theoretical claims have been vetted through this process, they are further scrutinized in the focused, or small-N, analysis. With its emphasis on finer grain details and patterns, this form of analysis allows one to verify the existence of relationships between key variables and substantiate the causal mechanisms that link them. Seeing how they can complement each other in this integrated approach, both large-N statistical analysis and small-N case-study analysis are incorporated into this dissertation.⁶

For the broad statistical component of this nested approach, this dissertation applies regression techniques to two sets of time-series cross-section data. In these regression analyses, the core political factors highlighted above – partisan politics and constitutional structures – are examined to determine whether they are correlated with key patterns of institutional development in education. As part of these analyses, a number of competing political, economic, and demographic explanations are also tested to ensure that the main relationships of interest are valid and robust. These analyses make use of two datasets that have been assembled for this dissertation, both of which contain new and extended

⁶ The nested analytical approach has been successfully used in many other studies dealing with political economy and social policy. Some examples include: Swank 2002, Martin and Swank 2012, and Huber and Stephens 2012.

measures of education systems. More specifically, the two datasets cover 17 advanced capitalist countries for the prewar period of 1880-1939 and the postwar period of 1950-1985. The geographical and historical breadth of these data enable this dissertation to carry out a sweeping analysis of the development of education system in affluent countries.

After these statistical analyses confirm that theorized relationships between key variables do in fact exist, the dissertation turns to a number of case studies for additional insights into these relationships. These case studies, which cover four countries, have been produced using a variety of primary and secondary sources, most of which deal with the politics of educational expansion and reform. With their richer details on the motivations of actors and sequencing of events, these case studies are primarily used to trace the causal linkages between the main political determinants and educational outcomes highlighted before, though they also serve to rule out a number of competing explanations. For the purposes of this dissertation, a set of case studies is only provided for the prewar period, with their historical focus being the late nineteenth and early twentieth centuries.⁷

The cases for this nested design have been selected on the basis of several theoretical and methodological considerations. To maximize the generalizability of its theoretical contributions, this dissertation examines the universe of advanced capitalist societies that are relatively large and have long histories of democratic government in the twentieth century.⁸ These two conditions are needed to ensure that cases have possessed sufficient autonomy and dynamism to develop their education systems in meaningful ways. For the case-study analysis, four cases have been selected from this broader population of affluent democracies, and they are: Germany, Sweden, the United Kingdom, and the United States. These

⁷ A set of cases studies for the postwar period (1950-1985) are being developed for a future version of this manuscript.

⁸ To satisfy the second condition, a country must have at least some experience with democracy in the prewar period. The 17 countries that are ultimately included in this selection include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States.

cases have been chosen because they vary significantly on the key explanatory variables – constitutional structures, coordination legacies, and partisan politics – and they best fit the explanatory models constructed and tested in the broad statistical analyses. This approach of selecting cases that fall “on the line,” so to speak, is not without controversy, but it has been employed here in order to enhance the assessment of causal processes. As Lieberman (2005, 444) emphasizes, nested designs should, in most circumstances, include cases that help assess “the strengths of a particular model” and do not add “unexplained noise” to the model.

1.4 Conclusion

In contemporary debates about economic and social policy, education is regularly cited as the best solution to many of the most challenging problems facing affluent societies. As these societies grapple with the consequences of heightened global competition and extensive demographic change, it is often argued that they should look to their education systems to boost economic productivity and improve social outcomes (Esping-Andersen 2002). Consequently, with the rise of this “social investment” approach, there has been a renewed interest in the education systems of advanced capitalist societies and the strategies that can be employed to reform and expand them (Morel, Palier, and Palme 2011; see also Nelson and Stephens 2011). Yet, despite all this interest in developing education for the future, much is still not known about it developed in the past.

The purpose of this dissertation is to highlight and explain several of these past developments that still have pertinence for present debates. With the shift toward more knowledge-intensive production in modern economies, interest in the relative merits of different education systems has grown, but much remains unknown about why these separate models came into existence (see Busemeyer and Trampusch 2011). By studying the origins of different education-training regimes found in secondary education, this study sheds new light on an important feature used to distinguish between these educational models. Given that

education is often described as the “great equalizer” in political discourse, this dissertation’s analysis of the distributional characteristics of different education systems and their historical determinants is also apposite. Overall, this dissertation addresses several important questions and, in doing so, makes a number of important contributions to the body of research on education policy and social policy more generally. A few of these contributions are discussed below.

First, this dissertation draws attention to several important yet complex distributional aspects of education systems and their origins. Given its ubiquity in affluent societies and its place in the welfare state, public education is typically thought of as a state function that promotes egalitarianism. Consequently, the overall size of an education system is often assumed to be a good indicator of its equalizing effects on social outcomes. As this dissertation stresses, however, education systems that appear to be similar on the aggregate can be built on very different distributional models. The multilevel nature of education systems makes it possible for states to allocate educational resources to some social groups and deny them to other groups. This distributional element of education systems has, in turn, profoundly influenced the political strategies used to expand and reform public education at all stages of development. In particular, this dissertation shows how efforts to increase the provision of vocational training and the relative generosity of tertiary education have been driven by conservative forces seeking to preserve elite advantages in education. Therefore, to understand fully the social consequences of long-run educational developments and the political motivations behind them, one needs to recognize that education systems have many distributional dimensions and that these systems are not inherently structured in an egalitarian way.

Second, in explaining the long-run trajectories of education systems, this dissertation emphasizes the role of constitutional structures. Although much scholarly attention has been devoted to analyzing the relationships between constitutional structures and social

policy, few studies have thoroughly examined the effects of these state features on broad elements of education policy. With its extensive historical scope, this dissertation highlights the ways in which two forms of constitutional structures – federalism and veto points – have deeply impacted the development of education systems in affluent societies over the long run. In determining how authority over education is dispersed, constitutional structures strongly shape the education policy process and the potential for far-reaching educational reforms. Whether constitutional structures ultimately aid or hinder the development of more extensive and generous education systems depends on the political and economic context. Dispersed authority can encourage bottom-up educational expansion when conservative elites dominate the top in a multilevel polity, but it can also hamper broad educational reform by fragmenting the underprivileged masses. This notion that the effect of constitutional structures on social policy is conditional has not been thoroughly explored in prior research.

Third, this dissertation offers a more nuanced interpretation of the connections between partisan politics and educational development. Although partisan politics are assigned a minor role in the prewar narrative of institutional development in secondary education, they figure much more prominently in the postwar story of distributional change in public education. This dissertation departs from prior research by focusing exclusively on the initial four decades of the postwar era. By focusing on these early decades, it offers better insights into how partisan politics shaped education systems during this critical period in welfare state development. Moreover, by looking deeper into the allocation of public educational resources, this dissertation identifies several partisan-based patterns that have not been theorized before. In particular, it highlights the important role that right parties play in determining the distribution of resources across the different levels of education. In particular, when right parties are in government, they tend to push for distributional arrangements that favor tertiary education at the expense of lower levels of education. This relationship

suggests that the politics of education policy are not entirely analogous to those for other types of social policy.

Fourth, in its investigation of the long-term evolution of education systems, this dissertation makes use of many new and overlooked data sources. A surprising dearth of comparable cross-national data has long hampered comparative research on education system (Danforth 2013), especially for periods of history predating the most recent four decades. For this dissertation, efforts have been made to overcome some of these obstacles by devising new measures and assembling new dataset. The quantitative analyses of prewar developments in secondary education are based on a new dataset containing cross-national indicators of political economy and social policy for the period from 1870 to 1940. This dataset includes several original measures of education systems, three of which serve as outcome variables for the prewar analyses. Likewise, the quantitative analyses of postwar changes in the distributional aspects of education systems examines new data on educational generosity, distribution, and coverage. As these prewar and postwar datasets continue to be expanded and improved, they should be useful in further research on early developments in education and social policy in general.

These contributions have culminated from research that is presented and discussed more thoroughly in the remaining four chapters of this dissertation. The first three of these four chapters contain the bulk of the analytical work done for the dissertation – the statistical analyses and cases studies. The final chapter makes connections between the findings of these investigations and elaborates on their significance for future research. Below is a brief summary of each chapter.

Chapter 2 contains the first of two statistical studies included in the dissertation. In an effort to explain why countries have developed different mixes of general education and vocational training at the secondary level, this study examines cross-national data covering the late nineteenth and early twentieth centuries – an important period in the formation

of mass education at the lower levels. The study shows that different institutional mixes in secondary education arose from political struggles that were strongly shaped by two factors: the dispersion of authority over general education and the legacies of non-market coordination in vocational training. The interaction of these two factors largely account for why the United States and other Anglo-settler countries surpassed Europe in the provision of general education in the decades leading up to World War II, and countries like Germany and Sweden developed extensive systems of vocational training.

Chapter 3 is comprised of four cases studies used to validate the key relationships established in the preceding chapter and identify the causal processes at work in these relationships. Covering Germany, Sweden, the United Kingdom, and the United States, these case studies demonstrate how constitutional structures and coordination legacies shaped the strategies of reformer and elites in the development of mass secondary education. In addition to tracing these causal connections, these case studies also illustrate the contentious nature of education politics in the prewar years.

Chapter 4 presents the remaining statistical study, with this one focusing on postwar developments in education systems. The distinguishing feature of this study is its multidimensional approach to examining educational change, particularly across different levels of education. The study finds that differences in class-based political competition and constitutional veto points account for the rise of distinct distributional arrangements in public education during the early postwar period. More specifically, these factors help explain the emergence of highly generous, mass-oriented education systems in places like the Nordic countries and weakly generous, elite-oriented systems in places like Australia and the United Kingdom.

Chapter 5 pulls all of the findings from the statistical and case-based analyses together and makes some final conclusions about the politics of education in advanced capitalist societies. It also discusses some of the broader implications of these findings for research

on comparative political economy and social policy.

1.5 Tables and Figures

Table 1.1: Historical Underpinnings of Education-Training Regimes, circa 1900

Dispersion of Authority		
	Centralized	Decentralized
Strong Coordinative Legacies	Sweden general education: dualistic, modest expansion vocational training: mostly school based, modest expansion	Germany general education: dualistic, little expansion vocational training: mostly apprenticeship based, robust expansion
Weak or No Coordinative Legacies	United Kingdom general education: dualistic, modest expansion vocational training: failed independent efforts, little expansion	United States general education: unified, robust expansion vocational training: failed state-led efforts, little expansion

2 THE POLITICAL ORIGINS OF EDUCATION-TRAINING REGIMES

The impressive gains made in educational effort and attainment over the past century have overshadowed the strong institutional continuities found in many education systems. In the more advanced countries of Europe, North America, and Oceania, public spending on education and average years of schooling have increased fourfold during this time, yet the institutional frameworks for education in these countries have mostly been slow to change. This institutional stability is plainly visible in how these countries' education systems approach general education and vocational training, particularly at the secondary level. In some education systems, like those found in Germany and Sweden, both types of instruction are formally offered, but they are attached to programs with varying degrees of separation. As seen in the United Kingdom and United States, other education systems focus almost entirely on the provision of general education, so programmatic divisions between the two forms of instruction are largely nonexistent.

While it is tempting to conclude that these educational mixes reflect unshakable differences in national attitudes toward education and training, these distinct arrangements were much less recognizable at the end of the nineteenth century. As the expansion of primary education started to approach a natural limit in many industrializing societies around this time, it was unclear how post-primary education would evolve to accommodate a rapidly growing stream of students. Conservative elites across these societies shared a common interest in maintaining their restrictive hold over upper levels of formal education and took steps to guard this position and the privileges it bestowed. The use of centralized state power to delay and divert these mounting pressures for educational expansion and reform

figured prominently in this conservative reaction. Even as new waves of democracy, capitalism, and socialism intensified this reaction, conservative elites were not uniformly successful in protecting the old order in education. In the Anglo-settler countries, for instance, concerted attempts to develop coordinated systems of vocational training largely failed, even as similar efforts saw striking success in most parts of Western Europe.¹

This chapter examines the origins of these divergent trajectories in education and training at the secondary level to understand why some countries developed extensive systems of firm-based and school-based vocational training and others were largely left with varying degrees of general education. The extensive quantitative and qualitative work contained in this chapter and the next point to a somewhat surprising finding: the rise of these distinct arrangements, or regimes, in education and training was driven more by variation in authority structures in education and coordination traditions in training than differences in educational ideologies. This is not to say that competing ideas and interests were absent in the political struggles over the direction of education and training, but rather that these two institutional factors played a central role in mediating these struggles and shaping their outcomes.

To begin evaluating this argument, this chapter provides a high-level overview and analysis of the trends that led to the formation of distinct education-training regimes. Drawing on a rich database of historical indicators related to political economy, a series of quantitative analyses involving 17 countries and covering the years from 1880 to 1939 are used to test the importance of authority structures and coordination legacies in explaining the rise of these regimes. In the next chapter, cases studies of Germany, Sweden, the United Kingdom, and United States are used to identify the causal linkages between these two explanatory variables and the institutional outcomes observed prior to World War II.

¹ For this study, the Anglo-settler countries include Australia, Canada, New Zealand, and the United States.

2.1 The Historical Emergence of Education-Training Regimes

When, at the end of the nineteenth century, the broad impulse for educational expansion in economically advanced societies moved on from the primary level to the secondary level, a number of critical decisions had to be made about the structuring of education systems. While some of these decisions referred to issues like the level of religious involvement and the division of financial responsibility, a central decision concerned the appropriate mix between general education and vocational training. At the primary level of education, all of these societies were converging on a basic design of mass education that stressed general education, but it was unclear at this moment in history whether this trend would extend into the upper levels of education. For one thing, the extension of mass education of the general sort to post-primary levels would upset a longstanding social order that was propagated through a segmented education system – with primary schools educating the poorer masses and secondary and tertiary institutions serving the wealthier elites. At the same time, the quickening pace of capitalist development, spurred on by intensive industrialization and economic liberalization, was generating new yet conflicting demands for educational change, particularly when it came to the choice between expanding general education or developing vocational training.

Indicators of institutional development in secondary education show that these societies adopted several different approaches to reconciling these competing demands (see Table 2.1). In the years leading up to World War I, Austria, Germany, and Switzerland had begun to develop mass systems of firm-based vocational training (i.e. apprenticeships), distinguishing them from other industrializing countries. As these systems became more developed, the growth of general education slowed markedly in these countries, especially in Germany and Switzerland. This shift is particularly remarkable because Germany and Switzerland had, for much of the nineteenth century, been at the forefront of educational

development at the secondary level. By the early twentieth century, the Anglo-settler countries had supplanted their Germanic peers as the international leaders in the provision of general education. Although secondary education in the Anglo-settler countries had lagged behind secondary education in most of Europe during the nineteenth century, it experienced a tremendous expansionary boom in the first half of the twentieth century (see Figure 2.1). Meanwhile, in the countries of Northwestern Europe – excluding the British Isles – another form of education was taking hold. While general education at the secondary level did expand modestly in these countries, school-based vocational training grew to become a large component of their education systems. In contrast to all of these countries, the United Kingdom, and later Ireland, saw much less expansion in their institutions of secondary education. General education did grow, to some extent, in these two countries, but neither form of vocational training – firm-based or school-based – deeply took hold. As a result, the United Kingdom and Ireland remained notable laggards in the provision of secondary education into the twentieth century.

By the onset of World War II, these divergences in education and training had crystallized, forming several distinct groupings or regimes. The Germanic countries in Central Europe all had highly organized, national systems of vocational training that were largely directed by business interests. Modestly developed systems of school-based training and education were also present in these countries. By contrast, the other advanced capitalist societies had very little in the way of firm-based vocational training, though Denmark is a partial exception. Instead, the remaining continental European countries and the Nordic countries exhibited extensive systems of school-based vocational training, whereas the Anglo-settler countries had large systems focusing almost exclusively on the provision of general education. Despite experiencing several decades of modest growth, secondary education was still relatively underdeveloped in the United Kingdom and Ireland at the end of the interwar period.

2.2 Hypotheses

How, then, does one account for the cross-national variation in the institutional mixes of general education and vocational training? One set of arguments posits that this variation simply reflects differences in capitalist development, while another set points to divergent patterns in political mobilization. The third set, which constitutes the main theoretical contribution of the study in this chapter, suggests that the broader institutional context mattered most in setting the long-run trajectories of secondary education and training around the beginning of the twentieth century. The logic of these arguments and the specific hypotheses derived from them are elaborated below (see Table 2.2 as well).

2.2.1 Economic Development

In theorizing the evolution of distinct education-training regimes, factors related to industrial growth and capitalist development represent one set of potential determinants. Economic theory has long recognized that educational improvement and economic advancement go hand and hand (see e.g., Becker 1964; Goldin and Katz 2009), and this association has frequently been used to explain historical and cross-national variations in the institutions providing education and training (e.g., Gellner 1964, 1983). In these explanations, the level of affluence is regularly identified as a core factor, but the levels of industrialization, openness, and diversity found in an economy also play significant roles. It is not unreasonable to think then that these four elements have been similarly important in shaping the provision of general education and vocational training in modern societies.

National Affluence. Given that wealthier countries tend to have more generous social programs, one might expect higher national affluence to produce a greater emphasis on school-based forms of education. Schools require significant resources to establish and operate on a permanent basis, so they are only likely to appear and grow in societies with significant wealth. Demand for schools might also be higher in these societies because they generally exhibit a strong preference for collective, often public, institutions in the

provision of welfare goods and services, like education (Wagner's Law). Societies develop these preferences because economic development often engenders dramatic social change that undermines existing systems of social protection and support (Kerr et al. 1960; Wilensky 1975; Wilensky and Lebeaux 1958). By increasing the provision of education, states can both facilitate this economic transition and address its social consequences (Kerr et al. 1960). While firm-based training can meet some of these new demands, it should be a more attractive to poorer societies than wealthier ones. This is due to the fact that firm-based training generally requires little public investment, as most of the costs associated with this form of training can be passed on to trainees and their employers.

Industrial Activity. Despite the close historical association between increasing industrialization and rising affluence, a greater emphasis on industrial activity in a capitalist economy should favor the rise of vocational training over the expansion of general education. Building and maintaining a robust industrial sector requires a substantial number of workers trained in increasingly advanced and specialized forms of production. In an industrializing economy, these labor demands can most directly be satisfied on a mass scale through the extension of vocational training – both firm-based and school-based – as this form of education encourages early integration into the labor force and focuses on the acquisition of more technical and specific skills (Finegold and Soskice 1988; Iversen and Stephens 2008; Streeck 1992). Assuming that its internal interests and actions are sufficiently aligned, a large industrial sector is likely to be a strong and influential proponent for this approach given its labor needs and economic clout (Hall and Soskice 2001). Of course, the emergence of a robust service sector could reverse some of these incentives and make general education more desirable for workers and firms (Goldin and Katz 2009).

Trade Openness. A higher level of trade openness might further strengthen the demand and preference for technical-oriented education because it exposes many economic

sectors to more direct competition and technological change. To withstand these amplified competitive pressures and exploit new growth opportunities, affected firms and their workers must continually improve their productivity through new investments in innovative processes and specific skills, thus making specialized education a central priority for these actors (Katzenstein 1986). When it comes to selecting the delivery method for this education, however, there are competing logics for firm- and school-based systems. On the one hand, the firm-based approach, with its emphasis on in-plant training and capital-labor oversight, can be quite efficient in transmitting relevant skills and giving those most impacted by increased trade a dominant say in its design and operation. On the other hand, the school-based approach, with its greater access to state financing, can serve as a mechanism for compensating certain segments of the economy for the heightened risks they face with greater trade liberalization (Cameron 1978; Garrett 1998; Katzenstein 1986; Rodrik 1997).

Economic Diversity. Variations in economic diversity at the subnational level should also impact the direction of educational reform and expansion, with greater diversity across geographical regions decreasing the likelihood of a viable firm-based training system emerging. Creating and sustaining a scheme for firm-based training on a mass scale requires a high degree of coordination among employers and employees, and such a level of coordination can only emerge when internal divisions within these economic groups are minimal (Tolliday and Zeitlin 1991). Sharp divergences in the makeup of regional economies should work against broad non-market coordination, as there is a strong potential for discord among key stakeholders (Mares 2003). One point of disagreement may well be the direction of education because some firms and workers are likely to find the transferable skills provided by general education very attractive in an economic environment that is highly fragmented.

2.2.2 Political Engagement

Another set of explanations for the different institutional blends of general education and vocational training stresses the importance of political involvement. It has frequently been argued that the design and generosity of social policy largely reflects the distribution of power among competing political forces (Huber and Stephens 2001; Korpi 1983; Stephens 1979), and there is good reason to believe that this theoretical account applies specifically to education and training too. Given their well-established roles in shaping the distribution of economic opportunities and life chances within societies, education and training systems are regularly the objects of political contestation. In the early instances of these battles, the level of democracy should be a key determinant of the evolving institutional trajectories of education and training. At the same time, left-liberal government, union mobilization, and cleavage structures are likely to figure prominently in these political struggles and their policy outcomes.

Democracy. The firm establishment of democracy as the basis for policy-making should favor the broadening of general education over the rise of vocational training. As the right to full and equal participation in the political process is extended to more and more people, public policies, including those involving education and training, will increasingly reflect the preferences and aspirations of the entire population instead of a select few (Ansell 2008a, 2010; Lindert 2004). These popular inclinations are likely to include a strong desire for universal access to the benefits and opportunities enjoyed by established elites, especially in the area of education (Lindert 2004; Go and Lindert 2010, 105–107). When this ambition leads to action, much of the resulting activity should be centered on expanding general rather than vocational education because the general form has historically been more important in regulating the levels of social mobility and economic fluidity found in a society. For those looking to augment and maximize their new political rights in an evolving democratic system, general education is also likely to have more salience than its

vocational counterpart.

Left-Liberal Government. When one considers the political competition over education between specific groups, a stronger prevalence of left-liberal government should lead to a greater emphasis on the extension of general education instead of the development of vocational training. Liberal politicians and activists played a central role in the push for mass general education at the primary level during the nineteenth century, and they remained strong proponents of educational expansion at the upper levels into the twentieth century. With the emergence of socialist movements and parties in the later half of the nineteenth century, this push to open and expand education to the masses received a marked boost and developed a more conflictual tone. Although education reform was not initially a top priority for these socialist forces, the issue received more attention as these political elements became increasingly committed to pragmatism and democracy in the early twentieth century. In their overlapping roles as education reformers, liberals and socialists saw the creation of a uniform and inclusive education system as an essential step in dismantling the old social order and consolidating major democratic breakthroughs (Ansell and Lindvall 2013). The development of general education at the secondary level came to figure prominently in this liberal-socialist reform agenda, though these reformers were not always opposed to school-based forms of vocational education.

Union Mobilization. A higher rate of union mobilization might aid the development of school-based education, but it could also encourage the rise of firm-based training. When it comes to improving the socioeconomic position of workers through education, early labor unions were often suspicious of firm-based solutions because they viewed them as potential instruments for oppression and control. For this reason, the growth of organized labor probably favors the development of school-based education and training. Yet, as union membership grows, businesses and their allies have stronger incentives to develop firm-based programs in vocational training (Thelen 2004).

Cleavage Structures. Dissimilar cleavage structures should also contribute to the rise of institutionally distinct education-training systems, with the presence of more social, non-class cleavages hindering the development of firm-based programs. The rationale behind this expected relationships is similar to that laid out for economic diversity: deep ethno-linguistic, religious, and urban-rural splits within a society usually make it more difficult to establish the broad political coalitions needed for the successful implementation of new and uniform social institutions on a national scale (Lipset and Rokkan 1967; Stephens 1979), especially when these institutions involve education and training. Moreover, the development of general education is often essential for early nation building (Green 1990), and this should be particularly true in societies where there is significant social diversity.

2.2.3 Authority Structures and Coordination Legacies

The similarities in political ambitions and differences in institutional outcomes that characterize the broad struggles over secondary education suggest that other factors might have been at work in the late nineteenth and early twentieth centuries. This study contends that these long-term divergences can mostly be attributed to differences in authority structures and coordination legacies. When there are political struggles over secondary education, these two factors strongly shape the progression of these struggles and the nature of their outcomes. In particular, authority structures are decisive in determining the balance of power between conservative elites and progressive reformers as they compete for control over general education at the secondary level. Once this struggle is settled and education policy is set, the strength of coordination legacies in vocational training determines whether the selected path will be viable in the long run.

Before elaborating on the logic of this argument, it is perhaps helpful to reiterate the core assumptions upon which it is constructed. First, it is assumed that conservative elites hold a dominant position in policy-making at the national level. In political struggles over

secondary education, this elite dominance greatly limits the prospects of educational reform at the center of government. Second, it is assumed that authority structures only matter in these political struggles over secondary education if they are constitutionally defined. When elites and reformers are vying for control over education policy from different levels of a multilevel polity, the constitutional basis of this multilevel system is crucial in determining the opportunities for policy intervention available to each side. Third, it assumed that political struggles over secondary education involve two stages. In the first stage, conservative elites must decide how to respond to mounting pressures for the development of mass education at the secondary level. In the next stage, broader circumstances determine how a response is received by the masses and thus whether it has its desired effect.

In the first stage of a political struggle over secondary education, authority structures over general education are expected to shape the responses of conservative elites to increasing pressures for educational reforms that benefit the masses. If state authority over general education is highly dispersed, then there are many potential openings for bottom-up reforms in general education that may undermine the elites' hold on secondary education. Yet, under these circumstances, elites are prevented by constitutional barriers from using their substantial power at the national level to block and delay policy changes instituted at the subnational levels. Given their inability to influence education policy directly, elites are likely to turn to training policy as an alternative means of regulating subnational developments in general education. By establishing a mass system of vocational training at the secondary level, elites hope to draw pressures for educational expansion away from general education at the secondary level. Conversely, if state authority over general education is highly centralized, there is less impetus for elites to react to growing pressures for educational change because they can more readily stop and delay educational reforms with democratizing effects. Therefore, in this situation, elites have little need to use training policy as instrument for redirecting popular demands for educational expansion.

In the second stage of the political struggle, legacies of non-market coordination in vocational training should be a strong determinant of whether an elite response has its desired effect and whether it has unforeseen consequences. As mentioned above, the expansion of vocational training can serve as an alternative strategy to extending general education. Efforts to create a mass system of vocational training are, however, not likely to be viable in the long run unless serious collective action problems involving workers and firms are overcome. For workers to embrace a system of vocational training, they must be certain that the provided training will markedly improve their employment prospects. Firms are only likely to support a system of vocational training if it offers them a reliable supply of skilled workers. These obstacles to collective action will be even more pronounced if workers and firms are heavily involved in the financing and provision of vocational training – as is the case in apprenticeship-based systems – because there are the added risks that workers will be exploited by firms and that firms will cheat each other. These problems are most likely to be solved if there are already well-established traditions of non-market coordination in vocational training, which can be left behind by prior guild systems or state programs that provided vocational training.

Combining the possible elite responses in the first stage and the logic outlined above, the second stage can ultimately produce four different outcomes in terms of the institutional makeup of secondary education.

First, the combination of high authority dispersion and strong coordination legacies should lead to the development of an extensive system of firm-based vocational training, which exists alongside a limited system of general education. To co-opt and divert mass pressures for educational expansion, elites actively promote vocational training, particularly the firm-based form, using the powers of the central government. These efforts ultimately succeed because prior guild and state arrangements have left behind strong traditions of coordination among firms and workers.

Second, the combination of high authority dispersion and weak coordination legacies should encourage the rise of a mass system of general education. As before, elites make efforts to construct a national system of vocational training to pull pressures for educational expansion away from general education. Not having strong traditions of coordinated training, however, firms, workers, and the masses ultimately reject this system. As a result, efforts to expand general education continue on unabated, producing significant growth in this area at the secondary level.

Third, the combination of low authority dispersion and strong coordination legacies should lead to the formation of an extensive system of school-based vocational training, which exists alongside a restricted system of general education. Using the eminent authority of the central government, elites can rebuff and delay most reforms that challenge their strong hold on general education at the secondary level. Faced with this obstacle to reform within the state, reformers attempt to develop educational opportunities outside the state, with school-based vocational training being the model of choice in most settings. These efforts succeed because the non-state actors pushing for educational expansion can draw on long-established traditions of coordinated training. Although it is initially a private project, the resulting system of school-based training is gradually integrated into the public education system as elite power wanes.

Fourth, the combination of low authority dispersion and weak coordination legacies should result in the development of limited system of general education. Like in the prior scenario, elites use centralized government power to stop and stall efforts to open up general education at the secondary level to the masses. In response, reformers make attempts to establish an extensive system of vocational training outside of the state, but their efforts ultimately fail due to the lack of strong traditions of coordinated training. In the end, the masses largely remain excluded from secondary education despite the mounting pressures for broad change.

2.3 Methodology

To test the above hypotheses on the origins of education-training regimes, this inquiry first employs quantitative analysis of cross-national data for 17 industrializing societies for the period from 1880 to 1939. In considering a broad range of history across a large slice of geography, this examination offers a far-reaching assessment of this chapter's thesis and competing explanations. The quantitative indicators and statistical techniques employed are outlined below.

2.3.1 Data

To operationalize the variables at hand, this study makes use of an original cross-national dataset covering the late nineteenth and early twentieth centuries. Building on the pioneering data-gathering efforts of Flora et al. (1983; 1987), this dataset contains a range of new and updated indicators relevant for comparative work on political economy and social policy. For this analysis, a subset of this dataset is used, with the selected data encompassing 17 relatively advanced countries: Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States. For most of these cases, the data span from 1880 to 1939, with the three main exceptions being Australia (1901–1939), Finland (1919–1939), and Ireland (1922–1939). Although Austria was technically in a monarchic union with Hungary before 1919, it is treated as a separate entity in the data due to the pronounced weakness of this political tie-up. A list of the specific measures used and their summary statistics can be found in Table 2.3, and more specific details about the construction of these measures and their sources can be found in Appendix A (outcome variables) and Appendix B (explanatory variables).

As presented earlier, a pair of composite indexes is used to gauge the institutional development of firm- and school-based systems, which are two of the three outcome variables in this inquiry. Each index is comprised of three equally weighted components representing

the levels of coverage, formality, and intensity found in each educational arrangement. The coverage component captures the extent to which a system is present in all geographical areas and is linked to multiple economic sectors. A system is not deemed to have high coverage if it is confined to a few regions or urban areas or if it is limited to a small set of economic activities, such as the construction trades. Next, the formality component assesses the degree to which the system has incorporated common standards and oversight mechanisms to uphold these standards. A set technical-oriented curriculum, a universal certification process, and a regulated teaching corps are all elements of the ideal type used in coding this dimension. Lastly, the intensity component measures the level of involvement (e.g., administration and resources) that the principal player has in the system. For a firm-based system, businesses are considered to be the main player, while the state is assigned this role in a school-based system. Adding these components together produces an index of institutional development for each form of vocational training that ranges from 0 to 6 with half-point increments.

To measure the institutional scope of general education, the third outcome variable, the secondary enrollment rate is used as a proxy. As mentioned earlier, this indicator is calculated by dividing the number of student enrolled in schools at the secondary level by the total number of persons aged 10 through 19. As the definition of secondary schools varies from country to country, efforts have been made to harmonize these data to make them reasonably comparable between countries.

Turning to the explanatory variables, the hypothesized economic predictors of education-training regimes are operationalized using a set of conventional measures. Following standard practice, real gross domestic product (GDP) per capita (in 1990 US dollars, logged) is used to capture the level of affluence. To gauge the relative prevalence of industrial activity, the percentage share of nominal GDP originating in industrial sectors is used. Similarly,

the trade openness predictor is measured using the sum of exports and imports as a percentage of GDP, all at current prices. The land area of a given country (in square kilometers, logged) is employed as a proxy for internal economic diversity.

For the hypothesized determinants tied to political engagement, another collection of familiar measures is put to use. The indicator for democracy is a slightly modified version of the oft-used Polity index for regime type, with the scale ranging between firm autocracy and strong democracy. As the measure for left-liberal government, a binary variable classifying the head of government is used, with one category indicating the presence of a liberal or socialist in the chief executive position. Labor mobilization is operationalized as union density, which is defined as the percentage share of a labor force belonging to trade unions.

To capture the dispersion of public authority in general education – a key explanatory variable – a three-point ordinal scale for the level of federalism is used; the possible values are none (unitary state), weak, and strong. In all countries with strong federalism included in this study, the power to craft education policy was reserved for subnational units (e.g., states, provinces, etc.). In Austria, which had weak federalism from 1919 onward, the central government could alter education policy, but any such action required the approval of a two-thirds majority in the lower house of parliament (*Nationalsrat*). As a consequence, the Austrian states enjoyed significant influence over the setting of education policy (Schratz 2012, 97). For countries with unitary systems, the ultimate authority over education systems rested with the central government. Even if some of this authority was delegated to lower levels of the state in practice, there was always the potential for direct intervention by the central government.

The final explanatory variable of interest, coordination legacies, is quantified using a four-point ordinal index. The index is comprised of two elements: the first represents the degree to which coordination systems established by guilds continued to persist up until 1900 and the second captures the degree to which central governments had been involved

in the establishment and support of vocational training at post-secondary levels of education prior to 1870. The guild component consists of a three-item scale, with the possible values being none, weak, and strong, whereas the state component is a simple binary measure indicating the presence or absence of a meaningful history of state involvement in other areas of training.

Given that demographic change can also influence education policy, a control variable is included to capture this effect. In particular, the share of the population aged 10 to 19 is used as a basic measure of the school-aged population for secondary education. This measure should capture any demand effects produced by rises and falls in the population of potential students for secondary education.

Despite the great efforts made to assemble complete data series for the explanatory variables employed in this analysis, missingness remains an issue for some variables. As Table ?? indicates, five variables have incomplete series, with the level of missingness for these variables ranging from 0.22 percent to 12.84 percent. To avoid dropping observations with missing data, which can severely bias regression estimates, multiple imputation is applied to the working dataset. Drawing on practices and techniques first devised by Rubin (1987) and later extended by Honaker and King (2010), 10 sets of imputed data are generated prior to each individual analysis. Each estimation procedure described in the next section is then applied to these datasets, and the 10 sets of results are subsequently pooled together using formulas developed by Rubin (1987).

2.3.2 Estimation

Although time-series cross-section (TSCS) data have long been used in comparative analyses of political economic phenomena, there are still many unsettled questions and conflicting recommendations concerning the choice of methods for analyzing this class of data. The statistical shortcomings of the standard ordinary least squares (OLS) estimator in analyzing TSCS data have been known for some time, and yet significant disagreement

remains over when and how to deal with them (see, e.g., Achen 2000; Beck and Katz 1995, 2011).² By and large, much of this debate has been centered on efforts to reduce estimation errors and address unit effects, though some recent attention has been devoted to the causal implications of different estimators. Based on these evolving ideas and for reasons elaborated below, the OLS estimator with a time trend, the Prais-Winsten transformation, and panel-corrected standard errors is used as the main technique for statistical estimation in this inquiry.

The OLS estimator has been selected over other estimators as the base approach partly because it is better suited for examining differences between countries. Although it is self-evident that variables in TSCS data vary across both time and space, the theoretical significance of this two-way variation is often underappreciated in cross-national analyses using this class of data (Bartels 2011; Kropko 2010; Zorn 2001). In particular, in considering the theoretical effects of an explanatory variable on an outcome variable, this two-dimensional structure implies that there can be one effect within a typical country and another effect between all countries. For those seeking to explain differences between countries – as is the aim in this study – the between effect is likely to be of greater theoretical relevance, but many existing estimators have primarily been designed to detect the within effect. The fixed-effects estimator offers the clearest example of this within-effect bias – by controlling for unit effects, it intentionally discards all information about between effects to obtain pure estimates of within effects.³ While the OLS estimator is far from perfect in its handling of the two type of effects, it is the most capable of the conventional estimators in capturing between effects.

² When applied to TSCS data, the OLS estimator tends to produce errors that: conceal unit and period effects; are temporally autoregressive, cross-sectionally heteroskedastic, and cross-sectionally correlated; and reflect inconsistent causal processes (Hicks 1994, 172; Stimson 1985)

³ Given that the fixed-effects estimator only estimates within effects, it is sometimes referred to as the within estimator.

Another feature that makes the OLS estimator attractive compared to alternative approaches is its ability to handle time-invariant and rarely changing explanatory variables in a statistically consistent manner. Several of the predictors in this study, including those representing the core hypotheses, exhibit little or no variation over time, making this a crucial consideration in the selection of an estimator. Given that the fixed-effects estimator removes all between variance from TSCS data, it is incapable of estimating the effects of variables with little or no temporal variation. The random-effects estimator, which also controls for unit effects, is more capable of dealing with sluggish variables, but its use entails the controversial assumption that unit effects are uncorrelated with all regressors (Beck and Katz 2001; ?; Wilson and Butler 2007). To deal with these drawbacks of the fixed- and random-effects estimators, Plümper and Troeger (2007) have proposed an alternative procedure, referred to as fixed-effects vector decomposition (FEVD), but this three-step approach is not consistent in its handling of between and within effects for explanatory variables.⁴ In contrast with these three alternative approaches, the OLS estimator does not have any major deficiencies when it comes to modeling the effects of time-invariant and rarely changing explanatory variables, making it fitting for this study.

Besides dictating the choice of estimator, the theoretical emphasis on cross-national differences and long-run effects in this study argues against the use of a dynamic specification in the modeling process. While it has been pointed out that dynamic models can have many statistical advantages (Beck and Katz 1995, 2011), they are often not appropriate when the aim is explain long-term movements in an outcome variable. It has been shown, for instance, that the inclusion of a lagged dependent variable (LDV) to capture short-term dynamics tends to bias the estimates of substantive predictors toward negligible values (Achen 2000, 13). This bias is likely to be particularly severe in TSCS analyses involving outcome variables with time trends, like those examined in this inquiry (Plümper,

⁴ More specifically, the FEVD procedure provides estimates of within effects for most time-variant predictors and estimates of between effects for time-invariant and rarely changing predictors.

Troegeer, and Manow 2005, 334–343).

Seeing that a dynamic specification is theoretically and practically unsuitable for this study, a time trend is included to address the issue of non-stationarity. As is the case in many political economic analyses, several of the measures used in this investigation appear to be integrated: in addition the outcome measures, polity score and GDP per capita are non-stationary according to conventional definitions. To deal with potential threat of spurious correlations, a set of models with a time trend are estimated.⁵

In addition to including a time trend to help deal with integrated series, further steps are taken to remedy some common efficiency problems. To mitigate the effects of serial correlation, the Prais-Winsten procedure is used in conjunction with the OLS estimator. On top of this modification, panel-corrected standard errors are also employed to improve the estimates in the presence of contemporaneously correlated and panel heteroskedastic error structures (Beck and Katz 1995).

2.4 Results

The main results of the regression analyses are presented in Table 2.4. For each outcome variable, estimates are provided for two models: one excluding a time trend (i.e. variable year) and the other including it. In situations where there are few notable differences in the results generated by these two approaches, the discussion below focuses on the estimates produced by the models including a time trend (Models II, IV, and VI). To provide meaningful and accurate representations of the interaction terms in these models, three plots of marginal effects are included (see Figures 2.2, 2.3, and 2.4).

Beginning with the results for firm-based vocational training, the estimates confirm that the dispersion of authority and coordination legacies are interactively related to the development of this system type. As Figure 2.2 shows, the marginal effect of federalism on

⁵ As Beck and Katz (2011) have highlighted, many data series used to compare political economies can appear to be non-stationary in the short run even though they are actually stationary in the long run. With the exception of GDP per capita, all of the measures included in this study have upper bounds – mathematical or conceptual. This means that they have to be stationary in the long run.

firm-based training increases strongly as the intensity of coordination legacies moves from weak to strong. With regard to substantive effects, a change in the coordination measure from 0 (e.g., the United States) to 3 (e.g., Germany) for a country with strong federalism is associated with a 1.482 point increase in the scale of firm-based training (ranges from 0 to 6), holding all else equal.⁶ Though not presented graphically here, the marginal effect of coordination legacies follows a similar pattern, as it increases as federalism shifts from non-existent to strong. For a country with robust coordination legacies, a shift from a unitary structure (e.g., Sweden) to a federal structure (e.g., Germany) is also associated with a 1.482 point increase in the scale of firm-based training. The confidence bounds for both sets of marginal effects never include zero, which indicates that they consistently meet the conventional threshold ($p\text{-value} < 0.05$) for statistical significance.

Looking at the political variables, three of the four estimated effects are statistically significant. Two of these three variables, democracy and social cleavages, are negatively associated with firm-based training, which is consistent with what was expected. In substantive terms, a two standard deviation increase in the level of democracy (11.50 points) would, all else being equal, result in a 0.587 point decrease in the scale of firm-based training. A comparable shift in the cleavage variable (1.18 point increase) would produce a -0.695 point change in the same scale. The other significant variable, union density, exhibits a positive relationship with firm-based training; a two standard deviation jump in union density (26.74 points) would increase the index of firm-based training by 1.043 points. While the estimated coefficient for liberal-socialist government has a positive sign, it does not meet the standard cut-off for statistical significance.

None of the economic factors included in this set of analyses have effects that are theoretically consistent and statistically significant. Contrary to what was predicted, GDP per

⁶ For the purposes of interpreting substantive effects, the 10th-and 90th-percentile values are used for the federalism and coordination variables because of their ordinal nature.

capita is positively related to firm-based training, with a 1 percent increase in affluence being associated with a 0.012 increase in the scale of firm-based training.⁷ Therefore, a two standard deviation increase from the mean GDP per capita (a 73.7 percent increase) would add 0.884 points to the firm-based training score. The estimate for trade openness also contradicts existing theory, as it is negatively signed and relatively weak – a two standard deviation jump in this predictor would only result in a 0.258 point increase in the index of firm-based training. The proxies for the remaining two variables, industrial activity and economic diversity, have substantively and statistically insignificant effects.

In the models for school-based vocational training, the federalism and coordination regressors have meaningful and significant effects. Figure 2.3 presents a graphic representation of the marginal effect of federalism on school-based training, which confirms that the negative effect of authority dispersion (i.e. positive effect of authority centralization) increases as coordination legacies shift from weak to strong. The substantive impact of a change in the coordination measure from 0 to 3 for a country with strong federalism is a -0.900 point change in the scale of school-based training. To make this finding more intuitive for this study, the federalism measure has been inverted (thus creating a measure of centralization) and the marginal-effect plot reconstructed. The end result, which is found in Figure 2.4, is a new plot that simply mirrors the federalism plot, with the x-axis being the line of reflection. Therefore, in this inverted specification, a 0-to-3 jump in the coordination index in a country with centralized authority (e.g., a shift from the UK to Sweden) generates a 0.900 increase in the scale of school-based training.

Among the estimates for the political variables in the models for school-based training, only the two representing democracy and cleavages exhibit consistent statistical significance. In this case, the level of democracy is positively associated with the development of

⁷ In a level-log relationship, the effect of the logged explanatory variable ($\log(x)$) on the level outcome variable (y) can be interpreted in the following manner: a 1 percent change in x is expected to produce a $Beta/100$ unit increase in y .

training, with a two standard deviation rise in the polity score producing a modest 0.219 gain in the index of school-based training. Similarly, the number of non-class cleavages is positively related to the expansion of school-based training; a two standard deviation increase in this variable results in a 0.485 increase in the training scale. Both of these relationships contradict what had been hypothesized. Although liberal-socialist government is positively signed in both models, its coefficient is only significant in one model and not the other. The union density variable also fails to reach statistical significance in both models for school-based training.

Similar to the prior set of results, none of the of the economic regressors have consistently significant and meaningful effects on the index of school-based training. The estimates for GDP per capita and industry's share of GDP flip in sign when a time trend is introduced into the model, and the latter estimate loses its statistical significance. In both models, the coefficient for trade openness hovers around zero and thus has no statistically distinguishable relationship with school-based training. Of these factors, territorial area comes the closest to having a strong and consistent association with the outcome variable. Drawing on the results from Model IV, a two standard deviation increase in this measure (around 377 percent of the mean value) would lead to a 0.604 decline the score of school-based training. The direction of this effect matches that which was hypothesized, but it is not statistically significant in both sets of results for school-based training.

Turning to the final set of regression estimates, the effects of federalism and coordination and their interaction match the anticipated pattern, with an increase in one negatively affecting the effect of the other on the development of general education. Figure 2.5 shows the impact of this relationship on the marginal effect of federalism: the positive effect of federalism on the scope of general education wanes markedly as coordination legacies become more salient. In substantive terms, a change in the coordination measure from 0 to

3 for a country with strong federalism is associated with a 51.2 point decline in the enrollment rate for general-education schools at the secondary level. This interactive effect is statistically distinguishable from zero except when the value for the coordination variable is equal to 3 (i.e. strong legacies). Likewise, the marginal effect of coordination legacies on the outcome variable is not statistically significant when the authority structure is highly centralized.

The political and economic variables have surprisingly little statistical relevance in explaining the variation in general education enrollment rates. GDP per capita and union density are estimated to have positive and significant effects on the expansion of general education in Model V, but these effects do not hold after a time trend is introduced. This loss of significance is not entirely unexpected for GDP per capita given that it is a measure with a strong upward trend, but controlling for this trend has no meaningful impact on the statistical significance of other variables.

2.5 Discussion

The end of the nineteenth century marked an important turning point in the development of education and training systems in the more developed societies of the world. As social and economic pressures to open and expand mass education beyond the primary level started to mount, conservative elites across these societies sought to defend the class-based split in general education situated between the primary and secondary levels. Despite having this common aim, however, these elites pursued a number of different strategies with varying levels of success. While some elites remained relatively passive in the face of pressures for change, others became active in pushing for the establishment of vocational training as a form of mass education at the secondary level. These passive and active strategies did not always have their intended effects, as some countries developed extensive systems of school-based training and others experienced significant growth in general education. The end result of these institutional divergences was the emergence of four distinct mixes

of general education and vocational training in secondary education.

The quantitative analysis contained in this chapter confirms the core hypothesis that differences in structures of authority over general education and legacies of non-market coordination in vocational training largely account for these varied institutional arrangements. As predicted, these two factors have an interactive effect on the development of secondary education. When high dispersion of educational authority – as is generally found in federal systems – is combined with strong legacies of coordinated training, then firm-based vocational training is expected to emerge as a strong component of secondary education. If coordination legacies happen to be weak or absent, however, no meaningful vocational training system should develop, and general education at the secondary level is likely to undergo rapid expansion. When low dispersion of educational authority is combined with strong legacies of coordinated training, then school-based vocational training is expected to grow significantly and become a core element of secondary education. But if there are no substantial coordination legacies, then neither vocational training nor general education should experience much growth.

Only a few of the alternative explanations are shown to have relevance in explaining the emergence of these different education-training mixes in secondary education. Higher levels of democracy and greater numbers of cleavages are found to undermine the formation of vocational training systems based in firms but promote the development of vocational training systems based in schools. A positive relationship is also been detected between union density and firm-based training, which supports the claim that the expansion of training partly arose as a conservative reaction to labor activism. Contrary to expectations, greater national affluence is shown to support the rise of firm-based training, while high trade openness is found to work against the expansion of this particular system. Otherwise, the variables for economic development have little statistical significance in explaining the formation of different institutional varieties of secondary education.

Overall, these broad statistical findings show that political institutions have a decisive impact on the early development of education systems. The way in which educational authority is structured deeply influences the political strategies employed by competing educational interests, while the degree to which legacies of coordinated training are present largely determines which of these competing strategies succeed and which fail. In the period around the beginning of the twentieth century, variation in these core institutions placed affluent societies on distinct paths in the development of modern education systems.

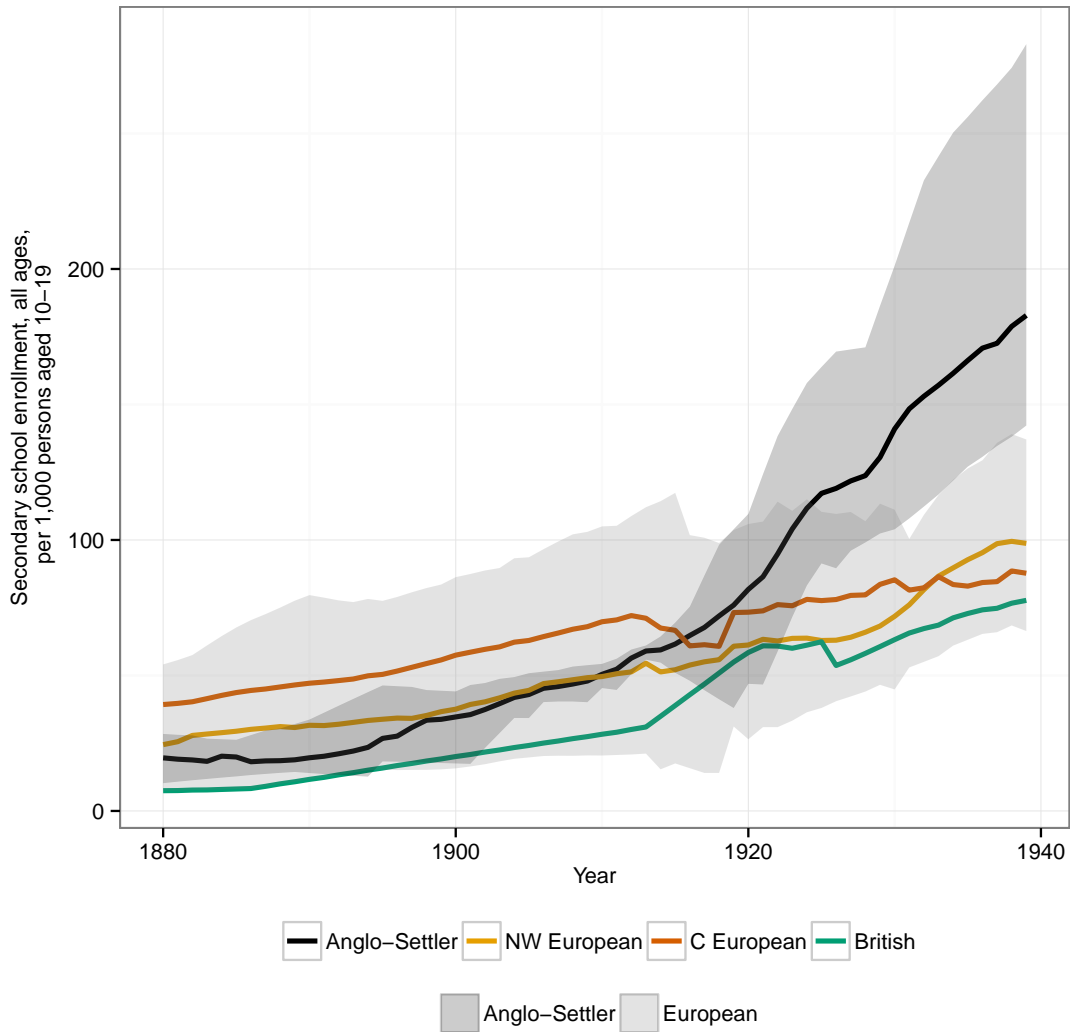
The strong effects of these political institutions on the formation of early education policy have important implications for the broader study of social policy and welfare states. Although collective action ultimately lies at the heart of political struggles over social policy, these findings imply that partisanship is not always the main driver of these political struggles and their varied outcomes. This is not entirely surprising knowing that democratic rule remained limited in most affluent societies at the beginning of the twentieth century, but it still goes to show that partisan-based theories of welfare state development devised for the postwar era are less relevant for the prewar era. Moreover, these findings reveal that the effects of political institutions on welfare state development are not always consistent across different policy areas and historical periods. While federalism and other authority-dispersing structures are often found to hinder the development of progressive social policy in the decades after World War II, this study identifies an important instance in the prewar period where the opposite is true – that dispersed authority has a substantial protective effect on progressive policy innovation.

The following chapter presents a case-study analysis that delves deeper into these political institutions and the underlying processes that link them to prewar developments in education and training. As discussed in Chapter 1, the four cases that have been selected for this case-study analysis include Germany, Sweden, the United Kingdom, and the United States. Each of these cases exemplifies one of the four education-training regimes described

in this chapter, and they vary significantly in terms of how state authority over general education is structured and whether coordination legacies in vocational training exist. Historical analysis of these four cases will not only add richer detail to some of the abstract relationships identified in this chapter, but also shed light on the causal mechanisms that underpin them.

2.6 Tables and Figures

Figure 2.1: Comparative Development of General Education at the Secondary Level, 1880–1939



Note: Lines depict average enrollment rates for country groupings and gray areas depict the range of enrollment rates for broader regions. The country groupings are as follows: Anglo-Settler – Australia, Canada, New Zealand, and the United States; Northwest Europe – Belgium, Denmark, Finland, France, Italy, Netherlands, Norway, and Sweden; Central Europe – Austria, Germany, and Switzerland; British Isles – Ireland and the United Kingdom.

Table 2.1: Institutional Development of Education and Training at the Secondary Level in Early Developing and Democratizing Societies, 1880–1935

Country	Firm-Based Vocational Training					School-Based Vocational Training					General Education				
	1880	1895	1910	1925	1935	1880	1895	1910	1925	1935	1880	1895	1910	1925	1935
Austria	1.0	2.0	3.0	4.5	5.5	0.5	1.0	2.0	2.5	2.5	15	17	28	38	65
Germany	1.0	2.5	4.0	4.5	5.5	0.5	1.0	2.0	2.5	2.5	48	57	77	84	88
Switzerland	1.0	2.0	3.0	4.5	5.5	0.5	1.0	2.0	2.0	2.5	54	78	105	110	96
Mean	1.0	2.2	3.3	4.5	5.5	0.5	1.0	2.0	2.3	2.5	39	51	70	77	83
Belgium	0.0	0.0	0.0	0.0	0.0	0.5	1.0	3.5	5.0	5.5	26	32	50	47	86
France	0.0	0.0	0.0	0.0	0.0	1.0	1.5	3.0	5.0	5.0	13	15	20	42	84
Italy	0.0	0.0	0.0	0.0	0.0	1.5	1.5	2.0	3.5	5.0	21	22	28	45	82
Netherlands	0.0	1.0	1.0	1.0	1.5	1.0	1.5	2.0	3.5	5.0	10	18	41	65	93
Denmark	1.0	2.0	2.0	3.5	3.5	1.0	1.5	2.0	3.5	5.0	43	53	77	91	110
Finland				0.5	0.5				3.5	3.5				63	81
Norway	1.0	1.5	1.5	2.0	2.0	1.5	2.0	2.5	3.0	3.5	31	42	44	76	80
Sweden	1.0	1.0	0.5	0.0	0.0	1.0	1.5	2.0	3.5	5.0	27	55	88	74	126
Mean	0.4	0.8	0.7	0.9	0.9	1.1	1.5	2.4	3.8	4.7	24	34	50	63	93
Ireland				0.5	1.0				1.5	2.0				43	63
United Kingdom	1.0	1.0	0.5	0.5	0.5	0.0	0.0	2.0	1.0	1.5	7	16	28	62	83
Mean	1.0	1.0	0.5	0.5	0.8	0.0	0.0	2.0	1.3	1.8	7	16	28	53	73
Australia			1.5	1.5	1.5			0.0	1.5	1.5	18	18	52	119	147
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	28	46	54	95	127
New Zealand	0.0	0.0	0.5	2.0	2.0	0.0	0.0	1.5	1.5	1.5	21	19	45	91	135
United States	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	1.0	10	24	50	164	256
Mean	0.0	0.0	0.3	0.7	0.7	0.0	0.0	0.5	1.3	1.3	20	30	50	117	173
Overall Mean	0.5	0.9	1.2	1.5	1.7	0.6	1.0	1.8	2.7	3.2	25	34	52	77	106

Notes: The figures for firm- and school-based vocational training are based on composite indexes that range from 0 to 6. Each index captures three institutional dimensions: coverage (degree to which many regions/sectors have training), formality (standardized curriculum, formal certification, trained instructors, etc.), and intensity (level of involvement from firms or state). The figures for general education are enrollment rates, which represent the number of students of all ages in secondary schools per 1,000 persons aged 10 to 19.

Table 2.2: Hypothesized Effects of Explanatory Variables on Secondary Education

	Type of Secondary Education		
	Firm-Based Vocational	School-Based Vocational	General Education
<i>Economic Development</i>			
National Affluence	0/-	+	+
Industrial Activity	+	+	0/-
Trade Openness	+	+	0/-
Economic Diversity	-	0/-	0/+
<i>Political Mobilization</i>			
Democracy	-	0/-	+
Liberal-Socialist Government	-	0/+	+
Union Mobilization	0/+	0/+	0/+
Social Cleavages	-	0/-	0/+
<i>Authority Structures</i>			
Dispersion of Authority			
<i>High dispersion and</i>			
- no/weak coord. legacies	0/-	-	+
- strong coord. legacies	+	0/-	0/-
<i>Traditions of Coordination</i>			
Coordination Legacies			
<i>Strong legacies and</i>			
- low dispersion of authority	0/-	+	-
- high dispersion of authority	+	0/-	0/-

Note: [+] positive effect, [-] negative effect, [0/-] non-positive effect, [0/+] non-negative effect, and the effects for dispersion of authority and training legacies are interactive.

Table 2.3: Measure Selection and Summary Statistics for Explanatory Variables Used in Analyses of Secondary Education

Variable	Measure	Quartiles or Mean/Std. Dev.				Min.	Max.	Missing
Dispersion of Authority	Federalism (Index)	Q1:	Q2:	Q3:	Q3:	0.00	2.00	0.00
Coordination Legacies	Coordination Legacies (Index)	Q1:	Q2:	Q3:	Q3:	0.00	3.00	0.00
Democracy	Polity Score	Mean:	SD:	5.75		-9.00	10.00	0.22
Liberal-Socialist Government	Liberal-Socialist Gov. (Index)	Mean:	SD:	0.36		0.00	1.00	0.00
Union Mobilization	Union Density	Mean:	SD :	13.98		0.30	52.49	12.64
Social Cleavages	Social Cleavages (Index)	Mean:	SD:	0.59		1.00	3.00	0.00
National Affluence	GDP per Capita	Mean:	SD:	1370		1477	8636	0.00
Industrial Activity	GDP from Industry	Mean:	SD:	7.36		16.20	50.00	12.85
Trade Openness	Trade Openness	Mean:	SD:	43.06		5.05	297.39	3.81
Economic Diversity	Territorial Area ^a	Mean:	SD:	3378		29	9860	0.00
Demographic Change	Population Aged 5–19	Mean:	SD:	2.94		21.60	37.04	0.44

^a The summary statistics for this indicator are expressed in 1000s.

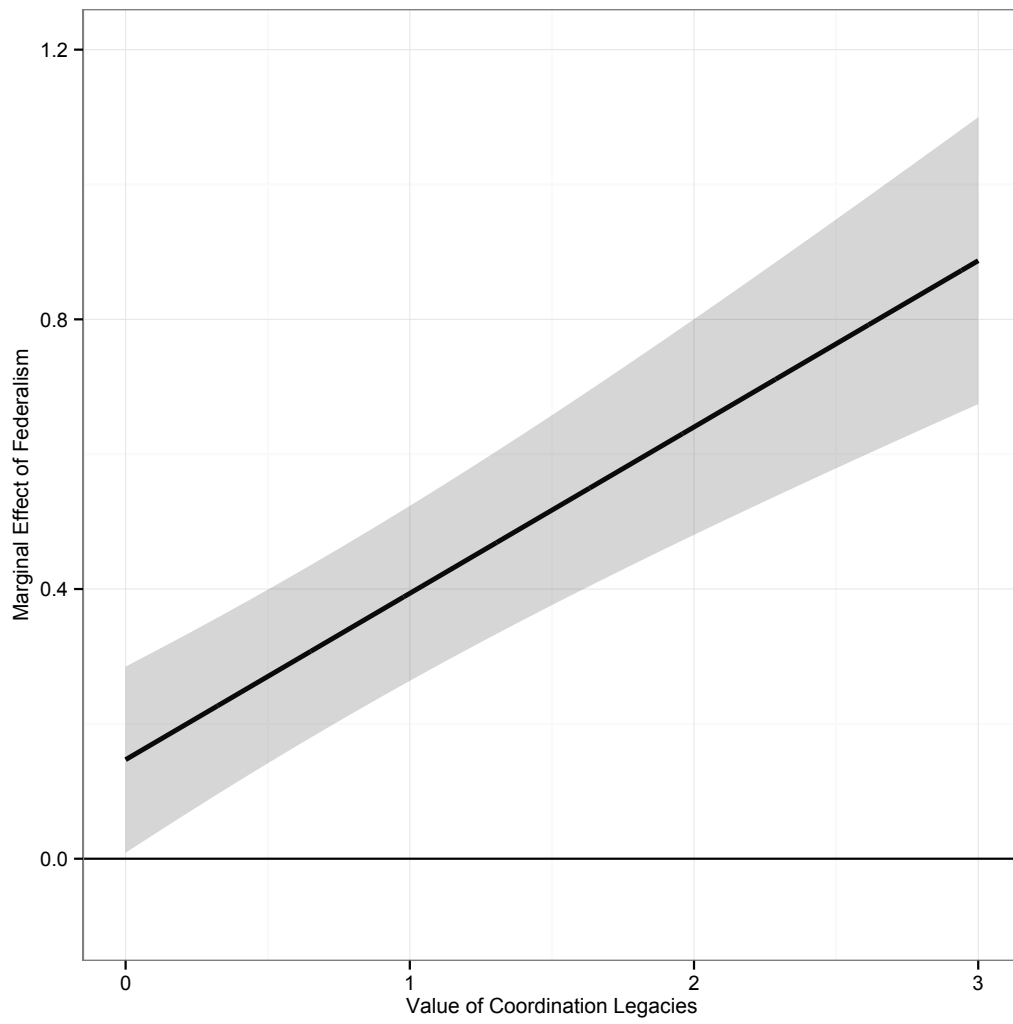
Table 2.4: Determinants of Institutional Development of Education and Training, 1880–1939

Variable	Firm-Based Vocational		School-Based Vocational		General Education	
	I	II	III	IV	V	VI
Federalism	0.142 (0.072)	0.147* (0.072)	−0.174 (0.092)	−0.072 (0.047)	22.413** (7.721)	28.325** (9.205)
Coordination Legacies	0.615** (0.046)	0.604** (0.043)	0.580** (0.058)	0.374** (0.048)	4.750 (3.727)	4.542 (4.258)
Federalism x Coord. Legacies	0.245** (0.039)	0.247** (0.039)	−0.173** (0.036)	−0.150** (0.029)	−6.649* (3.221)	−8.528* (3.667)
Polity Score	−0.050** (0.009)	−0.051** (0.009)	0.029** (0.008)	0.019** (0.006)	−0.100− (0.404)	−0.087− (0.439)
Liberal-Socialist Government	−0.143 (0.103)	−0.139 (0.100)	0.184 (0.152)	0.266** (0.086)	−1.247 (3.433)	−2.129− (2.988)
Union Density	0.040** (0.004)	0.039** (0.005)	0.021** (0.004)	−0.004 (0.003)	0.119* (0.048)	0.065 (0.044)
Social Cleavages	−0.598** (0.054)	−0.589** (0.053)	0.236** (0.086)	0.411** (0.073)	−2.661 (4.365)	−1.768− (5.326)
GDP per Capita (logged)	1.193** (0.213)	1.132** (0.210)	0.661** (0.238)	−0.513** (0.176)	23.952** (6.743)	5.904 (5.273)
GDP from Industry	−0.003 (0.005)	−0.002 (0.005)	−0.026** (0.005)	0.003 (0.004)	−0.094 (0.092)	−0.057 (0.092)
Trade Openness	−0.003* (0.001)	−0.003** (0.001)	0.000 (0.001)	−0.001 (0.001)	−0.032 (0.025)	−0.006 (0.023)
Territorial Area (logged)	−0.006 (0.031)	−0.012 (0.029)	−0.027 (0.046)	−0.160** (0.034)	1.603 (1.886)	−0.431 (2.951)
Population Aged 5-19	0.048** (0.018)	0.054** (0.018)	−0.162** (0.016)	−0.046** (0.017)	−4.653** (1.369)	−2.742 (1.944)
Year		0.003		0.053**		1.184**
Constant	−10.050**	−14.962**	0.676	−93.177**	−24.216−	−2173.1**
<i>Rho</i>	0.905	0.913	0.911	0.926	0.919	0.946
<i>R</i> ²	0.666	0.667	0.665	0.801	0.522	0.608
<i>N</i>	918	918	918	918	918	918

Figures in parentheses are standard errors.

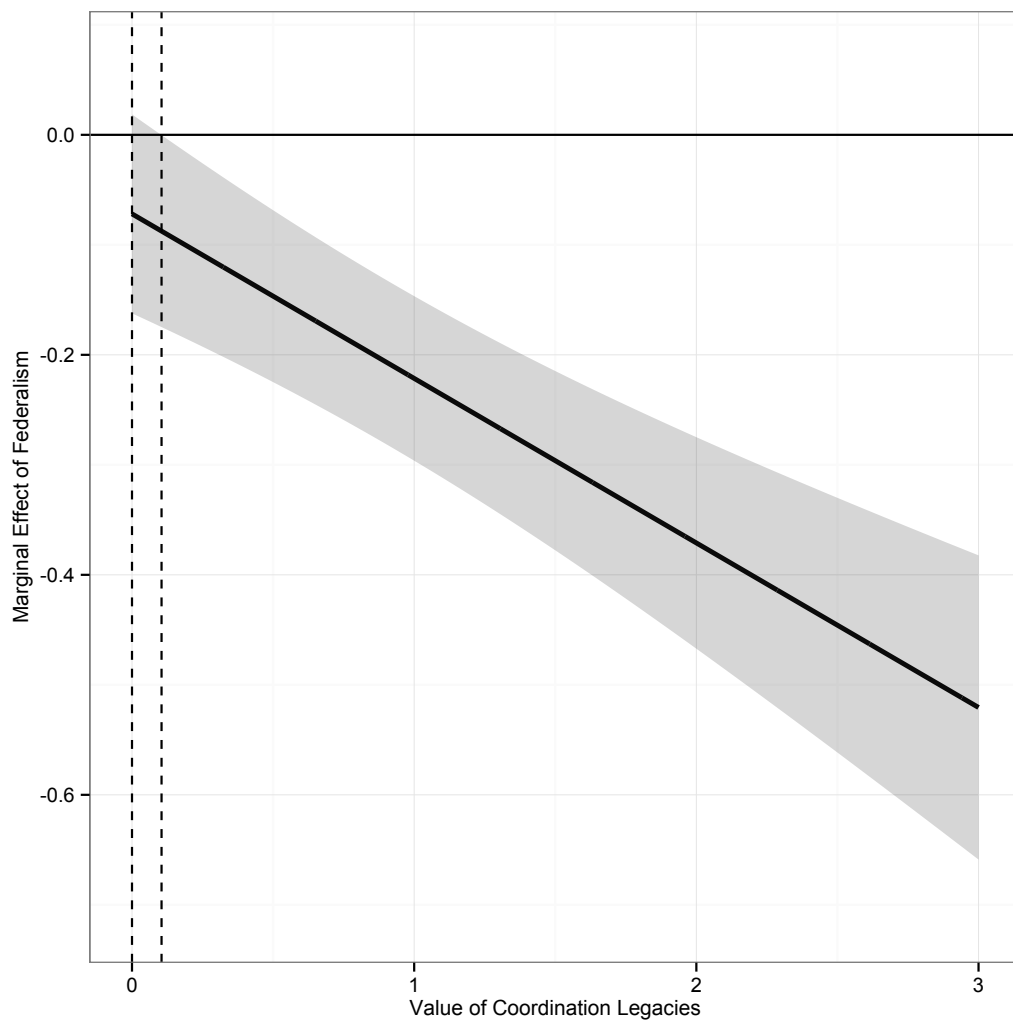
Significance levels: * = 0.05, ** = 0.01, based on two-tailed t-test.

Figure 2.2: Marginal Effect of Federalism on Firm-Based Vocational Training



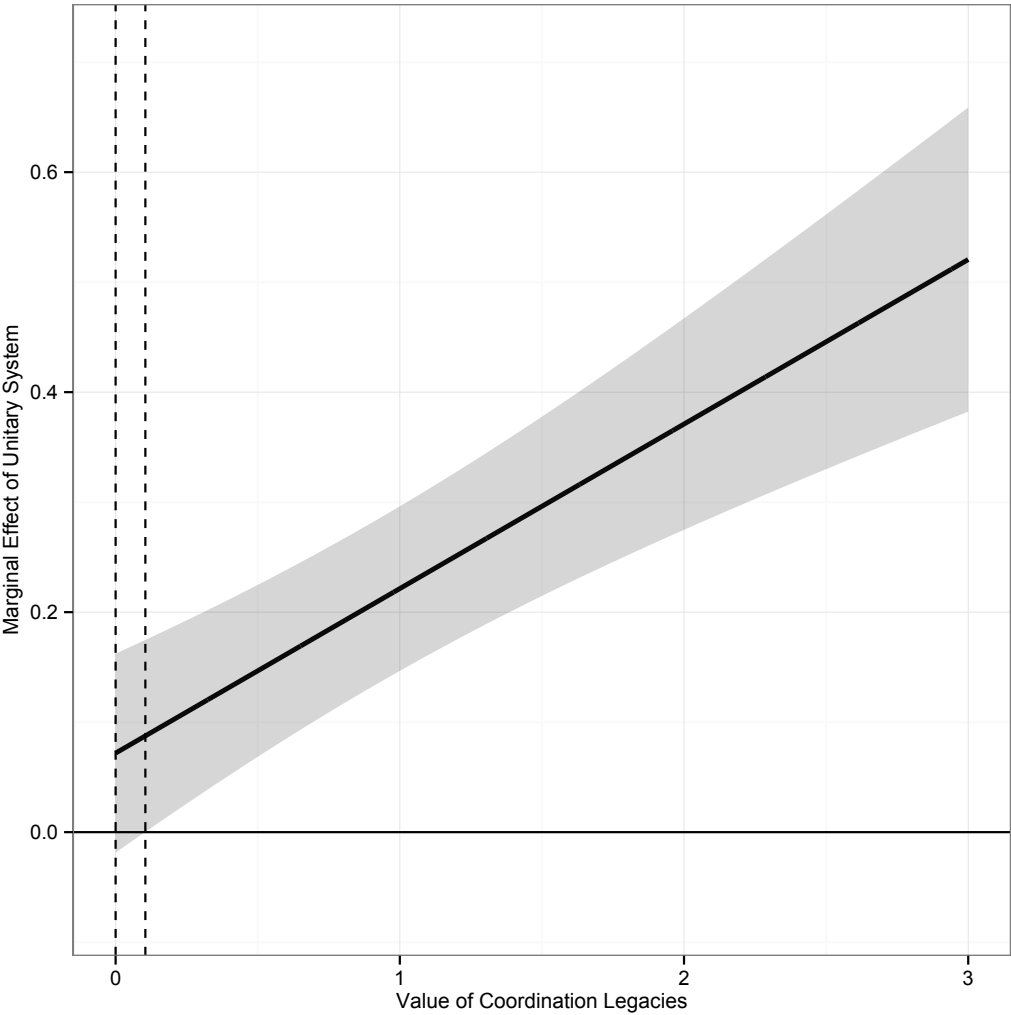
Note: Based on results for Model II in Table 2.4. Presented with 95% confidence bounds (gray area).

Figure 2.3: Marginal Effect of Federalism on School-Based Vocational Training



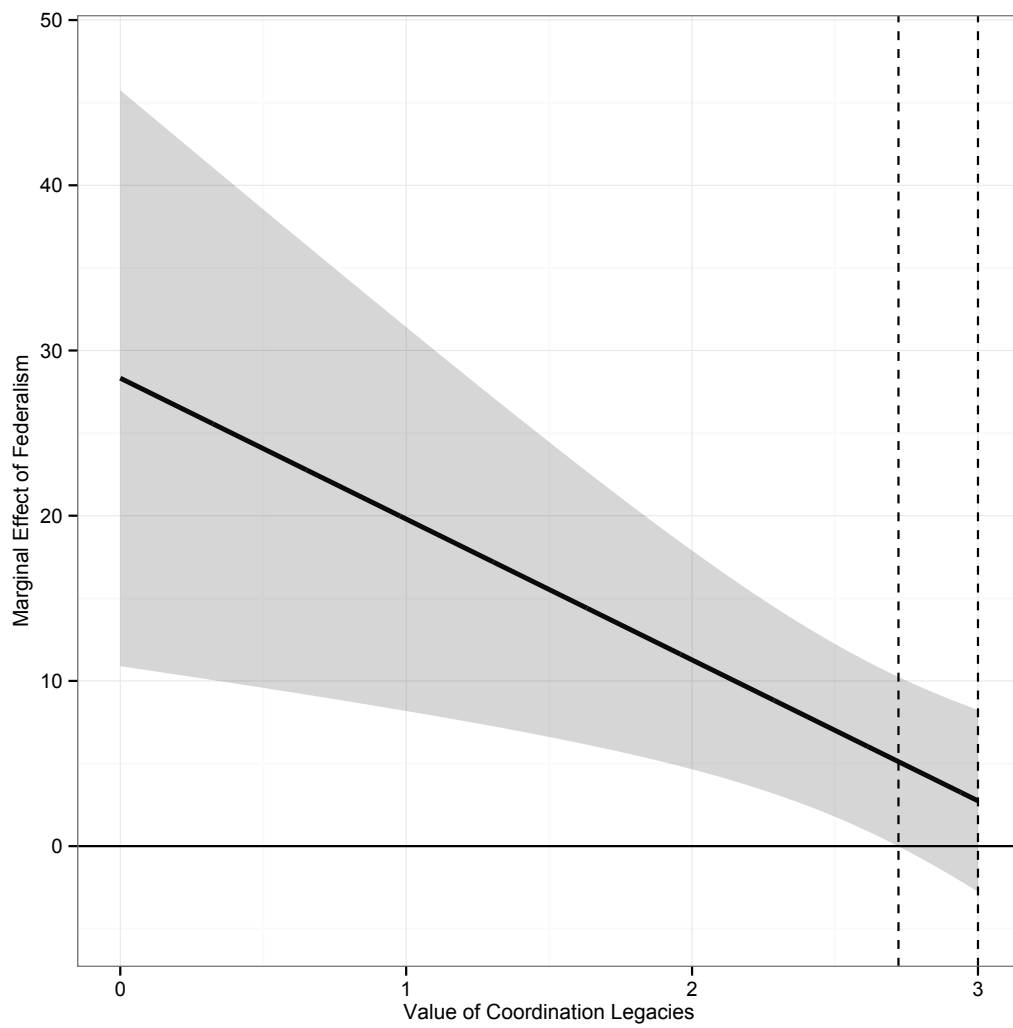
Note: Based on results for Model IV in Table 2.4. Presented with 95% confidence bounds (gray area).

Figure 2.4: Marginal Effect of Unitary System on School-Based Vocational Training



Note: Based on results for Model IV in Table 2.4 Presented with 95% confidence bounds (gray area).

Figure 2.5: Marginal Effect of Federalism on General Education



Note: Based on results for Model VI in Table 2.4, Presented with 95% confidence bounds (gray area).

3 THE COEVOLUTION OF EDUCATION AND TRAINING: HISTORICAL EVIDENCE

The purpose of this chapter is to show how cross-national differences in authority structures and coordination legacies can engender the rise of distinct education-training regimes in secondary education. The statistical analyses contained in the prior chapter have established that broad and robust relationships exist between these explanatory and outcome variables, but they do not provide much information about the nature of these relationships: how, exactly, did these two political economic factors cause such wide divergences in the institutional composition of secondary education? Addressing this question requires one to peer more deeply into the historical records of specific cases and identify the chain of events that connect the empirical incarnations of these variables. By examining the early experiences of Germany, Sweden, the United Kingdom, and the United States with mass education at the secondary level, this chapter confirms that authority structures and coordination legacies have strongly shaped political struggles over education and the impact of these struggles on the long-term trajectories of secondary education.

As mentioned in prior chapters, these four cases have been selected for historical analysis because their education systems feature the most distinct mixes of general education and vocational training at the secondary level. Germany and Sweden are both well known for their segmented systems of secondary education, with separate tracks for general education and vocational training. Yet, these two countries differ in how they deliver vocational training: Germany pushes firm-based apprenticeships while Sweden emphasizes school-based programs. Secondary education in the United Kingdom and United States is also distinctive, but for its lack of meaningful vocational training. Both of these countries

have developed education systems that stress general education, but the United States has a much stronger record of educational expansion than the United Kingdom does. Seeing that these four cases are good representatives of the education-training regimes identified before, more intensive analysis of these cases and their histories should help elucidate the causal paths to these different regime types.

These four cases have also been chosen for further examination because their education systems have developed in very different institutional contexts, particularly when it comes to authority structures and coordination legacies. From their inception as unified and independent countries, both Germany and the United States have employed a federal model of government, with authority divided between different levels of government. As is the case in most federal states, general education falls primarily under the purview of regional governments in these two countries. While Germany and the United States best exemplify strong federalism, Sweden and the United Kingdom both have long histories of unitary government. Although these countries have more than one level of government, their central governments possess the final authority over state matters, including those pertaining to education. In terms of non-market coordination, a well-developed network of guilds left strong legacies of organized training in Germany and Sweden. Although the United Kingdom did have a guild system at one point in history, there were few traces of it in the late nineteenth century due to its early legal abolishment and the country's early industrialization. The United States too has no significant legacies of non-market coordination, but this was largely because it never had a guild system like those once found in Europe. This analysis exploits this significant cross-national variation to illustrate how the theorized determinants of educational development function in a variety of different political economic environments.

With these key educational outcomes and explanatory factors in mind, this chapter proceeds in five parts. It begins by looking at the development of secondary education in

the German Empire and the decision by Prussian elites to rebuild an apprenticeship-based system of vocational training. The chapter then examines the failed efforts to emulate the German approach to vocational training in the United States, which left general education as the main focus of American educational development. At this point, the chapter analyzes the sluggish expansion of secondary education in the United Kingdom and the strategies used by British elites to deny the masses access to this level of education. Afterward, it traces the rise of school-based vocational training in Sweden as a response to elite attempts to stymie the growth of mass education. Finally, the chapter concludes with a brief comparative analysis of these cases studies to highlight the key differences in their paths to mass secondary education.

3.1 Germany

Like all Western European countries at the time, Germany had erected a highly segmented education system by the mid-nineteenth century. In this segmented or parallel system, secondary and tertiary education was principally reserved for the upper strata of Germany society and was closely tied to the state governments. Developments in secondary and tertiary education during this period largely followed efforts to rationalize the German bureaucracies and cement elite linkages to the states. Beginning with an overhaul of the exit exam for secondary education (the *Abitur*) in 1812, a complex arrangement of state exams and academic privileges was established to reinforce the high selectivity and status of the secondary and tertiary levels. Besides providing the German bureaucracies with a pool of qualified candidates, this system strengthened the states' role in securing the positions of elites. For those excluded from the upper levels of German education – the masses – general education consisted of eight years or so in the common school, or *Volksschule*. The overwhelming majority of those who attended the *Volksschule*, which focused on the rudiments of literacy and the instruction of religion, never advanced beyond this primary level of education.

Despite its reputation for centralized authoritarianism in the nineteenth century, Germany developed an education system with dispersed governance. Following Napoleon's victories over the German states around the beginning of the century, education had become a core government function in Germany, but jurisdiction over the emerging education system lied entirely with the individual states. Even as interstate imitation and cooperation fostered substantial uniformity in the areas of certification and curriculum, especially at the secondary and tertiary levels, the German states enjoyed independent powers to finance and manage their schools and universities (Nipperdey 1996, 409–410). In most states, these powers became even more decentralized during the first half of the nineteenth century as a tradition of local control over primary schooling – the *Volksschule* – steadily formed (Ibid).¹ By the 1860s, less than half of the funding for primary schools came from state governments, with the remaining amount largely drawn from local sources (Petersilie 1906, 147). The Kingdom of Prussia, the dominant force in German politics at the time, was particularly tightfisted when it came to state funding of primary schools, as less than 11 percent of these monies flowed from the central government (Ibid). With the pervasiveness of local administration, notable regional disparities in schooling effort materialized, particularly between more progressive and conservative areas. In the case of Prussia, the rural areas of the East – dominated by the aristocratic Junkers – devoted markedly less resources to primary education than rural areas in the West and significantly less than urban areas in both regions (Lindert 2004, 121–122). Although state governments possessed the final say in setting and administering education policies, some were clearly more aggressive and effective than others in exercising this power.

The formation of the German Empire in 1871 did not fundamentally alter the decentralized arrangement of the education system. The federal constitution adopted with the unification of Germany affirmed that education would remain a prerogative of the constituent

¹ The Prussian Constitution of 1850, for example, codified this tendency: the Prussian central government was only allowed to intervene in local educational matters in cases of need.

states. As before, this legal structure allowed significant disparities in the public provision of general education to persist, both between states and within states. Three decades after the Empire was founded, public educational expenditures still remained highly variable among the German states, with some states spending twice as much per pupil as other states (Lindert 2004, 122). Even as it consolidated its authority over most of the centralized institutions of the imperial government, like the military, the Prussian state had mixed success in exerting top-down control over its decentralized education system. When tensions between the Prussian state and the Catholic community escalated shortly after the rise of the German Empire, the Bismarck-led *Kulturkampf* succeeded in strengthening state oversight of education at the expense of Church involvement. But the real impact of this political victory was limited, particularly as further efforts to unify school administration through the passage of comprehensive school legislation were abandoned in the 1870s (Schleunes 1989, 193–194). The persistence of local control over general education meant that educational expansion could continue to progress in some localities when it faltered in others. Because of this multi-speed approach, geographical disparities in educational effort remained a permanent feature of Prussian education in subsequent decades.

In spite of the formidable barriers to educational reform from above, Prussian officials still made attempts to promulgate broad changes to education policy, especially as the lower classes were perceived as a growing threat. At the height of the *Kulturkampf* in Prussia, there were open discussions in education circles about establishing a German-wide *Volksschule* to promote a German national consciousness, but Bismarck's education minister at the time, Adalbert Falk, never fully embraced the idea (Schleunes 1989, 173–174). However, when the number of industrial strikes and socialist sympathizers rapidly increased in the 1880s, elements of this thinking were incorporated into a new conservative push for education reform. After William II, the Kaiser, proclaimed that schools at all levels were to be “employed in combatting the spread of socialistic and communistic ideas in 1889, a

bill was introduced to the Prussian *landstag* a year later to strengthen the state's hand in the administration of primary education, including the distribution of funding (Schleunes 1989, 210–213). Although the legislation was targeted at the Prussian education system, it revived a conflict between liberals and Catholics over the educational authority that transcended state lines. Caught in the middle of this far-reaching conflict, the Prussian government found it politically unfeasible to pass the reform bill, and alternative legislation with significant concessions to Catholics was devised. Ultimately unwilling to engage Catholics and old conservatives in compromise because of questions about their loyalty to the Reich, William II quashed the new legislation, and reform efforts were subsequently halted (Schleunes 1989, 218). As the Kaiser had discovered, the high dispersion of educational authority served both liberal and Catholic interests, and altering this arrangement was no easy feat.

With tensions over authority stifling their broad reform efforts in general education, conservative elites in started to reexamine old forms of vocational training. Like many other European countries, the German Empire had a strong tradition of craft-oriented training that dated back to the High Middle Ages. For centuries, this training, which generally took the form of apprenticeships, had been provided and overseen by members of craft guilds. With the eventual spread of liberal thinking and industrial production, however, serious challenges were mounted against the monopolistic roles these guilds had in regulating crafts and delivering training. For the German territories, these challenges to the guild system arrived in the early nineteenth century, and the main consequence was the abolishment of guild privileges in 1869 with the introduction of freedom of trade (Crouch 1993, 314).² Yet, despite being severely weakened by this legal shift, guilds and apprenticeships continued to exist in one form or another.

² Prior to the explicit introduction of freedom of trade in 1869, many German states wavered between recognizing and rescinding the privileges of guilds. In Prussia, for example, guild privileges were removed in 1810/11, but then partly reinstated in 1845 and 1849. Through all of these reforms, however, the institutional status of guilds had never been disputed (Deissinger 1994, 22–23).

For conservative elites, this lingering system of vocational training offered a new approach to influencing education policy in the German Empire. Early on, it became clear that this approach had the advantage of being less prone to political resistance. Unlike in the case of general education, the imperial government could directly influence the design and provision of vocational training by setting and altering national industrial policies. A decade after the German Empire's formation, a coalition of the Conservatives, the (Catholic) Center Party, and the National Liberals in the Reichstag used this power to revive and protect the traditions of guild-based vocational training. In 1881, the Reichstag re-established the legal recognition of craft guilds and granted craftsmen some privileges in the training of apprentices (Winkler 1976, 2). Three years later, in 1884, the same parliament passed legislation giving guilds conditional monopolies over relevant apprenticeships (Ibid). These reforms were part of a concerted effort on the part of conservative elites to bolster the position of the *Mittelstand* or petty bourgeoisie against the harsh economic and social effects of rapid industrialization (Greinert 2007, 50). The rapidly growing strength of the German working class added urgency to the effort in the late 1880s; supporting the craft sector and small businesses was viewed as a means to establish a "bulwark against social democracy" and build the ranks of "forces supporting the state" (Ibid).

In the push to revive the guild-controlled forms of vocational training, the imperial handicraft law (*Handwerkerschutzgesetz*) passed in 1897 represents the most significant reform. The central components of the legislation were provisions establishing craft chambers as institutions of public law and providing for the optional formation of compulsory guilds (Greinert 2007; Hansen 1997; Thelen 2004). In essence, these two reforms made guild membership compulsory if a majority of the independent craftsmen in a given branch in a defined district favored these terms. In addition to strengthening the craft sector's right to organize, the legislation gave craft chambers exclusive powers to regulate and supervise craft apprenticeships. Under the new law, the right to take and train apprentices was limited

to accredited and experienced tradesmen, and craft chambers received direct control over the organization and certification of apprenticeships at local firms. On the whole, these changes secured the foundation of the apprenticeship system, giving it a base from which to expand.

After they had gained a stronger legal footing, craft apprenticeships experienced significant growth as lingering guild legacies and new educational innovations reinforced their utility. As mentioned before, guilds and apprenticeships had never truly disappeared from German society despite being weakened by liberal reforms targeted at the labor market in the early part of the nineteenth century. In fact, in the second half of this century, the artisanal sector trained most of the skilled workers who went to work in the burgeoning firms of German industry (Thelen 2004, 52). With these practices already present, there was little resistance to the guild and apprenticeship systems once the 1897 law had restored their legal footings. Around the same time that apprenticeship-based training was being revived, efforts were underway to create the continuation school (*Fortbildungsschule*). The original motivation behind the creation of this school, which started to appear in the 1870s, was to fill the gap in mass “socialization” between the end of compulsory schooling and the start of military service (Greinert 2007, 51). In the early 1890s, however, widespread criticism of this overt mission of social control convinced some school authorities that their *Mittelstand* strategies would be better served if these schools focused on vocational education. With this shift in direction, state authorities in Prussia, Bavaria, and several other German states succeeded in increasing the coverage of continuation schools and making them a compulsory complement to apprenticeships (Ibid). In steering lower-class children toward vocational education, these schools helped insure that apprenticeships would remain the centerpiece of education for most Germans into the twentieth century.

In sum, the decentralized nature of Germany’s education system and the relative strength of its training traditions were central in facilitating the rise of a secondary education system

that emphasized apprenticeships and vocational training in general. The significant independence given to regions and localities in determining education policy presented progressive reformers with many opportunities to advance mass education. Although conservative elites opposed this continued expansion of mass education and feared its impact on the class-based division between primary and secondary education, they were prevented by constitutional law from using their significant power in the central government to directly alter subnational education policy. To get around this obstacle, German elites eventually turned to vocational training, which could meet the masses' educational needs without bestowing them with higher status. As a prerogative of the imperial state, training policy could also be set directly by conservative elites sitting in the central government. Using this authority, the elites established a system of apprenticeship-based training that quickly expanded. The success of this intervention was, in large part, due to the strong legacies of guild-directed training found in Germany at the time.

3.2 United States

In comparison to its German counterpart, the American education system of the mid-nineteenth century had much weaker ties to the state and a stronger history of institutional heterogeneity. State officials had played a relatively minor role in the initial development of the American education system, and this remained true throughout the nineteenth century. Instead, an eclectic assortment of civic groups, religious movements, and business associations spearheaded the establishment and expansion of educational institutions at all levels of education. Since these efforts were often organized locally and not broadly coordinated, they resulted in an education system that exhibited significant variation in terms of curriculum, pedagogy, and resources. The main component of this loosely structured education system was the common school, which provided basic education to the masses and was typically funded through public means.³ Despite being mostly public, however, this

³ Prior to 1821, it was the norm for public schools to charge students fees. Between this year and 1871, all states eliminated these rate bills, making public primary education free for students.

system also featured a relatively large number of private institutions, particularly at the secondary and tertiary levels. These private institutions, which included religious schools and elite academies, typically catered to the more influential and wealthy segments of society. This strong division in American education remained present throughout the nineteenth century; by 1890, primary schooling was nearly universal, yet less than 5 percent of American children continued on to the secondary level (Ravitch 2001, 20). Although it was not formally structured on the basis of class, the American education system did exhibit significant social stratification.

The federal structure of the United States contributed greatly to the decentralized and uneven development of education in the country. Although several of its most prominent signatories had been vocal supporters of mass education, the United States Constitution made no explicit mention of education. Once the 10th Amendment was incorporated into the founding documents, however, it became clearer that education was to remain under the domain of the states and that the United States would not develop a nationally directed education system (Manzer 2003, 63–64). As a result, the states took the lead in constructing the legal foundation for public education, though their individual efforts varied significantly. While many states in the North constitutionally mandated the establishment of public schools, most states in the South only made vague promises with regard to public education. In all American states, however, the actual financing and provision of public education was largely a local affair. In 1890, less than 7 percent of funds for public education came from the state level of government, and it was mainly in the South where states were most fiscally involved (US Bureau of the Census 1975). It was not until the last decade of the nineteenth century that serious efforts were made to rationalize and consolidate the approximately 125,000 school districts that existed nationwide (Goldin 1998, 350). Although these efforts had some success in forming larger districts and union districts, local governance of primary and secondary education remained the norm.

The highly decentralized nature of American public education allowed it to flourish in many parts of the United States while it faltered in others. As alluded to before, these disparities in educational expansion were most evident along regional lines, with the North offering more generous and extensive educational services than the South. Although participation in primary education was nearly universal in all areas by the late nineteenth century, the southern states spent about 40 percent less per student in their public schools. In particular, by century's end, the average expenditure per student as share of local per capita income stood at 3.2 percent in the southern states while it was 5.1 percent in the remaining states (Lindert 2004, 123–124). To a large extent, these disparities in educational expenditures reflected significant regional differences in the adherence to democratic practices and norms. Although it had a brief experience with more inclusive democratic rule in the decade after the Civil War, the South had long used a political model that restricted public decision-making to a small group of wealthy white landowners. The region's strongly entrenched plantation economy provided these white elites with few incentives to invest in the education of blacks and poor whites, and thus the southern states actually fell further behind their northern peers in relative terms during the second half of the twentieth century (Margo 1990; Rippa 1988, 128. In many ways, the American South's experience with democracy and education resembled that of eastern Prussia, though the American case was more extreme.

Although public education of the general sort was technically a responsibility of state and local governments in the United States, it was frequently contested at the central (i.e. federal) level of government during the later part of the nineteenth century. Prior to the Civil War, liberal proponents of mass education had enjoyed some success in using federal powers and resources to support the development of public schools (Lee 1949; Hirschland and Steinmo 2003). The best example of this was the series of federal land grant acts, beginning with the Northwest Ordinance in 1785 and ending with the Morrill Act of

1862, that used transfers of federal lands to support subnational units in establishing common schools and public universities.⁴ However, once the war had concluded and southern states had regained representation at the federal level, swift action was taken to end and rollback federal initiatives designed to encourage the expansion of public expansion. The Department of Education, which had been established in 1867, was largely defunded and demoted to Office status in the following year just as most southern states were readmitted to Congress.⁵ In 1870 and 1871, there was a fierce battle over a new piece of legislation, the Hoar Bill, which sought to establish a national system of educational oversight. The bill was ultimately rejected, but it represented an important turning point in American educational politics because “state rights” had become the main mantra of opponents to federal government involvement in education. This “state rights” backlash, which was strongly supported by Southern Democrats, resulted in further defeats of educational legislation at the federal level: between 1872 and 1880, none of the 11 bills for direct federal aid to education that were introduced in Congress passed (Hirschland and Steinmo 2003, 357).

The role of conservative elites, particularly those from the South, in propelling this opposition to broad educational improvements became most apparent in the 1880s. Over the course of this decade, a long battle was waged over the so-called Blair Bill, which aimed to give federal funds, dispensed over 8 years, to those states that met minimum standards in the provision of elementary education. One of these standards was, however, that common schools had be made free to all children, regardless of race or class. It was also stipulated that the funds could not be used to support religious schools or capital improvements (e.g., constructing school buildings), as the main intent of the bill was to improve the quality of the classroom experience for students. Given its goal and requirements, the Blair Bill met stiff opposition in Congress and had to be submitted again five times between 1882 and

⁴ Despite not being public or fully public universities, the Massachusetts Institute of Technology and Cornell University were also beneficiaries of the land grant program under the Morrill Act.

⁵ Georgia, Mississippi, Texas, and Virginia were not readmitted until 1870.

1890. Although the bill made it through the Senate on many of these occasions, it was repeatedly killed in the Democratic-controlled House (Going 1957). During this episode, Speaker John G. Carlisle of Kentucky and other Southern Democrats were publicly identified as the main instigators of the Blair Bill's demise (Going 1957; Hirschland and Steinmo 2003, 348). In his assessment of the situation, the southern leader J. L. M. Curry believed that "fear of the difficulty of controlling more educated Negroes and the potential of upsetting of the traditional patterns of race relationships was the major cause of the Southern opposition" (quoted in Lee 1949, 58). The Blair Bill's defeat had a profound impact on American educational politics because a bill of its type was not considered again in either chamber of Congress for almost three decades.

Although conservative forces did not make overt attempts to use federal authority to intervene in state and local education policy – as happened in Germany – it is reasonable to suspect that these forces would have taken such action if they were not constitutionally prohibited from doing so. When a small but increasing number of localities started to establish public secondary schools (i.e. high schools) after the Civil War, elite-based groups in nearly every state mobilized to stop these efforts from gaining traction. Given that public education was constitutionally guaranteed in most states, these challenges often ended up in state courts. Between 1873 and 1885, the issue of whether local governments could fund and operate secondary schools was being litigated in every state except two (Burrell and Eckelberry 1934, 334). These challenges to public secondary education were particularly vigorous in the Atlantic states and Mid-West region, the areas of the United States where private schools and colleges were most concentrated. Moreover, in the wake of the Civil War and Reconstruction, Democrats in the South strongly curtailed public efforts to support mass education in that region (Rippa 1988, 129). These curtailments included drastic cuts to public spending and the shortening of school terms. If elites had been able to pursue these agendas at the national level, it is likely that the overall development of American

education would have slowed significantly.

In the absence of any broad intervention by conservative elites, many areas of the United States moved forward with the development of mass education at the secondary level. By the 1890s, nearly all of the legal challenges to public involvement in secondary education had been rejected, so states and localities were free to begin establishing tax-financed secondary schools (Burrell and Eckelberry 1934, 334). Not coincidentally, this was the decade when the high school movement started to form. A loosely coordinated effort involving many different social groups, this movement sought to create a system of secondary education that would provide the masses with all the skills they needed to succeed in an industrial society. This was a radical idea at the time because secondary education in the United States, and elsewhere, had long focused on preparing small groups of elites to enter exclusive colleges and universities.

As the high school movement started to gain momentum over the next two decades, conservative elites used the federal government's authority to promote vocational training as an alternative to general education. The idea of a public vocational training started to gain more attention in American politics after an array of different groups, including business associations, labor movements, and civic organizations, formed a loose coalition to promote it (Hillison 1995). Although this coalition made many different arguments in favor of vocational training, it widely emphasized the idea of "social efficiency" – the idea that the "rank and file" of society should be trained to become efficient "producers," leaving a select few to become educated "utilizers" (Snedden 1900). Given that this thinking essentially supported the creation of a parallel education system, it was embraced by industrial elites in the North as well as agrarian elites in the South (Kantor 1986; Werum 1997). Seeing an opportunity to reinforce class- and racial-divisions, Southern Democrats led efforts to create a national system of vocational training in the four decades leading up to World War II (Werum 1997, 1999).

These efforts eventually produced several pieces of legislation on vocational training at the federal level, with the Smith-Hughes Act of 1917 being the most prominent.⁶ This piece of legislation provided federal funding for the establishment of all forms of vocational training, though it placed a strong emphasis on agricultural training. States were given a central role in designing and administering the vocational education programs, though many of their decisions had to be federally approved. To receive funding for vocational training, state education boards were required to submit plans to a newly formed Federal Board of Vocational Education and to raise matching funds. A central feature of the Act was that it required vocational training to be delivered in as a distinct track, as it explicitly limited the amount of academic education students enrolled in vocational programs could receive.⁷ Another important feature was that the Act distributed fund on a demographic basis: more urban areas, particularly in the North, received more funds earmarked for industrial training while more rural areas, such as those in the South, were given more funds designated for agricultural training (Werum 1997, 409). This distributional arrangement was in close alignment with the social objectives of both northern and southern elites.

While the Smith-Hughes Act did encourage the development of some vocational training programs, it did not significantly impact the overall development of American public education. Only eight states ultimately used provisions of the Act to establish vocational training programs, and these programs never gained wide acceptance among students and parents. Vocational training did not have a record of proven success in improving employment prospects in the American context, which made it a weak competitor to the familiar system of general education (Hansen 1997, 495–498). At the same time, the absence of any

⁶ The three other notable pieces of legislation, which modified the Smith-Hughes Act, included: the George-Reed Act (1929–33), the George-Ellzey Act (1934–36), and the George-Deen Act (1937–45).

⁷ The limit for academic education was initially set at 50 percent of a student's coursework. The Federal Board of Vocational Education quickly replaced this with the 50-25-25 rule: 50 percent for vocational training, 25 percent for instruction in related subjects, and 25 percent for instruction in unrelated subjects.

real tradition of coordination between employers and labor in the area of vocational training meant that these groups never gained much input in the vocational programs that did actually develop (Martin 2012, 62). This compounded the problems that these programs had in attracting students. By the end of the 1920s, it was clear that vocational training did not have the mass appeal that general education had. Consequently, the push for mass secondary education only continued to gain speed.

All in all, the combination of strongly decentralized educational authority and weak coordinated training legacies in the United States contributed greatly to the development of a secondary education system that focused almost exclusively on general education. The highly local nature of education in the United States allowed more progressive areas of the country – particularly in the Northeast, Mid-West, and West – to move swiftly in developing tax-supported public schools. Constitutional limits prevented conservative elites from using their power in the federal government to obstruct these subnational efforts; at most, all they could do was block and rollback the federal subsidization of public education. As the drive for mass public education moved from the primary to the secondary level, however, conservative elites adopted a new strategy to hinder its growth and strengthen social segregation. In this strategy, federal resources and oversight was used to promote a vocational education system that would divert lower-class students away from established systems of general education. While this strategy had some success in the short-run, it did not dramatically alter the United States' long-run educational trajectory. In the absence of strong traditions of coordinated training, few students, workers, and firms found the new vocational system to be an appealing alternative to the United States's rapidly expanding set of high schools.

3.3 United Kingdom (England)

For having been one of the most economically developed societies in the nineteenth century, the United Kingdom – and England in particular – had a strikingly underdeveloped system of public education around the middle of this century.⁸ In stark contrast to most of its peers, primary education in England was provided by an array of non-state entities, including private schools, religious organizations, and philanthropic associations. Although the state did provide some support for the religious and philanthropic voluntary schools after 1833, it did not assert much control over primary education until 1870. As a consequence, the primary education system remained mostly funded and controlled by private interests and, like its American counterpart, developed in a highly fragmented manner. The prevalence of costly fees and lack of legal compulsion in primary education meant, however, that a large share of the lower classes received little or no formal education (Lindert 2004, 113–114). While public secondary education was non-existent for the entire nation, there was a system of private schools and universities to serve those with status and means – the clergy, landed gentry, and other elites.⁹ A lack of formal connections between these elite-oriented upper levels and the lower level made it essentially impossible for members of the masses to progress beyond primary education. With this strong class-based division, the English education system was highly stratified, much like the parallel education systems found elsewhere at the time.

Despite maintaining a low profile in education for much of the nineteenth century, the British state faced mounting pressures to intervene in some areas of education toward the later part of the century. With the exception of a financial aid bill passed in 1833, conservative forces in the British Parliament had successfully blocked a number of proposals

⁸ Although this case study is ostensibly about the development of education and training in the United Kingdom, it mostly examines the historical experience of England (with Wales). This reflects the fact that Scotland was, for the most part, allowed to establish and maintain a separate education system.

⁹ The secondary education system was mainly comprised of independent and religious grammar schools that were funded through fees and endowments.

to increase the state's role in financing and administering education during the first two-thirds of the nineteenth century. By the middle of the century, however, new societal developments were starting to make this firm rejection of state involvement in education an untenable position. In 1858, a state-commissioned report noted that the "prejudice against an educated labourer was rapidly passing away," which reinforced the notion that a basic education was quickly becoming a requirement for even the lowliest of occupations (British Parliament 1861, 105). In addition to this changing economic reality, a series of voting reform that significantly increased democratic representation in the Parliament were implemented between 1868 and 1885. The first of these reforms, the Second Reform Act (1867/68), extended voting rights from 19 to 31 percent of men, and a follow-up reform, the Third Reform Act (1884/85), boosted this rate further to around 61 percent (Lindert 2004, 114).¹⁰ With these movements toward full male suffrage, the power of conservative elites over British policy-making started to wane to some degree.

Once these economic and political changes began to take hold, education reform at the primary level soon followed. Just two years after the Second Reform Act was implemented, Parliament passed the first major piece of education legislation in the nineteenth century, the Education Act of 1870 (Jones 1977, 48–67). As a result of this legislation, the British state became, for the first time, directly involved in the provision of education. While the bill did not establish a uniform education system or make primary education free for all citizens, it permitted the creation of school boards at the local level to oversee the establishment and administration of some primary schools.¹¹ Consequently, a number of state schools started to appear alongside the existing set of private and voluntary schools, though

¹⁰ The other reform to voting rights was the introduction of the secret ballot in 1872. The right to vote had first been extended to elements of the middle class in 1832.

¹¹ Around 3,500 schools were established or taken over by school boards in the first decade after the 1870 Education Reform Act was passed.

the emergence of this state system did little to weaken the class boundaries found in English education. During the subsequent decade, additional legislation was passed to make education compulsory for children aged 5 to 10, and attention again turned to the matter of public financing for education. Not long after the Third Reform Act had extended democratic representation, legislation designed to reduce the costs of education to individuals was passed in 1891 (Sutherland 1973, 263–347). In particular, the Elementary Education of 1891 provided state financing for all children aged 3 to 15 attending public elementary schools, which effectively made primary education free for the first time (Ibid). As a result of these legal changes, mass education at the primary level increasingly became a reality in England, though its development still lagged that of most other affluent societies by a decade or more.¹²

Although conservative elites had made some concessions on primary education, they could still draw on the British state's centralized authority to block and stall further education reform. The education reform acts passed in the final decades of the nineteenth century might have increased the provision of primary education, but they did not remove many of the institutional barriers to educational expansion that had quietly been put in place earlier. Despite not having a formal constitution, a strong precedent in British law prevented public bodies, including local governments and groups, from taking actions that were not expressly permitted by parliamentary statute (Prest 1990, 3–6). There was a process by which local bodies could petition the Parliament to make legislative changes, but this process involved many challenging steps. Besides having to win approval from both chambers of Parliament, such a petition had to be supported by a property-weighted majority of a local electorate (Ibid). Given that conservative forces usually controlled at least one, if not all, of these decision points, it was nearly impossible for local groups to launch new public

¹² For a detailed analysis of the effects of state subsidies and free schooling on enrollment rates in nineteenth-century England, see Mitch 1986. The voluntary schools have sometimes been referred to as public schools because they were often established through public charters.

education initiatives on their own. In 1857, for instance, a large coalition of citizens and politicians representing the city of Manchester petitioned the Parliament for municipal authority over the financing and administration of elementary education, but their request was rejected (Gordon, Aldrich, and Dean 1991, 6–7).¹³ Therefore, unlike in the United States and elsewhere, local efforts to establish tax-financed public schools never gained much traction in England.

Using this centralized power over education policy, conservative elites were able to block and retard the development of public secondary education. After Parliament reluctantly embraced the idea of public education at the primary level in 1870, it was another thirty years before it took legislative action on public education at the secondary level. The British state had begun exploring the matter of public secondary education well in advance of this point, but parliamentary deliberation rarely led to government action. In 1864, the state-sponsored School Inquiry Commission issued a report recommending the establishment of a national system of secondary education based on the existing assortment of endowed grammar and religious schools, but Parliament never seriously took up the Commission's advice. Once public primary education was in place, opponents of extensive mass education repeatedly stalled efforts to create a public system of secondary education. During the 1880s, for instance, Tories sitting in Parliament successfully halted a proposal to introduce publicly financed "intermediate education" in Wales before a compromise of sorts was reached in 1889 (Evans 1990, 202–206).¹⁴ Conservative forces delayed the arrival of a similar form of public education to England for another decade.

¹³ Proposals were also made to use the county as the basis for financing and administering public education, but they never made it into law.

¹⁴ According to the terms of the compromise, Wales was allowed to establish a publicly financed system of secondary education, but it had to accept shared control of its education system. Under this arrangement, local school boards were abolished and new Joint Education Commission was established. This commission, which was comprised of representatives from both the central and regional governments, was responsible for overseeing both primary and secondary public education. This agreement would serve as model for the 1902 Education Act that affected England.

In the last two decades of the nineteenth century, conservative elites became increasingly focused on using centralized authority to curtail the power of local school boards. The school boards had become a concern for elites because many of them, particularly those in urban areas, were establishing post-primary schools to enhance their educational offerings for older children (Robinson 2002, 161). School boards were able to do this because the 1870 Education Act had not clearly defined the institutional bounds of elementary schooling. Seeing this behavior as a threat to the class-based distinction between primary and secondary education, conservative elites took action to reign in the school boards. In 1899, at the behest of a Conservative government, the Education Department ruled that school boards were no longer eligible for a set of public grants that had been the main source of funding for their post-primary programs (Ibid).¹⁵ In the same year, the Education Department and two other government entities responsible for education matters were replaced by a more centralized Board of Education (Robinson 2002, 162).¹⁶ In the following year, the same department codified a definition for “Higher Elementary School” that included many restrictions on student eligibility and course content. These narrow technical changes paved the way for more sweeping and consequential educational reform in 1902.

Passed amidst significant controversy, the Education Act of 1902 allowed conservative elites to reassert much of their lost control over the English education system. Although this act did establish the notion of public secondary education in England for the first time, its main aims were to restrict local control over education and to reinforce class-based divisions within education. The 1902 Act abolished all 2568 schools boards that had been set up after the 1870 Act, replacing them with Local Education Authorities (LEAs) run by local boroughs or county councils. These LEAs were empowered, in conjunction with the

¹⁵ This decision is often referred to as the Cockerton Judgment, with Cockerton being the district auditor who made the ruling.

¹⁶ By combining the Education Department, Science and Art Department, and education section of the Charity Commission, the British government created one central government unit to oversee education matters at both the primary and secondary levels (Gordon 1962).

central government, to organize and oversee the provision of education at both the primary and secondary levels. A clear set of guidelines and limits was imposed on these new LEAs to prevent them from pushing the boundaries of public education: the central Board of Education had to approve all education schemes developed by LEAs and caps were placed on LEA funding of secondary education (Robinson 2002, 162). At the same time, LEAs were required to subsidize endowed grammar schools that agreed to reserve 25 percent or more of their places for high achieving “free students” (Ringer 1979, 216).¹⁷ While these changes did, to some extent, help rationalize the English education system and create educational opportunities for clever members of the lower classes, the main effect of the 1902 Act was to formalize and sharpen the division between a mass-oriented primary level and a elite-oriented secondary level. The strengthening of this dual system would have lasting effects on the development of secondary education in the following decades.

In this political struggle over English secondary education, the Parliament made little effort to promote vocational training as an alternative to general education. Other than establishing a weak Art and Science Department in 1853 to stimulate and coordinate efforts in technical education, the British state took no steps toward developing a nationwide system of vocational training for most of the nineteenth century. In 1889 and 1890, legislation was passed that permitted local authorities to raise and spend some public funds on initiatives to increase and improve vocational training, but government inaction and conflicting policy limited the impact of this legislation; by 1894, only 12 out of 108 councils were using its provisions (Roderick and Stephens 1978, 74). At the turn of the century, the little technical instruction that was available to the masses tended to be part-time and pre-vocational in character (Ringer 1979, 215). Besides this half-hearted effort, the British state remained uninvolved in the provision of vocational training. This lack of involvement reflected the view pervasive in government circles at the time that public education should concentrate

¹⁷ These free students were selected by the LEAs on the basis of exams.

on teaching classical principles rather than “imparting skills in manual occupations” (Abbott 1933, 61).

The slow and tepid response of the British state to growing demands for education reform did prompt the development of some mass education initiatives outside the state, but these efforts largely failed in reshaping the English educational landscape. While conservative elites were working to suppress the expansion of post-primary mass education in the 1890s and early 1900s, a number of voluntary and philanthropic organizations were springing up to revive a faltering British apprenticeship system. Seeing that the British state had largely withdrawn its support for this training system, these organizations sought to provide the resources and know-how needed to maintain a large supply of effective apprenticeships (Thelen 2004, 119–121). Similar movements were also being made to expand the private offerings in school-based vocational training directed at the lower classes. In the end, however, these efforts failed to produce a viable system of mass vocational training on the same scale as that seen in Germany or elsewhere in Europe. A lack of coordination among key parties, including workers and firms, made it basically impossible for these localized efforts to scale up (Thelen 2004, 121). As a result, few new opportunities for secondary-level training became available for the masses.

From this case study, it is apparent that the centralized nature of the British state and the weak legacies of coordinated training in the United Kingdom significantly hindered the expansion and reform of English secondary education. For much of the nineteenth century, conservative elites were able to use their considerable sway in the British Parliament to block the creation of a public education system that would compete directly with one run by the Church, voluntary organizations, and other elite-friendly groups. Although these elites did eventually have to concede some ground on state involvement in primary education, this only occurred after a considerable delay – England was one of the last wealthy societies to implement public and compulsory primary education. Despite making this

concession, British elites enjoyed continued success in holding down further pressures for educational reform and maintaining the integrity of the parallel education system in England. When enterprising school boards attempted to blur some of the distinctions between primary and secondary education, conservative elites used the British government's centralized authority to replace these boards with a set of more obedient administrators. Given their success in protecting secondary education from the masses, British elites had little need to use vocational training as an instrument of diversion, as was the case in Germany and the United States. Even if they had pursued this strategy, it would have likely failed because late-nineteenth-century England lacked the strong traditions of coordinated training needed for such state initiatives to flourish. This reality explains why non-state efforts to expand vocational training in England around the turn of the century never gained momentum in the long run.

3.4 Sweden

Like the other education systems that have been examined, the Swedish education system of the mid-nineteenth century featured a strong class-based division between primary education and higher forms of education. Until the introduction of public primary schools in 1842, most Swedes were informally educated at home and in the Church.¹⁸ As a consequence, the Swedish masses were only given a year or two of instruction in the most rudimentary subjects, and this largely remained true even after the initial expansion of state-run common schools (*folkskola*) in the 1840s and 1850s.¹⁹ For the more privileged segments of Swedish society, there was a mix of public and private secondary schools (collectively referred to as the *läroverk* that mostly offered classical education. The most selective of these schools were the selective grammar schools (gymnasium), which prepared students

¹⁸ There were also some charity schools (*fattigskolor*) for the lower classes, but these schools only reached a small portion of this group.

¹⁹ To ensure that the masses acquired some basic education, Sweden had made literacy compulsory in 1686. Members of the clergy enforced this literacy law by administering annual reading and writing tests to their parishioners.

to join the clergy and the bureaucracy and other prestigious professions.²⁰ These academic schools also served as the entry point to the few colleges and universities that existed in Sweden at this time, but, as of 1840, less than one percent of each age cohort completed the nine years of schooling and entrance exam (*studentexamen*) required to move on to higher education (Landquist 1959, 238).²¹ Similar to the situation in England, the Church of Sweden had a central role in administering education at all levels and maintaining the class-based barriers between these levels.²² Overall, the Swedish education system had many features in common with the systems found in more economically developed peers.

The structure of authority over education in Sweden had played an important part in the development of this uneven distribution of education between the country's masses and elites. The unitary nature of the Swedish state allowed the central governments to set policy for all levels of education, and this centralized authority was mostly used to aid the elite-oriented grammar schools and universities that constituted the higher levels of Swedish education. By the beginning of the nineteenth century, the central government had become the principal financier of education at these higher levels, and it continued to retain complete control over policy affecting these particular levels. When it later established, for the first time, a school system for the masses through the *folkskola* Act of 1842, the central government chose an institutional setup that allowed it to hand off financial responsibility for the system while retaining significant, though somewhat indirect, control of the system (Paulston 1968, 22–23). In particular, the Act required each parish – the local unit of civil and religious administration at the time – to set up and fund at least one *folkskola* with at least one seminary-trained teacher, but it also specified that these schools would

²⁰ Before attending these secondary schools, children from the upper classes often attended private preparatory schools. It was possible, however, to enroll in secondary schools without prior schooling.

²¹ These entrance requirements could be waived if an applicant had a sponsorship from someone associated with a university. This exception mostly benefited students from wealthy families.

²² In a symbolic acknowledgement of the Church's role in administering education, the ministry formed in 1840 to oversee Swedish education was called the Ministry of Ecclesiastical Affairs.

be monitored and managed by Church-dominated school boards.²³ Because of this fiscally decentralized yet Church-controlled arrangement, the Swedish common schools did not experience the same quick growth that many of their German and American counterparts did in the first half of the nineteenth century; over the second half of the nineteenth century, one third of children continued to be schooled at home or in traveling “ambulatory” schools (Paulston 1968, 23). In effect, by constructing two distinct systems of educational governance, the central government had created a situation where the lower levels of Swedish education would face many more obstacles to development than the upper levels for many decades to come.

While this split structure of educational governance did hinder the growth of mass education in Sweden, it did not stop pressures for mass-oriented educational reform from growing. Recognizing that the creation of the *folkskola* had accentuated class differences in the Swedish education system and broader society, a group of liberal politicians submitted several motions to the Swedish Parliament (*riksdag*) in the 1850s that called for the transformation of the *folkskola* into a comprehensive school – a school that would serve all Swedish children, regardless of their class (Paulston 1968, 28).²⁴ Though these motions ultimately failed, they inspired other pieces of legislation in the following four decades, including a bill introduced to the *riksdag* in 1867 that sought to replace the *folkskola* with a *kommunalskola*, or community school, that would serve as the entry level of for all and create a linkage between the primary and secondary levels (Ibid).

Although these reform efforts were initially led by a small groups of liberal idealists, they gained broader momentum as the *folkskola* became more thoroughly established and

²³ Each *folkskola* school board was comprised of six members: the local rector served as the president, the local minister served as the secretary, and the remaining four members were elected by the local church assembly. According the 1842 Act, each parish had five years to implement the provisions of the law.

²⁴ Count Torsten Rudenschld, who was a prominent critic of the *folkskola* and a strong advocate of a class-integrated school system, led these efforts.

Sweden became more politically and economically developed. The 1867 reform bill mentioned above was proposed just one year after the *riksdag* had undergone a significant overhaul that made it modestly more representative.²⁵ While it was some time before other democratizing changes were made to the national political system, this institutional reform gave liberal demands for education reform in the *riksdag* some more weight. These reform efforts gained a further boost in 1879, when the *folkskola* teachers formed a professional association that backed a comprehensive model of elementary schooling. Not long after, the Swedish Social Democratic Party was also founded, which gave the educational reform movement some more organizational resources. Together, these forces inside and outside of the *riksdag* were gradually shifting the balance of power in Swedish politics in favor of educational expansion for the masses.

As these pressures became more pronounced, the *riksdag* did take some steps to improve the *folkskola* system, but it also began to assert more direct control over this lower level of education. Starting in the 1860s, the central government allocated more funds to the common schools in an effort to accelerate their development, but its investment in primary education still paled in comparison that for grammar schools and other institutions of higher learning. In 1870, for instance, the central government spent over three times as much on secondary education as it did on primary education, even though the latter served over one hundred times as many students as the former (Paulston 1968, 26). In 1876, the central government also extended the *folkskola*'s duration to six years, though attendance, for all of these years was not compulsory. Coinciding with new spending and institutional changes, the central government established a central school inspection authority in 1864 and a national curriculum in 1878. While these measures did ultimately help to standardize and improve some aspects of primary education (Evertsoon 2012), they also reflected a growing distrust among conservatives in the clergy who were charged with administering

²⁵ Per Adam Siljeström, who was a notable educational reformer and member of the agrarian faction in the *riksdag*, spearheaded these reform effort.

the *folkskola* system (Paulston 1968). During these two decades, many members of this clergy had become openly sympathetic to the idea of comprehensive schooling, and several had emerged as prominent leaders in the educational reform movement. By devising and enforcing a new set of school codes, the conservative-dominated central government could keep this group in check and prevent them from inflating the boundaries of the *folkskola*.

To prevent mass education at the primary level from spilling over into the secondary level, conservative elites used their power in the central government to push through another institutional reform that strengthened the class-based division between these two levels. In what looked like a major concession to proponents of a unified education system, the conservative first chamber of the *riksdag* approved a bill in 1894 that made three years of elementary schooling a prerequisite for entry into state-supported secondary schools. This was an important development because, for the first time, there was a link between the primary and secondary levels of the Swedish education system. It was initially thought that this reform would transform the *folkskola* into a common school that for children from all social backgrounds and enable more members of the lower class to progress on to higher levels of education. In a follow-up reform passed in 1904, however, the *riksdag* erased this hope by restricting secondary education to make it more attractive to the urban middle class. In particular, it replaced the nine-year classical gymnasium that had served as the main secondary school for centuries with a lower six-year, Latin-free *realskola* and an upper three- or four-year Latin-based gymnasium. The new *realskola*, with its more practical curriculum and own leaving exam (*realexamen*), became an instant draw for middle-class students, which thus encouraged this group to leave the *folkskola* immediately after completing the three years of required attendance (Paulston 1968, 32–33). This behavior meant that only lower-class students ended up completing the entire eight years of *folkskola* offered at the time, which reinforced the *folkskola*'s image as a charity school.²⁶ As a result

²⁶ As Fridtjuf Berg, a prominent liberal politician stated, the creation of the *realskola* had “put aside the hopes for an elementary school for children of all social classes in a more decisive way than anything that

of this strong and persistent social division, few members of the lower classes ever went on to secondary education in this period around the turn of the century.

While conservative elites were active in steering the development of general education in Sweden, they took a more passive approach to vocational training. As was the case in Germany, Sweden once had a strong system of craft guilds that were central involved in the training of skilled workers. Although this guild system was formally abolished in 1846 during an episode of increased economic liberalism, artisans remained an active force in Sweden's developing economy and domestic politics. In the last three decades of the nineteenth century, these artisans became particularly active in national politics as industrialization in Sweden picked up speed. In 1876, handicraft associations from across Sweden representing these artisan submitted a petition to the *riksdag* requesting that the apprenticeship regulations and compulsory associations that had previously existed be reintroduced, but nothing came of this request (Söderberg 1965, 124–155). The leader of the Stockholm handicraft association, who was also a member of the *riksdag*, later introduced a bill to revive the compulsory trade system, but it too was rejected in 1883 (Ibid). In the 1890s, various artisan associations came together to form the *Hantverks- och industriorganisation* (The Handicraft and Industry Organization), which became a strong advocate for a number of policy changes that would enhance the standing of the Swedish *Mittelstand*, including apprenticeship regulations (Ericsson 1984, 321). Yet, despite having many ties to what would become the Conservative Party, this handicraft movement never managed to convince the *riksdag* to reestablish any of the privileges it had lost in the mid-nineteenth century (Ericsson 1984, 328).

The central government's general refusal to improve and expand the educational opportunities available to the masses compelled several non-state groups to develop a system of vocational training outside of the Swedish state. After the guild system had been abolished

had occurred in a generation" (LO 1904).

in Sweden in 1846, associations representing artisans, employers, and workers started to form a variety of educational programs that offered older children and young adults training in work-related subjects and activities (Nilsson n.d.). While some of these programs were specifically designed to train members of the middle class to become engineers and managers, the bulk of these programs were targeted at the emerging working class. These mass-oriented programs, which first started to appear in Sweden during the 1850s, were initially comprised of evening courses and “Sunday schools” that provided basic instruction in subjects like mathematics and drafting. As these programs continued to develop, however, they added more vocation-specific content to their training courses and increased the duration and formality of these courses. The expansion of this school-based form of vocational training really took off in the mid-1890s and early 1900s, which was the period when the push for integrated primary and secondary schooling was really beginning to falter. More specifically, enrollment in school-based training increased by nearly 60 percent during the ten-year period after 1894 continued to rise afterward (Nilsson 2008, 157).²⁷

Unlike in the British case, these non-state efforts to expand school-based vocational training in Sweden did ultimately succeed in producing a mass training system at the secondary level. As mentioned before, Sweden had strong traditions of coordinated training that had developed over centuries by well-established system of craft guilds. After the guild system was formally abolished, many of the artisans who had been trained under this old apprenticeship-based system became involved in developing the new school-based system (Söderberg 1965, 226–295). As industrialization picked up, unions and employers were drawn into this system and steadily developed partnerships in managing individual schools. The state also started to play a more active role in this system as the conservative elites’ control over the central government became incrementally weaker in the early part of the twentieth century. In 1918, a Liberal-Socialist government formally integrated this

²⁷ In absolute terms, the number of students increased from 12,494 in 1895 to 19,990 in 1904.

private school-based model into the public education system by creating the *praktiska ungdomsskola* (practical trade school). This school was designed to provide male graduates of the *folkskola* with two years of vocational training, thus linking general education and vocational training at the primary and secondary levels for the first time.

As this case study of the Swedish experience shows, centralized educational authority and strong coordination legacies were key to the development of a secondary education system that emphasized school-based vocational training. Centralized authority over general education allowed conservatives elites to stall the development of mass education at both the primary and secondary levels throughout the nineteenth century. Although these elites allowed public primary education to be formally established in Sweden relatively early, they were slow to implement policies that would have allowed it to expand more rapidly. When the pressures for mass education started to shift from the primary level to the secondary level, conservative elites again drew on the central government's power to set national education policy. This time they used the authority to reconfigure the entire institutional basis of secondary education in an effort to bolster the class-based division between the primary and secondary levels. Given their strong capacity to shape national education policy, Swedish elites, like British elites, had little reason to become actively engaged in the development of a vocational training system.

3.5 Discussion

These historical analyses of the development of education and training in Germany, the United States, the United Kingdom (England), and Sweden show that there was a great deal of consistency in the objectives and strategies of conservatives and reformers. In all four of these cases, conservatives elites sought to preserve the significant educational advantages that they had accumulated by the mid-nineteenth century. This ambition was challenged, however, by progressive reformers who sought to democratize education and make it fully available to the underprivileged masses. In the struggles that these clashing aims generated,

control over general education – the schools providing academic training – became the main point of contention between conservatives and reformers. For both sides, general education was seen as an essential instrument for either maintaining or transforming the underlying social orders of societies because it had long served as the main conveyor of social status between successive generations. When conservatives had control over general education, they moved to restrict access to it through the construction of parallel systems. In the hands of reformers, however, general education was made more comprehensive in the sense that more people gained better access to additional educational levels. As these cases studies have highlighted, institutions played a decisive role in determining whether and how these competing strategies succeed.

From a broad perspective, these case studies confirm that authority structures and coordination legacies strongly shaped the nature of these struggles between conservative and reformers over general education, particularly as these struggles reached the secondary level of education. The historical analyses of the German and American experiences show that, as expected, conservatives used centralized training policy as a tool for influencing subnational education policy when decentralized educational authority made direct interventions in education policy impossible. If these constitutional barriers to direct intervention did not exist – as was the case in the United Kingdom and Sweden – then conservatives had no compelling reason to employ this strategy of promoting vocational training. Regardless of whether or not conservatives actively promoted vocational training as an alternative to general education, the strength of coordination legacies in a society ultimately determined whether the society developed a mass system of vocational training. With their strong traditions of coordinated training, Germany and Sweden erected such systems, while the United Kingdom and United States, with their much weaker traditions, did not.

Although decentralized authority is often considered inimical to the development of social policy that benefit the underprivileged masses, a comparison of these cases reveals

that there are instances where the reverse is true. As seen in both the Germany and United States, the decentralization of authority over general education via federalism allowed the more democratic parts of these countries to move forward with educational expansion without the threat of a veto from the national level. If education had been a responsibility of central governments in these two countries, it is reasonable to believe that conservative forces – particularly the landholding elites in the Prussian East and the American South – would have used their political sway at the national level to curtail the broad expansion of mass education to protect their local interests. Fortunately for German and American proponents of mass education, constitutional structures in these two countries prevented conservative elites in some regions from blocking progressive policy changes implemented in other regions.

The case studies of the United Kingdom and Sweden make it clear that decentralized authority only had positive effects on the early development of mass education if it was constitutionally guaranteed. In both of these countries, primary education was established using decentralized models of public financing and administration. More specifically, local school boards were made responsible in both countries for raising the funds needed for primary schools and running the day-to-day operations of these schools. Some of these school boards tried to expand the scope of mass education by inflating their roles in provisioning education, but these efforts ultimately failed. Once British and Swedish conservative elites became aware of these expansionary actions, they used the central government's authority to restructure and regulate these local units to prevent further deviations from their interpretation of policy. Therefore, the de facto decentralization of education systems did not have the same positive effect that constitutionally defined decentralization did on mass educational development.

The analyses of these four cases also make it clearer why some countries came to emphasize apprenticeship-based vocational training and others school-based vocational training. In the case of a federal country like Germany, it made better political sense for elites to embrace the apprenticeship-based form rather than school-based form because they could exercise more direct control over the former through the central government. In this system with dispersed educational authority, the central government could only claim control over vocational training if it was widely considered to be a matter of economic policy rather than education policy. Given how school-based vocational training operated around the onset of the twentieth century, this form of training would have been less likely to pass this constitutional test. To spur the development of school-based training under these circumstance, elites had to rely on more indirect mean of shaping policy, such providing financial incentives to subnational governments – as seen in the American case.

School-based vocational training became prevalent in countries with unitary systems of governments, such as Sweden, because they could be developed without much state assistance. In this type of system with centralized educational authority, the conservative-controlled central governments had few incentives to become involved in the development of vocational training. Consequently, when non-state actors initiated their vocational training efforts, they had to select a training model that was viable in the absence of any state coordination or financing. The apprenticeship-based form was not a good choice because it typically required some far-reaching state regulations to function properly. The school-based form, on the other hand, could be developed in the absence of any overarching legal framework for vocational training. Yet, even though this form of training did not require much state involvement to get started, it did require substantial coordination among non-state actors to be workable in the long run.

4 THE DISTRIBUTIONAL POLITICS OF EDUCATION IN THE POSTWAR ERA

The four decades after World War II were a period of significant growth and change in the education and training systems of economically advanced societies. During this time, the rich democracies of Europe, North America, and Oceania all carried out major expansions in the areas of education to enhance the social wellbeing and economic capacities of their populations. Between 1950 and 1985, these countries saw, on average, their public expenditures on education increase by 112 percent and their overall enrollment rates grow by 24 percent.¹ As part of this far-reaching expansionary push, education and training at the primary and secondary levels were affirmed to be basic social rights, and access to other levels of education, such as higher or tertiary education, was greatly improved. As a consequence, educational attainment increased steadily in these societies and skilled labor became more abundant in their economies. These developments were proof that systems of mass education remained a cornerstone of the evolving welfare states in these advanced capitalist countries.

As was the case in the prewar phase of educational expansion, however, this postwar phase saw the emergence of several important institutional differences in the education systems of these countries. Public spending on education did grow in all of these countries during this phase, but the level of growth was much higher in some countries than others. In most countries belonging to the Nordic region and the westernmost part of continental Europe, for instance, spending increases were approximately one-and-a-half times larger

¹ These enrollment rates are calculated as the number of students in primary, secondary, and tertiary education per 1,000 people aged 5 to 24 years.

than those in other affluent countries. Likewise, this general increase in state support for education did not affect all levels of education equally across all of these countries; for some countries, expanding state support for tertiary education came at the expense of existing state support for lower levels of education. This institutional bias was particularly evident in several of the Anglo countries, including Australia, New Zealand, and the United Kingdom. Finally, even as state-sponsored education continued to reach more people, the ideal of universalism was not upheld to the same degree in all countries. Anglo and Nordic countries were often much more ambitious in this regard, and thus they continued to lead in terms of student enrollments.

In an effort to explain these institutional divergences in education system, the study in this chapter considers a number of relevant economic and political factors. Among these factors, this study contends that partisan government participation and constitutionally defined veto points are the key political determinants of generosity, distribution, and coverage in education systems for the early postwar period. Of the three types of partisan government considered, it is argued that left government is the main force behind the development of highly generous and broadly accessible education systems. Right government, on the other hand, is theorized to have no positive effects on the overall generosity and coverage in education systems. When it comes to the distribution of public resources among different levels of education, however, it is claimed that right governments prioritize tertiary education over lower levels of education. The effects of Christian democratic government participation are thought to lie in between those for the left and right. In terms of institutional determinants, this study claims that veto points also contribute to the development of tertiary biases in the distribution of public educational within education systems. Contrary to prior work, this study argues that territorial decentralization has no appreciable impact on these three elements of education systems.

The above arguments are assessed in this study using the same high-level analytical approach employed in the prior investigation of education-training regimes. To begin, a new set of data on education are used to compare and contrast the generosity, distribution, and coverage of postwar education systems in 17 advanced capitalist countries. Once the main trends and divergences in these data have been identified, a series of plausible explanations for these developments, which include the core arguments of this study, are presented. Afterward, methodological aspects of the statistical analyses used to evaluate these competing explanations are described. Finally, the results of these quantitative analyses and their theoretical implications are discussed in the remaining two sections.

4.1 Postwar Patterns of Change in Education Systems

While the politics of education in the early twentieth century had largely revolved around the structure and scope of secondary-level programs, the politics of education in the early postwar era dealt with a much wider range of issues. As education and training at the secondary level approached ubiquity during the initial decades of the postwar recovery and boom, there were new debates about whether and how to reform and extend mass education. On one side of these debates were social reformers who sought to enhance the educational opportunities available to the masses by increasing public investments in education and strengthening public commitments to universalism. Among other things, these reformers spearheaded efforts to reduce segmentation in primary and secondary education through the introduction of comprehensive schools and to enhance access to tertiary education through the expansion of public universities. Opposing these movements for change were conservative elites who were determined to maintain the privileges in education that had accrued to those of higher means and status. In pursuit of this objective, these actors attempted to restrict public involvement in education and allocate public resources in a manner that preserved their institutionalized advantages. With the accelerated transformation of secondary education and training into a mass enterprise after World War II, tertiary

education became the main bastion of elite resistance. Although the objects of contention had changed, this postwar struggle over education and training shared many features with the nineteenth-century battles discussed in prior chapters.

In light of this contentious environment, it is perhaps not surprising to find evidence that new institutional divergences in education emerged between advanced capitalist societies in the early postwar era. Indicators of public expenditures on education for this period (see Table 4.2) show that countries like Switzerland and the United States lost their relative leads in overall education spending after World War II. Although total public expenditures grew significantly in all rich countries between 1950 and 1985, the size of these gains were most pronounced in the Nordic countries and the westernmost countries of continental Europe. As a result of these differential shifts, countries like Sweden and the Netherlands rose from indistinctive positions in the 1950s to leadership positions in the 1980s when it came to public investment in education. To some extent, this reordering of the educational landscape resembles patterns of development observed for other types of social policy in the postwar period (see Danforth 2014; Huber and Stephens 2001).

When these educational expenditure figures are disaggregated by level, however, another important pattern emerges. A look at the distribution of these expenditures between the lower levels (preprimary, primary, and secondary (PPS)) and tertiary level (see Table 4.2 again) reveals that some countries prioritized tertiary education significantly more than others did. In the period from 1950 to 1985, all countries saw their shares of expenditures on tertiary education rise, but this shift went the furthest in the Anglo-settler countries. On average, a country saw its tertiary expenditures share nearly double during this 35-year period, ending up around 25 percent. Yet, for the Anglo-settler countries, this expenditure share tripled, on average, to a level of 32 percent in 1985. Comparing figures on expenditures per student (see Table 4.3) confirms the presence of a strong bias toward tertiary education in these countries – on average; they devoted two to three times more resources

to each tertiary student than each lower level student during the 1980s. Ireland, the United Kingdom, and several continental European countries also showed a tendency to favor tertiary education in this period of educational expansion. On the flip side, the Nordic countries developed less of a tertiary bias because they allocated substantially more resources to the lower levels than their peers while maintaining modest expenditures at the tertiary level. It is evident from these trends that resource distribution was a key distinguishing factor among the education systems of advanced capitalist countries.

Turning from expenditures to enrollments as the basis for comparison brings to light some other important developments in the selected education systems (see Table 4.1). The series of aggregated enrollment rates for the PPS levels indicate that the prewar gap in general education enrollments between Europe and the Anglo-settler countries quickly narrowed in the first decades after World War II. Despite experiencing some significant growth in tertiary enrollments, however, many European countries continued to be laggards on this dimension. While the Nordic countries, Belgium, France, and Italy managed to catch up with Australia and New Zealand, they remained well behind Canada and the United States – the clear standouts at the tertiary level.

In the end, these divergent trends in generosity, distribution, and coverage led to the formation of five distinct institutional patterns by the early 1980s. By this stage, the Nordic countries had education systems that were notable for their higher levels of public expenditures and stronger emphasis on PPS education. These countries provided more modest support for tertiary education, but their enrollment rates at this level were among the highest in Europe. Although the Anglo-settler countries tended to have the highest levels of tertiary enrollment, they were also exceptional for their smaller public investments in PPS education and in education overall. Ireland and the United Kingdom also exhibited a strong bias in public education spending away from the lower levels to the tertiary level, though their tertiary participation rates were especially low rather than exceptionally high. The

education systems of continental Europe had institutional qualities that fell between these Anglo–Nordic extremes, with the Germanic systems having stronger resemblances to those in the Anglo countries and the other systems having more similarities with those in the Nordic countries.

4.2 Hypotheses

Having established that important differences emerged in the generosity, distribution, and coverage of education in advanced capitalist countries during the early postwar era, the question then becomes, what explains these differences? In addressing this question, this study considers several competing sets of explanations related to democratic agency, political institutions, and economic development (see Table 4.4). As has been mentioned before and is discussed below, this study argues that differences in power resources and constitutional structures were two key determinants of these cross-national variations in education.

4.2.1 Political Agency

In accounting for postwar differences in education systems across affluent countries, factors related to democracy and political agency are bound to figure prominently. While democratic competition between different agents had existed in all of these countries prior to World War II, it reached new heights in the postwar era as democratic representation and stability in these countries continued to improve. In this reinvigorated political environment, the dominant competitors were typically parties and movements representing different class-based interests, and they primarily battled with each other over policies affecting socioeconomic matters. The distribution of resources among these competing groups has therefore often been used to explain variation in postwar social policy (Huber and Stephens 2001), and this power resources logic is thought to be applicable to education as well. And yet, it could be the case that the dramatic changes made to education systems in the postwar era simply reflect the preferences of more politically and economically advanced societies.

These competing theoretical perspectives on welfare state politics and their implications for postwar education systems are elaborated below.

According to power resources theory, the development of education should reflect the relative balance of power between class-based partisan forces over time. As discussed in Chapter 1, the key partisan forces in this dominant political struggle are left parties, Christian democratic parties, and right parties. The relative power of these forces is determined by their capacities to amass politically valuable resources: left power is largely tied to the mobilization of the least advantage while right power is primarily derived from the accumulation of financial resources. Given their distinct sources of power and ideological underpinnings, it is reasonable to expect these partisan forces to shape education systems differently while in government.

Left Government. Given that left parties are chiefly concerned with improving the life chances of the lower classes, they should be strong proponents of high generosity, balanced distribution, and extensive coverage in public education. Recognizing that educational attainment and economic success are strongly correlated, left parties seek to raise the skill levels of the least advantaged through public investments in education. To maximize this process of human capital development, left parties support the improvement of education across all levels, from preprimary education to tertiary and continuing education. Furthermore, left parties emphasize the dismantling of social segmentation and barriers in education systems to enable more students to progress farther up the educational ladder and thus weaken the link between social class and educational attainment. Besides significantly aiding their core constituents, these policy strategies also help left parties expand their electoral bases because the middle class tends to view high-quality public education as attractive alternative to more costly private alternatives (Busemeyer 2009).

Christian Democratic Government. While Christian democratic parties might favor increases to the overall generosity of education, they are not expected to support reforms

that upset existing class-based arrangements in this policy area. Recalling that Christian democratic parties are generally structured as cross-class coalitions, they are likely to face strong internal resistance to any proposed changes that erode class boundaries in education systems. This resistance ought to be particularly strong in Christian democratic parties with Catholic roots because Catholic social doctrine views social stratification as a natural component of human society that should not be altered. Therefore, Christian democratic governments should distribute educational resources in a manner that preserves or enhances the class-based divisions associated with particular levels of education. Christian democratic governments might, however, allocate more resources to lower levels of education if this is deemed necessary for maintaining a basic economic floor; despite their embracement of social stratification, Christian democratic parties also tend to be strong supporters of poverty alleviation.

Right Government. Since right parties generally wish to preserve the educational advantages enjoyed by elites, they should oppose most increases in the generosity and coverage of public education and promote a distributional model that favors tertiary education over other forms of education. For the most part, right parties do not want to eliminate public education for the masses entirely, but they do seek to limit the scope of this basic entitlement. These positions reflect a tension found within right parties between those who want to supply businesses with adequate amount of skilled labor and those who want to keep education systems restricted and under elite control. To ensure that benefits of public education mostly accrue to elites, right parties prioritize tertiary education over other forms of education in the allocation of public educational resources. This distributional arrangement provides the masses with some educational opportunities, but they are less generous than those given to elites.

In addition to the partisan elements described above, there are two other forms of political agency that potentially explain the divergent trajectories of education systems in the

postwar period. As women entered national labor forces in ever-increasing numbers during this period, they became an important force in the design and construction of new social policies, some of which applied to education (Huber and Stephens 2000). On top of this increasing mobilization of women, there was also a broader movement in affluent societies toward more inclusive political participation. This broader incorporation of publics into the political process created openings for new organized interests (Myles 1984), which in turn created new pressures and demands on postwar welfare states, of which education systems were central parts.

Women's Mobilization. As women assume a larger role in modern economies, it is expected that they will push for more generous, open, and extensive education systems. Essentially all countries have histories of gender inequality in educational attainment and economic outcomes, so women are likely to favor the expansion and improvement of education at all levels as a way of combating these legacies. More extensive education systems can also help women in balancing the demands of work and family, which makes these types of systems even more attractive to women. Like other social services, education is often delivered by women, so enhancements to education systems can be expected to improve women's employment prospects. When combined, these factors are likely to mobilize women around education issues and should lead to broad expansions in education systems over the long run.

Pluralism. The expansion of political participation in economically developed countries is also expected to generate broad growth in education systems. When societies industrialize, they often experience dramatic changes in core social institutions, such as the workplace and the family. These social changes, in turn, usually engender new popular demands for state-provided services, particularly in the area of education. Greater democracy is likely to accentuate these demands because it gives the public more influence over the governing process. Interest groups often play a key role in channeling these popular

demands, and this is certainly the case for education. As states confront these demands for education, they should respond by increasing public effort in the provision of all types of education.

4.2.2 Political Institutions

Given the central role they play in shaping the opportunities and incentives presented to political actors, political institutions are also likely to be important factors in explaining postwar divergences in national education systems. As shown in Chapters 2 and 3, differences in authority structures have contributed to the rise of distinct institutional arrangements in secondary education, and a similar relationship might exist for other areas of education. Prior research has, moreover, frequently emphasized the role of political institutions in influencing the long-term trajectories of other forms of social policy. When it comes explaining cross-national differences in postwar education systems, territorial decentralization and veto points are two potentially important factors.

Since subnational governments are often involved in the financing and provision of education, the level of authority granted to them is frequently viewed as an important determinant of the quality and scope of public education. In theorizing this relationship, the notion of interregional (and interlocal) competition is frequently identified as the main causal mechanism, but there is significant disagreement over how this mechanism works. On the one hand, it has been argued that giving subnational governments more authority is harmful to education systems because it produces a “race to the bottom” (Castles 1998, 181). This view is based on the well-established logic that fiscal decentralization leads to reductions in social expenditures because it increases competition between subnational governments over taxes (Brennan and Buchanan 1980; Weingast 1995). On the other hand, the exact opposite argument has also been made: granting subnational government more authority engenders a “race to the top” (Busemeyer 2007, 589; 2008). According to this argument, regions and localities primarily compete on the quality of their social benefits

and services rather than the level of their tax rates. Based on these competing arguments, it appears that the relationship between decentralization and the distributional aspects of education is still not fully understood.

Territorial Decentralization. If one assumes that territorial decentralization can produce both positive and negative competitive effects, then it may not have a meaningful impact on educational generosity and coverage in the aggregate. While some subnational governments involved in administering public education might choose to compete on lower taxes, others are likely to emphasize the quality of their services to attract citizens and capital. The pursuit of these different strategies are bound to increase regional disparities in educational quality and access, but they are not likely to have a decisive impact on these educational dimensions at the country level.² At the same time, there is no reason to believe that these competitive processes affect the lower and upper levels of education differently. Therefore, territorial decentralization should not be associated with any particular cross-level pattern of distribution in education.

In addition to territorial decentralization, constitutional structures are also sometimes thought to be an important determinant of public effort and distributional patterns in education. While these two phenomena are obviously related – constitutions usually determine whether a system of governance is federal or unitary – constitutional structures have stronger and more direct effects on the nature of the policy-making process and the potential for broad policy innovation. In particular, constitutional structures largely determine the number and location of critical influence points in the policy-making process and the ease with which minority interests can exploit these influence points to stall or block policy reforms (Immergut 1990, 1992). For most forms of social policy, these veto points are commonly seen as inimical to the development of far-reaching reforms that benefit the less

² It is well established that decentralization increases subnational disparities, but the social and economic implications of this relationship continue to be debated (see, e.g., Oates 1972; Prud'Homme 1995; Tanzi 1996; Tiebout 1956).

privileged (Huber and Stephens 2001; Huber, Ragin, and Stephens 1993). Yet, it remains unclear whether this logic holds for education as well. In the limited research that has been done on this issue, the findings have been mixed: some studies have found a negative association between veto points and distributional aspects of education systems (e.g., Cameron and Hofferbert 1974) while others have detected a positive association (e.g., Busemeyer 2007; Huber and Stephens 2014). Moreover, none of this existing research seriously considers the mechanisms that connect veto points to educational outcomes.

Veto Points. Given their tendency to hinder major policy changes and reinforce the status quo in social policy, veto points should support the development of tertiary-skewed distributional arrangements in education systems. As discussed in Chapter 1, veto points generally hinder efforts to improve lower-level education more than efforts to advance tertiary education. This asymmetrical effect exists for three reasons.

First, veto points tend to be more numerous in the policy-making process for preprimary, primary, and secondary education compared to that for tertiary education. This is because, when authority over education is divided across different levels of government, authority over PPS education is usually assigned to local and regional governments while authority over tertiary education is typically given to regional and central governments. Given that lower levels of government are almost always comprised of more jurisdictions than higher levels of government, the policy process for PPS education should involve more institutions than the policy process for tertiary education. When this dispersion of authority among levels, jurisdictions, and institutions is constitutionally guaranteed, then there are many opportunities for minority interests to block and delay broad improvements to PPS education than tertiary education, which in turn should contribute to disparities in development between these two educational levels.

Second, by hindering broad change to education policy, veto points favor a status quo that already provides tertiary education with many advantages. With their historically

strong ties to elites, tertiary education institutions have often been given high levels of state support relative to the smaller-sized populations they have served. Proposed reforms that aim to reduce this disproportionate public support are likely to face significant resistance in a policy-making process containing many veto points because beneficiaries of the existing tertiary bias and other interest groups have more opportunities to intervene and stop broad changes.

Third, when there is competition between educational interest groups for public resources, veto points enhance the influence of elite-oriented groups and weaken the power of mass-oriented groups. Lower-level education and tertiary education tend to be represented by separate interests groups that, among other things, seek to increase the allocation of public resources to the respective levels they represent. Although they are not always competing for the same resources, elite-oriented groups tied to tertiary education are likely to have the upper hand when there is such direct competition. This is because veto points provide advantages to those groups with more resources, both financial and organizational. In the case of education policy, elite-oriented groups tend to be better funded and more cohesive than their mass-oriented counterparts, especially in earlier phases of educational development.

All in all, these three mechanisms imply that veto points should favor the development of education policies that reinforce existing inequalities in education systems. This means that veto points should help reinforce distributional arrangements that are skewed away from the PPS levels and toward the tertiary level.

4.2.3 Economic Development

Industrialization, globalization, and other forms of economic change have also been frequently identified as causes of educational growth and reform. Human capital theory has established that educational advancement and economic development are inextricably linked – one cannot occur without the other. This logic has been further developed and

extended to explain cross-national differences in the systems that provide education. In addition, as countries become increasingly integrated into a global, service-based economy, more attention has been paid to international factors as drivers of change in education systems. According to these strands of thinking, differences in national affluence and trade openness likely account for some of the cross-national variation observed in postwar education systems.

National Affluence. As countries become wealthier, their states should invest more in education and increase its coverage, particularly at the higher levels of education. It is well established that countries develop more generous welfare states as they become more affluent (Wagner's Law; see also Kerr et al. 1960; Wilensky 1975), and this relationship is likely to apply to education systems as well. Given that continued improvements in educational attainment are usually necessary for sustained economic development, countries can be expected to expand their offerings at higher levels education as they reach more advanced stages of development. Therefore, for the late industrial stage – the stage that affluent societies reached in the early postwar era – countries can be expected to place increasingly more emphasis on tertiary education relative to other forms of education.

Trade Openness. A higher degree of trade openness should also increase the demand for more generous and extensive public education and lead to significant growth in tertiary offerings. The reduction of trade barriers exposes national economies to more competitive forces and technological change, which in turn spurs internal demands for compensations from the state in the form of expanded social benefits and services (Cameron 1978; Garrett 1998; Katzenstein 1986; Rodrik 1997). Given that education is essential for improving human capital and thus the economic competitiveness of domestic workers, it is likely to be a prominent component of any compensatory policy package provided by the state. The resulting improvements in education should be broad based, affecting all levels of education, because of the progressive nature of educational attainment: to reach higher

levels of education systems, individuals must first complete the lower levels. However, if tertiary education is relatively underdeveloped compared to other forms of education – as was the case in rich societies after World War II – then there is likely to be a stronger emphasis on expanding this part of the education system.

4.2.4 Education-Training Regimes

The distinct education-training regimes that developed at the secondary level during the prewar era should also have some lasting effects on the evolution of education systems in the postwar era. As discussed in Chapter 2, these regimes represent different institutional mixes of general education and vocational training. Given that general education at the secondary level is usually designed to prepare students for higher education while vocational training at the same level is not, one would expect there to be less demand for educational expansion at the tertiary level in education systems that emphasize vocational training. At the same time, vocational training encourages students to make an earlier transition from education to work, so this might depress PPS enrollment rates. In addition, these regimes are associated with different rates of growth in secondary education for the prewar period. The momentum from this prewar growth should also influence the demand for educational expansion in the postwar period. Therefore, the education-training regime characterized by rapid growth in general education – the regime associated with the Anglo-settler countries – can be expected to have a strong positive effect on educational coverage in the postwar era. For the other regimes, this effect should be more muted or negative in the case of the Anglo-Irish regime.

4.3 Methodology

The above hypotheses on the postwar development of public education are assessed using an analytical approach similar to that employed in Chapter 2: cross-national data for 17 advanced industrialized societies for the period from 1950 to 1985 are examined

for correlational relationships using statistical techniques. As mentioned before, this 35-year period has been selected because it represents the main phase of welfare expansion among rich democracies and a crucial stage in the development of the education systems in these countries. Quantitative analysis of the cross-national differences in education systems that emerged during this postwar period will provide the first initial test of this study's theoretical claims and alternative explanations. The specifics of this quantitative analysis – the data and techniques used – are provided below.

4.3.1 Data

The variables identified in the theoretical section are operationalized using a combination of new measures of education systems and extended measures of political economy for the postwar period. The education measures come from an original dataset that has been assembled to rectify a notable dearth of comparative data on education and training. While some cross-national data on these policy areas have become available from organizations like the Organisation for Economic Co-operation and Development (OECD), UNESCO, and World Bank, the historical coverage of these data are often quite limited and contain significant gaps. The new dataset used in this study has been constructed to address these shortcomings in coverage and incorporate new institutional indicators. Similarly, the political economy measures are augmented versions of several measures included in the Comparative Welfare States Dataset. The starting year for this dataset is 1960, so the measures taken from it have, where possible, been extended back to 1950. A list of the specific measures of education systems and political economy used in this particular study and their summary statistics can be found in Table 4.5, and more specific details about the construction of these measures and their sources are provided in Appendix C.

With respect to geographical and temporal coverage, the data for this study cover 17 rich democracies for the period from 1950 to 1985.³ Most of these data are available for

³ As in Chapter 2, the 17 countries examined include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the

the entire period from 1950 to 1985, but some gaps exist – mostly in observations for the first decade, the 1950s. As a consequence, several of the analyses presented in this study only cover the years from 1960 to 1985 due to missingness in the outcome variable.

To capture the development of education systems in the early postwar era, several measures of educational generosity and coverage are employed. As the broadest measure of public effort in the provision of education, total public expenditures on education as a percentage of GDP is employed. While this study is by no means the first to use this measure as an outcome variable in a comparative analysis of education systems, it does have the advantage of having a more extensive and complete data series for this measure. Most prior inquiries have had to limit their scope to the years after 1970, but, with its extended data, this study is able to peer back to the beginning of the postwar era. Likewise, the coverage of education systems is assessed using an extended set of enrollment rates. These enrollment rates have been constructed in a similar fashion to those used in Chapter 2 and represent the number of students enrolled in a given level of education per 1,000 people in the relevant age group.

In order to gauge how public resources are distributed among different levels of education systems, two sets of measures are used. The first set consists of the shares of current expenditures on public education allocated to two different levels: the aggregate of preprimary, primary, and secondary (PPS) education on the one hand and tertiary education on the other.⁴ These two measures have been constructed so that they sum to 100 percent.⁵ As

United Kingdom, and the United States.

⁴ Expenditures on education are often broken down into capital expenditures and current expenditures. Current expenditures are spending on goods and services that are consumed within a year (e.g., teacher and staff salaries, basic supplies, etc.) while capital expenditures are spending on more permanent things (e.g., buildings, equipment, etc.). On average, roughly 80 to 90 percent of total expenditures on education is classified as current expenditures.

⁵ This measure construction reflects the fact that expenditures categorized as adult education, other, and undistributed have been excluded. These categories typically represent a small portion of current expenditures (usually 0 to 10 percent).

for the second set, measures of expenditures per student at the PPS and tertiary levels provide additional points of cross-national comparison. These public support ratios provide a good indicator of generosity by level of education (Lindert 2004).

For the hypothesized determinants of these outcomes in education, conventional measures are used to operationalize the variables dealing with political agency. To capture the long-run impact of different partisan forces on the post-war trajectories of education systems, cumulative measures of left, Christian democratic, and right government participation are used. These measures are constructed by summing the share of legislative seats held by different parties in government from 1945 to the year of observation, with the parties classified into different types (i.e. left, center, right, etc.). Women's participation in the labor force serves as the measure for women's mobilization because it has been shown to be a good proxy of women's power and involvement in contemporary politics (Huber and Stephens 2000).

The political institutional variables are operationalized using two composite indexes. For territorial decentralization, the Regional Authority Index (RAI) developed by Hooghe et al. (Hooghe, Marks, and Schakel 2008, 2010; Hooghe et al. 2014) is employed. This index is preferable to other common measures of decentralization, such as the binary measures of federal and unitary government, because it is dispersion of authority between the national and regional levels. Unlike other measures of the same class, the RAI index does not simply focus on the structures of authority enshrined in constitutions but also those established by law. Given that laws change more frequently than constitutions, this broad conceptual scope makes the RAI index a more sensitive measure. For veto points, an index that captures four constitutional features (federalism, bicameralism, presidentialism, and judicial review) is used. This index of constitutional structures has been regularly employed in other studies of social policy (see Huber, Ragin, and Stephens 1993; Huber and Stephens 2001).

The variables associated with economic development are measured using a set of well-established indicators. Level of national affluence is captured by the logged real GDP per capita in constant international dollars. The sum of exports and imports as a percentage of GDP is used to measure trade openness.

A set of dummy variables is used to capture the potential effects of education-training regimes at the secondary level. The regime type associated with Ireland and the United Kingdom (limited general education) is used as the base category. The other three categories are: the Nordic and westernmost continental countries (school-based training); the Germanic countries (firm-based training); and the Anglo-settler countries (extensive general education).

In addition to these more theoretically relevant economic measures, three other economic measures are included as basic controls. A measure of military expenditures as a percentage of GDP is added to capture any potential trade-off between support for this state function and spending on public education. Given that social expenditures are sensitive to changes in inflation and unemployment, measures for these economic phenomena are also incorporated.

Recognizing that demand factors also shape expenditures and enrollment patterns in education, demographic controls are employed as well. The primary type of measure used for this purpose is the share of population belonging to a particular age group, with the range of the age group determined by the level or levels of education under investigation. These age groups include: ages 0 to 29 for all education, 15 to 29 for tertiary education, 0 to 19 for PPS education.

Great efforts have been made to assemble complete dataset for the analyses contained in this study, but missingness remains an issue for several variables. As Table 4.5 indicates, five variables have incomplete data series, with the level of missingness for these variables ranging from 0.82 percent to 3.10 percent. To avoid dropping observations with missing

data, which can severely bias regression estimates, multiple imputation is applied to the working dataset with missingness. Drawing on practices and techniques first devised by Rubin (1987) and later extended by Honaker and King (2010), 10 sets of imputed data are generated prior to each individual analysis. Each estimation procedure described in the next section is then applied to these datasets, and the 10 sets of results are subsequently pooled together using formulas developed by Rubin (1987).

4.3.2 Estimation

To analyze the above set of data, the Prais-Winston variant of ordinary least squares (OLS) regression is used. As discussed in Chapter 2, this technique represents the best, though not perfect, approach to analyzing time-series cross-section (TSCS) data for long-run divergences in the political economies of comparable countries. While the OLS estimator has many well-established drawbacks in estimating TSCS models, it does have some qualities that can make it more suitable than popular alternatives. For this study, the most important qualities of the OLS estimator are its ability to detect difference between countries and its capacity to deal with time-invariant and sluggish explanatory variables.

Of the conventional estimators used to analyze TSCS data, the OLS estimator is most capable of evaluating differences between cases. Given that TSCS data vary along two dimensions – both time and space – the selection of an estimator has important implications for how these effects are handled. Remembering that this study is mostly interested in explaining differences between relevant cases rather than changes within a typical case, some estimators are not appropriate for this analysis. In particular, the fixed-effects estimator is not a suitable choice because it includes, by design, a set of controls that eliminate between effects (or “unit effects”) and isolate within effects. By contrast, the random-effects and OLS estimators do not contain these controls and are thus capable of modeling both types of effects using a weighted-average approach. Of these two estimators, the random-effects estimator is less suited for capturing between effects because its averaging procedure gives

more weight to within effects than between effects. OLS estimates do not exhibit such a bias, which makes the OLS estimator the better, though not optimal, method for this study.

Besides having the strongest capacity to detect difference between countries, the OLS estimator is suitable for analyzing variables featuring little to no change across time. A number of the key predictors in this study are mostly or completely time invariant, so it is essential to employ an estimator that can handle these kinds of variables. The fixed-effects estimator is not appropriate for this type of application because its controls for unit effects remove all time-invariant variation from TSCS data, leaving nothing behind to be estimated. As a consequence, the random-effects estimator is often selected for analyses involving time-invariant and rarely changing explanatory variables, but its use involves the controversial assumption that unit effects are uncorrelated with all regressors. In an attempt to overcome the problems associated with both of these estimators, the fixed-effects vector decomposition (FEVD) method has been developed (Plümper and Troeger 2007). Yet, despite addressing the main shortcomings of the fixed-effects and random-effects estimators, the FEVD technique suffers some major problems of its own. The most important of these problems is its inconsistent treatment of between and within effects: time-invariant predictors are estimated as between effects while time-varying predictors are estimated as within effects. Given all of the issues with its alternatives, the OLS estimator looks most appropriate for this study, as it can easily model the effects of temporally sluggish and invariant predictors.

In addition to employing a variant of the OLS estimator, this study uses a modeling approach that focuses on levels rather than changes in identifying statistical associations. The core hypotheses of this study deal with broad differences and long-term developments in policy outcomes, so it is more reasonable to look at how levels in variables relate rather changes in variables relate. Attempting to model these changes through dynamic specifications, such as lagged dependent variable (LDV) specification, would likely undermine the

identification of these more encompassing, long-term relationships. Despite having some statistical advantages, for instance, the LDV specification has been shown to bias the estimates of predictors toward zero (Achen 2000, 13; Plümper, Troeger, and Manow 2005, 343), which can in turn lead to erroneous inferences. For these theoretical and methodological reasons, dynamics are not explicitly modeled in this study.

Steps have also been taken to deal with several efficiency issues that are commonly associated with TSCS analysis. The Prais-Winsten procedure is used to control for the effects of serial correlation on estimated standard errors. At the same time, panel-corrected standard errors are also incorporated into the modeling process, helping to reduce the effects on contemporaneous errors and panel heteroskedasticity on error estimates (Beck and Katz 1995).

4.4 Results

The results of the regression analyses are reported in Tables 4.6–4.9. Table 4.6 presents the results for the first outcome variable, total expenditures, while Tables 4.7, 4.8, and 4.9 contain the results for the outcome variables dealing with distribution, expenditures, and enrollment by educational level. In these tables, multiple models are presented for each outcome variable. For the expenditure-related variables (in Tables 4.6–4.8), these models are: (I) a baseline analysis, (II) a model where the right government variable is introduced, and (III) a model where the veto points variable replaces the regionalization variable. For the enrollment-related variables (in Table 4.9), the model series is comprised of: (i) a baseline analysis that includes the right government variable and controls for education-training regimes and (II) a model where the veto points variable is swapped with the regionalization variable. To aid in interpreting the results, standardized versions of the estimates contained in each final model (III or II) are presented in a series of graphs (see Figures 4.1–4.6) and included in the discussion below.

Looking first at the results for total public expenditures on education (see Table 4.6,

particularly model III, and Figure 4.1), the estimates confirm that long-term partisan trends have strongly influenced the overall generosity of education systems. As predicted, left and Christian-democratic government participation are both positively associated with this aggregate variable, and the relative magnitude of the left effect is larger than the Christian democratic one. In particular, a two standard deviation increase in left involvement would be expected to produce a 1.75 percentage point jump in total public expenditures on education as a percentage of GDP. For an equivalent shift in Christian democratic involvement, the expected increase in the outcome variable is a more modest 1.23 percentage points. While left and Christian democratic government participation have statistically significant effects, right government involvement is not shown to have any meaningful association with total education expenditures.⁶ This result is consistent with the non-positive relationship hypothesized for this variable.

With the exception of the youth population variable, the remaining variables have effects that are magnitudinally weaker or statistically insignificant. As expected, women's labor force participation is positively related to total public expenditures on education, but this relationship has less weight than those involving left and Christian democratic government – its comparable effect size is only 0.69 percentage points. In addition, the estimates for the regionalization and veto points variables are not significant, which corroborates this study's contention that these factors are irrelevant in explaining aggregate expenditure patterns. Contrary to the hypothesis for pluralism, voter turnout has a negative association with the total expenditures variable. The results for GDP per capita suggest that there is a positive yet weak association between national affluence and aggregate expenditures in the area of education. Among the control variables, only the estimate for youth population is large and significant, having a comparable effect size of 1.51 percentage points. This result supports the uncontroversial notion that demographic demands partly drove the early

⁶ In determining the statistical significance of estimates, the conventional 0.05 threshold for p-values is used.

postwar expansion of modern education systems.

The distributional analyses of education by level reveal some interesting partisan and institutional patterns. As anticipated, left government participation is shown to have no meaningful effect on the overall distribution of public resources between the PPS levels and the tertiary level (see Table 4.7 and Figure 4.2). Similarly, the effect of Christian democratic government involvement is statistically indistinguishable from zero in all of these distributional analyses, matching the expectation that Christian democratic rule produces little to no distortion in the distribution of expenditures across levels. Right government participation, on the other hand, is shown to have a significant effect on the allocation of resources between lower and upper levels of education. Holding all else equal, a two standard deviation increase in this variable is associated with a 5.49 point decrease in the PPS share of total spending and a 5.25 point rise in the tertiary share. The net effect of right government is, therefore, to skew public education spending away from the PPS levels and toward the tertiary level. As theorized, increasing numbers of veto points also appear to contribute to this tertiary bias – the veto points variable has significant and opposite associations with the two distributional indicators. In terms of comparable effect size sizes, the veto points variable is associated with a 2.50-point decrease in the PPS share and a 2.21-point increase in the tertiary share. The statistically insignificant result for regionalization gives credence to the idea that this institutional bias stems more from opportunity structures than interregional competition.

Of the remaining predictors, only the affluence and demographic variables have statistically significant effects. None of the estimates for women's labor force participation and voter turnout are significant, which supports the notion that women and publics do not inherently favor spending on one level of education over another. The positive and significant associations detected for GDP per capita and youth population in the tertiary share models do imply, however, that societies place a greater emphasis on tertiary education relative

to PPS education as they reach more advanced stages of economic development and demographic change. Increases of two standard deviations in these variables are expected to generate upward shifts in the tertiary share of 4.66 and 2.60 percentage points, respectively.

The results for the models of public expenditures on education by level further indicate that partisan factors influence the funding of education at different levels. The analyses of spending per student at the PPS levels (see Table 4.8) show that left and right government participation have opposite effects on this indicator of generosity, with the left effect being positive and the right effect being negative. Christian democratic government involvement also has a positive association with per student spending at the PPS levels, which suggests that concerns about social risks outweigh concerns about social change in Christian democratic thinking on PPS education. For both the Christian democratic and left government variables, however, the statistical significance of the estimates falls slightly below the conventional 0.05 threshold when the right government variable is included. This implies that the effect for right government participation is more robust than those for the other two partisan variables. In the set of analyses for the tertiary level, there are less discernible partisan trends. Only the estimate for left government, which is correctly signed in all of the models, reaches statistical significance in one of the three models. Although they are not significant in any of these models, it is interesting to note that the estimates for Christian democratic government involvement are consistently negatively signed while those for right government involvement are positively signed.

Turning to the estimates for the institutional variables, it appears that constitutional structures still matter more than territorial decentralization in predicting public generosity in education. The estimates for regionalization are not significant in any of the models for either the PPS levels or the tertiary level, and the PPS estimates are negatively signed. Together, these results further undermine the notion that practical decentralization influences aggregate education spending. By contrast, the estimates for veto points are all correctly

signed – negative for the PPS levels and positive for the tertiary level – and are statistically significant or very close to significant. Although it does not meet the conventional 0.05 threshold, the estimate for constitutional veto points does have a relatively low p-value of 0.055 and thus should not be completely discounted.

Only a few of the remaining theoretically relevant variables are shown to have meaningful associations with the spending indicators for the PPS and tertiary levels. The estimates for women's labor force participation are only significant for the PPS models, and they consistently suggest that women's mobilization is positively related to public spending on PPS education. Voter turnout is not found to have a statistically meaningful relationship with spending in either two levels examined, whereas trade openness is determined to have an expansionary effect on spending on PPS education. This latter finding supports the hypothesis that public education spending can be used to compensate for heightened economic competition, but it is interesting to find that this logic is not applicable to tertiary education. Similarly, the estimates for GDP per capita are not uniform across both levels – they are positive in the PPS models and negative in the tertiary models. These findings suggest that the convergence in per-student spending across the two education categories observed across all countries (see the spending ratios in Table 4.3) can partly be attributed to continued economic development.

A comparison of the relative effect sizes for the above explanatory variables is provided in Figures 4.3 and 4.4. Of the included political variables, women's labor force participation has the largest absolute effect on per student spending at the PPS levels. A two standard deviation increase in this variable is expected to generate a 3.71 percentage point increase in this indicator of generosity. While right government involvement also has a significant effect on this outcome variable, the comparable size of its negative effect is smaller at 2.18 points. In the model of per student spending at the tertiary level, left government participation has a smaller effect than veto points, though both are strong. The comparable effects of the

left government and veto point variables on this indicator of generosity are 12.70 points and 16.35 points, respectively. Overall, these political effects are higher or comparable in size to those of the statistically significant economic and demographic variables for these expenditures models.

When it comes to explaining differences in enrollment rates, the political agency variables are shown to be more important than the political institution ones. The results in Table 4.9 indicate that left government participation has a significant and positive effect on the enrollment rates at both the PPS levels and tertiary level. While Christian democratic and right government participation are not shown to have any meaningful associations with the PPS enrollment variable, the Christian democratic variable is a positive and significant predictor of tertiary enrollment while the right variable is not. All of these results, except the positive relationship between Christian democratic government and tertiary enrollment, are consistent with this study's hypotheses. Likewise, as anticipated, neither of the institutional factors considered – regionalization and veto points – has a statistically meaningful association with either outcome variable.

It is interesting to note that education-training regimes have some significant effects on postwar educational developments. Holding all else equal, switching from an education system that features limited general education at the secondary level to one that has extensive school-based training at the secondary level is associated with a 50.749 decrease in the PPS enrollment rate. A switch to a system with extensive firm-based training is also expected to have a negative effect, though this effect is not consistently significant. For tertiary enrollment, a switch from a system with limited general secondary education to one with extensive general secondary education is associated with a 60.400 increase in the enrollment rate. All of these results are consistent with the hypotheses developed earlier.

The influence of the remaining explanatory variables on enrollment rates looks fairly limited, particularly for the PPS levels. The estimates for women's labor force participation

and voter turnout are only statistically significant in the models of tertiary enrollment, and the sign of the latter is unexpectedly negative. The results for GDP per capita are positive and mostly significant in both sets of enrollment analyses, and unemployment is found to be a meaningful predictor of tertiary enrollment.

The comparative effect sizes for the enrollment analyses are depicted in Figures 4.5 and 4.6.⁷ Between left government participation and GDP per capita, the former has a slightly larger effect on PPS enrollment rates than the latter. More specifically, a two standard deviation increase in left government participation is associated with 40.02 point increase in this enrollment rate while a similar shift in GDP per capita is expected to produce a more modest 34.52 point increase. Looking at the standardized magnitudes for the predictors of tertiary enrollment rates, it is apparent that Christian democratic government involvement and women's labor force participation are strongest of the political variables. Their comparable effect sizes are 23.30 points and 26.72 points, respectively, and they are notably larger than the 15.20 points for left government and -10.54 points for voter turnout. None of these political effects are quite as large as the effect of GDP per capita, which has an effect size of 35.73 points.

4.5 Discussion

Broad advancements were clearly made in the extension of mass education after World War II, but some countries were more ambitious than others in their efforts to enhance and democratize this essential element of modern welfare states. In the Nordic countries and elsewhere in Europe, strong efforts were made to expand educational offerings across the life course and to open educational opportunities to all citizens. By contrast, in other parts of Europe and the Anglo-settler countries, the push for expansion in education was more muted and less sweeping. As a result of these inconsistent efforts, significant differences

⁷ To show the relative effect size of left government, the graph for tertiary enrollment is based on model I rather than model II. A graph based on model II would essentially be the same except the left government effect would be gone.

emerged in the generosity, distribution, and coverage of education systems found in these advanced capitalist countries.

This study shows that differences in partisan government participation and veto points in policy-making are the key political factors in accounting for these divergences. A long history of left government is found to have strong and positive effects on the generosity and coverage of education systems. Christian democratic government incumbency also appears to have positive effects on the overall generosity of education systems, but not to the same extent as the left case. This difference becomes more visible when one looks at generosity by level of education: while left government participation is positively associated with generosity across all levels of education, Christian democratic government involvement only has a positive effect on generosity of lower levels of education. Although it is not found to influence the overall generosity of education systems, right government participation has significant effects on the distribution of resources within these systems. A long record of right rule is associated with a distributional arrangement that increasingly emphasizes tertiary education at the expense of preprimary, primary, and secondary education. Political systems with many veto points also appear to make education systems more prone to developing tertiary biases in their allocation of public resources.

These results add weight to notion that distributional considerations played a central role in shaping the long-term development of education systems. Despite being widely accepted as a social right, education was not immune to the class-driven left-right dynamics that largely defined early postwar politics in rich democracies and elsewhere. Given their well-known proclivity for generosity and universalism in social policy, it is not surprising to find that left parties were at the forefront of efforts to expand and improve educational opportunities across all levels of education. In the decades after the war, many social democratic parties and other left parties increasingly embraced the idea of using education as instrument for social change. In Sweden and the other Nordic countries, where social

democratic parties were particularly active in educational reform, they spearheaded efforts to remove the last vestiges of parallel education and to make education more accessible and applicable for a modern democratic society.

Christian democratic governments

4.6 Tables and Figures

Table 4.1: Enrollment Rates by Educational Level in Advanced Capitalist Societies, 1950–1985

Country	Preprimary/Primary/Secondary					Tertiary				
	1950	1960	1970	1980	1985	1950	1960	1970	1980	1985
Austria	675	664	679	708	768	26	37	59	102	128
Germany	724	702	800	714	754	17	30	64	97	99
Switzerland	631	654	687	804	820	24	34	54	84	105
Mean	677	673	722	742	781	22	34	59	95	111
Belgium	732	827	764	781	790	16	47	87	125	162
France	643	749	732	757	772	22	55	96	124	146
Italy	477	557	695	725	737	18	35	86	127	129
Netherlands	730	747	721	783	799	38	62	101	143	156
Mean	617	684	716	755	770	26	51	94	131	144
Denmark	584	728	750	809	840	31	46	96	139	145
Finland	611	698	739	812	827	23	58	68	160	166
Norway	624	721	902	765	750	17	63	81	123	147
Sweden	653	775	765	742	753	19	41	116	179	154
Mean	629	731	802	773	776	20	54	89	154	156
Ireland	685	761	850	706	728	19	32	60	83	109
United Kingdom	694	762	785	800	788	20	32	67	90	109
Mean	689	762	817	753	758	20	32	63	86	109
Australia	810	798	838	742	793	30	56	82	126	139
Canada	716	794	849	741	799	36	74	159	213	266
New Zealand	772	806	682	822	859	52	59	87	134	158
United States	799	818	809	768	775	103	131	233	272	306
Mean	762	806	780	777	811	64	88	159	206	243
Overall Mean	675	734	767	762	783	29	50	91	133	150

Note: The enrollment rates represent the number of students of all ages enrolled in the respective levels of education per 1,000 persons aged 19 and under (preprimary/primary/secondary) or 15–24 (tertiary).

Table 4.2: Public Expenditures on Education in Advanced Capitalist Societies, 1950–1985

Country	Total (% GDP)					Pre/Pri/Sec (% Current Exp.)					Tertiary (% Current Exp.)				
	1950	1960	1970	1980	1985	1950	1960	1970	1980	1985	1950	1960	1970	1980	1985
Austria	3.3	2.7	4.4	5.3	5.7	86.7	88.0	85.4	84.2	80.8	13.4	12.0	14.6	15.8	19.2
Germany	2.2	2.7	3.7	4.8	4.6	90.3	86.7	79.2	82.9	76.3	9.7	13.3	20.8	17.1	23.7
Switzerland	3.2	3.2	3.8	4.9	4.9	81.5	81.5	81.1	80.4	80.9	18.5	18.5	18.9	19.6	19.1
Mean	2.9	2.9	4.0	5.0	5.0	86.1	85.4	81.9	82.5	79.3	13.9	14.6	18.1	17.5	20.7
Belgium	2.2	4.3	5.2	5.7	5.7	93.4	93.4	85.2	80.8	81.0	6.6	6.6	14.8	19.2	19.0
France	1.5	2.3	4.6	4.8	5.5	92.5	90.6	80.9	85.0	84.5	7.5	9.4	19.1	15.0	15.5
Italy	2.0	3.5	3.6	4.6	4.9	94.1	85.8	88.7	89.3	86.5	5.9	14.2	11.3	10.7	13.5
Netherlands	2.9	4.9	6.8	7.2	6.2	91.2	83.8	74.4	68.0	68.9	8.9	16.3	25.6	32.0	31.1
Mean	2.1	3.6	5.0	5.5	5.5	92.6	86.7	81.3	80.8	80.0	7.4	13.3	18.7	19.2	20.0
Denmark	2.5	3.5	6.4	6.4	6.6	90.4	90.9	77.4	80.4	76.1	9.6	9.2	22.6	19.6	23.9
Finland	2.2	4.6	5.7	5.2	5.3	95.1	95.2	89.7	79.3	79.5	4.9	4.8	10.3	20.7	20.5
Norway	2.3	3.6	5.2	6.4	5.9	92.3	91.5	85.3	84.2	84.5	7.7	8.5	14.7	15.9	15.5
Sweden	2.9	4.2	7.0	8.4	7.1	95.4	91.1	80.6	86.2	83.9	4.6	8.9	19.4	13.8	16.1
Mean	2.5	4.1	6.0	6.7	6.1	94.3	92.6	85.2	83.2	82.6	5.7	7.4	14.8	16.8	17.4
Ireland	2.5	2.8	4.6	5.7	5.4	95.6	91.0	85.8	80.8	81.7	4.4	9.1	14.2	19.2	18.3
United Kingdom	3.2	3.9	5.2	5.3	4.5	82.4	82.4	73.2	74.9	78.6	17.6	17.6	26.8	25.1	21.4
Mean	2.8	3.3	4.9	5.5	4.9	89.0	86.7	79.5	77.8	80.1	11.0	13.3	20.5	22.2	19.9
Australia	1.3	2.4	3.5	5.1	5.1	88.5	78.1	66.6	75.3	67.0	11.5	22.0	33.5	24.8	33.0
Canada	2.3	4.0	7.9	6.7	6.4	94.1	87.1	70.4	70.4	68.9	5.9	12.9	29.7	29.6	31.1
New Zealand	1.9	2.9	4.5	5.4	4.3	90.5	79.8	73.1	70.2	70.3	9.5	20.2	26.9	29.9	29.7
United States	3.3	3.7	5.5	5.5	5.0	87.8	81.1	70.5	62.2	66.1	12.2	18.9	29.5	37.8	33.9
Mean	2.5	3.5	6.0	5.9	5.2	90.8	82.7	71.3	67.6	68.4	9.2	17.3	28.7	32.4	31.6
Overall Mean	2.6	3.6	5.3	5.7	5.5	90.7	86.9	79.3	78.5	77.4	13.0	16.3	22.9	23.6	24.5

Pre/Pri/Sec is the aggregate of the preprimary, primary, and secondary levels.

Table 4.3: Expenditures per Student by Educational Level in Advanced Capitalist Societies, 1960–1985

Country	Pre/Pri/Sec (PPS)				Tertiary				Tertiary/PPS Ratio			
	1960	1970	1980	1985	1960	1970	1980	1985	1960	1970	1980	1985
Austria	13.2	17.3	21.2	22.6	47.6	57.7	39.0	38.8	3.6	3.3	1.8	1.7
Germany	12.3	10.0	19.0	19.7	58.3	55.9	40.4	51.9	4.7	5.6	2.1	2.6
Switzerland	14.0	13.4	18.8	21.2	96.7	59.2	62.9	48.9	6.9	4.4	3.4	2.3
Mean	13.2	13.6	19.7	21.2	67.5	57.6	47.4	46.5	5.1	4.4	2.4	2.2
Belgium	19.4	20.5	23.8	24.3	42.3	49.8	48.5	36.5	2.2	2.4	2.0	1.5
France	9.6	15.3	17.6	21.3	25.6	41.8	28.3	29.4	2.7	2.7	1.6	1.4
Italy	15.9	15.1	17.8	18.0	65.2	24.3	19.0	21.9	4.1	1.6	1.1	1.2
Netherlands	14.0	18.1	19.9	19.4	61.2	67.7	73.7	57.1	4.4	3.7	3.7	2.9
Mean	13.2	16.2	18.4	19.6	50.6	44.6	40.3	36.1	3.7	2.7	2.1	1.8
Denmark	15.2	20.5	22.4	23.5	41.4	66.9	47.7	57.9	2.7	3.3	2.1	2.5
Finland	16.4	22.5	19.6	21.6	19.3	38.7	34.8	37.2	1.2	1.7	1.8	1.7
Norway	12.9	13.4	21.5	23.2	53.3	38.2	38.7	30.4	4.1	2.9	1.8	1.3
Sweden	15.2	22.1	27.8	29.2	47.4	47.4	28.0	38.4	3.1	2.1	1.0	1.3
Mean	14.8	19.3	22.9	24.7	40.0	41.4	33.8	35.3	2.8	2.2	1.5	1.4
Ireland	11.5	12.8	17.6	18.1	55.0	55.6	60.4	45.4	4.8	4.3	3.4	2.5
United Kingdom	12.8	15.4	18.3	19.1	111.2	103.5	81.2	48.2	8.7	6.7	4.4	2.5
Mean	12.2	14.1	18.0	18.6	83.1	79.5	70.8	46.8	6.7	5.5	3.9	2.5
Australia	5.6	6.8	16.1	14.9	43.0	56.3	47.2	60.5	7.7	8.3	2.9	4.1
Canada	9.4	17.6	21.6	21.3	29.4	66.1	40.2	36.4	3.2	3.8	1.9	1.7
New Zealand	6.3	10.9	13.7	11.7	43.8	56.0	55.9	38.5	7.0	5.1	4.1	3.3
United States	11.2	16.1	17.8	17.0	32.6	38.6	40.2	28.9	2.9	2.4	2.3	1.7
Mean	9.0	14.9	17.7	16.7	35.3	53.6	45.4	34.6	4.3	3.8	2.7	2.2
Overall Mean	12.9	16.1	19.9	20.7	53.1	54.6	46.6	41.5	4.4	3.8	2.5	2.1

Pre/Pri/Sec is the aggregate of the preprimary, primary, and secondary levels.

Table 4.4: Hypothesized Effects of Explanatory Variables on Education Systems

Explanatory Variable	Overall	PPS	Ter	PPS	Ter	PS	Ter
<i>Political Mobilization</i>							
Left Government	+	0	0	+	+	+	+
Christian Dem. Government	0/+	0/-	0/+	0/+	0/+	0/-	0/-
Right Government	0/-	-	+	-	0/+	0/-	0/-
Women's Mobilization	+	0	0	+	+	+	+
Pluralism	+	0	0	+	+	+	+
<i>Authority Structures</i>							
Decentralization	-/+	-/+	-/+	-/+	-/+	-/+	-/+
Veto Points	0/+	-	+	-	+	0/-	0/-
<i>Economic Development</i>							
National Affluence	+	-	+	+	+	+	+
Trade Openness	+	-	+	+	+	+	+
<i>Education-Training Regime</i>							
Dual / General						Base Case	
Dual / School						-	-
Dual / Apprentice						-	-
Single / General						+	+

Notes: [+] positive effect, [-] negative effect, [0/-] non-positive effect, [0/+] non-negative effect, and the effects for dispersion of authority and training legacies are interactive; PPS is the aggregate of the preprimary, primary, and secondary levels, Ter represents the tertiary level.

Table 4.5: Measure Selection and Summary Statistics for Explanatory Variables

Variable	Measure	Mean	SD	Min.	Max.	Missing ^b
Left Government	Left Gov. (Cumulative)	7.43	7.34	0.00	32.86	0.00
Christian Dem. Government	Christian Dem. Gov. (Cumulative)	4.72	7.21	0.00	33.15	0.00
Right Government	Right Gov. (Cumulative)	5.59	7.16	0.00	30.33	0.00
Women's Mobilization	Women's Labor Force Participation	46.44	11.44	22.31	78.30	2.45
Pluralism	Voter Turnout	82.16	10.96	48.06	96.95	0.00
Decentralization	Regional Authority (Index)	12.81	8.34	0.00	29.40	0.82
Veto Points	Veto Points (Index)	1.55	1.81	0.00	6.00	0.00
National Affluence	GDP per Capita ^a	13.77	5.15	3.83	28.38	0.00
Trade Openness	Trade Openness	52.77	24.05	8.28	139.70	0.00
Military Expenditure	Military Expenditure	3.43	1.95	0.00	13.85	0.00
Inflation	Inflation	5.93	4.70	-9.63	27.49	0.00
Unemployment	Unemployment	3.70	2.82	0.00	16.82	3.10
Demographic Change	Population					
	Aged 29 and Under	47.55	4.21	38.83	55.89	0.00
	Aged 19 and Under	32.93	4.17	23.54	41.99	0.00
	Aged 15–29	22.53	2.12	18.22	28.76	0.00

^a The summary statistics for this indicator are expressed in 1000s.

^b This indicator is expressed as a percentage of the total data (612 observations).

Table 4.6: Determinants of Public Expenditures on Education, 1950–1985

Variable	I	II	III
Left Government	0.127** (0.016)	0.129** (0.016)	0.119** (0.017)
Christian Dem. Government	0.082** (0.013)	0.084** (0.013)	0.085** (0.013)
Right Government		0.011 (0.014)	0.009 (0.014)
Women's Labor Force Participation	0.030** (0.007)	0.029** (0.007)	0.030** (0.007)
Voter Turnout	−0.011 (0.005)	−0.011* (0.005)	−0.012* (0.006)
Regional Authority	0.005 (0.009)	0.005 (0.009)	
Veto Points			−0.062 (0.057)
GDP per Capita (log)	0.697** (0.253)	0.620* (0.275)	0.758* (0.297)
Trade Openness	−0.005 (0.003)	−0.005 (0.003)	−0.006 (0.003)
Military Expenditure	0.004 (0.024)	0.005 (0.024)	0.005 (0.024)
Inflation	0.003 (0.004)	0.003 (0.004)	0.003 (0.004)
Unemployment	0.066** (0.016)	0.064** (0.016)	0.064** (0.016)
Population Aged 29 and Under	0.188** (0.028)	0.185** (0.028)	0.179** (0.027)
Constant	−13.057**	−12.250**	−12.928**
<i>Rho</i>	0.901	0.895	0.894
<i>R</i> ²	0.149	0.160	0.163
<i>N</i>	612	612	612

Pre/Pri/Sec is the aggregate of the preprimary, primary, and secondary levels.

Figures in parentheses are standard errors.

Significance levels: * = 0.05, ** = 0.01, based on two-tailed t-test.

Table 4.7: Determinants of the Distribution of Public Expenditures on Education, 1950–1985

Variable	Share Allocated to Pre/Pri/Sec			Share Allocated to Tertiary		
	I	II	III	I	II	III
Left Government	0.043 (0.081)	−0.037 (0.078)	−0.089 (0.087)	0.051 (0.074)	0.046 (0.081)	0.088 (0.081)
Christian Dem. Government	−0.001 (0.085)	−0.081 (0.078)	−0.107 (0.079)	−0.038 (0.076)	0.055 (0.073)	0.066 (0.071)
Right Government		−0.374** (0.096)	−0.383** (0.098)		0.362** (0.102)	0.367** (0.100)
Women's Labor Force Participation	−0.060 (0.047)	−0.044 (0.044)	−0.034 (0.044)	0.035 (0.054)	0.016 (0.050)	0.005 (0.050)
Voter Turnout	−0.042 (0.037)	−0.040 (0.035)	−0.055 (0.037)	0.044 (0.036)	0.037 (0.035)	0.052 (0.036)
Regional Authority	−0.075 (0.066)	−0.117 (0.063)		0.058 (0.067)	0.090 (0.066)	
Veto Points			−0.691* (0.299)			0.610* (0.294)
GDP per Capita (log)	−10.086** (1.432)	−7.075** (1.481)	−6.558** (1.527)	9.098** (1.460)	5.951** (1.535)	5.688** (1.527)
Trade Openness	0.022 (0.016)	0.016 (0.015)	0.016 (0.015)	−0.025 (0.016)	−0.021 (0.016)	−0.019 (0.015)
Military Expenditure	0.008 (0.145)	−0.010 (0.135)	−0.023 (0.137)	0.071 (0.146)	0.071 (0.139)	0.086 (0.139)
Inflation	−0.045 (0.020)	−0.037 (0.020)	−0.039 (0.020)	0.034 (0.021)	0.029 (0.020)	0.030 (0.020)
Unemployment	−0.168 (0.082)	−0.085 (0.081)	−0.092 (0.082)	0.083 (0.084)	0.010 (0.084)	0.022 (0.084)
Population Aged 19 and Under	−0.245 (0.179)	−0.235 (0.163)	−0.215 (0.165)			
Population Aged 15-29				0.685** (0.228)	0.592** (0.211)	0.613** (0.210)
Constant	−192.896**	166.892**	162.350**	−89.500**	−59.711**	−58.809**
<i>Rho</i>	0.902	0.883	0.890	0.897	0.892	0.889
<i>R</i> ²	0.907	0.918	0.915	0.084	0.127	0.133
<i>N</i>	612	612	612	612	612	612

Pre/Pri/Sec is the aggregate of the preprimary, primary, and secondary levels.

Figures in parentheses are standard errors.

Significance levels: * = 0.05, ** = 0.01, based on two-tailed t-test.

Table 4.8: Determinants of Public Expenditures per Student by Educational Level, 1950–1985

Variable	Expenditures on Pre/Pri/Sec			Expenditures on Tertiary		
	I	II	III	I	II	III
Left Government	0.194** (0.061)	0.090 (0.056)	0.063 (0.057)	0.389 (0.342)	0.491 (0.358)	0.865* (0.416)
Christian Dem. Government	0.194** (0.062)	0.104 (0.055)	0.106 (0.055)	−0.220 (0.238)	−0.097 (0.275)	−0.114 (0.273)
Right Government		−0.150** (0.043)	−0.152** (0.040)		0.302 (0.312)	0.332 (0.312)
Women's Labor Force Participation	0.173** (0.049)	0.155** (0.043)	0.162** (0.043)	−0.272 (0.208)	−0.253 (0.210)	−0.328 (0.217)
Voter Turnout	−0.040 (0.024)	−0.016 (0.021)	−0.035 (0.020)	−0.103 (0.173)	−0.119 (0.178)	0.043 (0.171)
Regional Authority	−0.013 (0.044)	−0.052 (0.042)		0.407 (0.266)	0.437 (0.267)	
Veto Points			−0.406 (0.210)			4.516** (1.582)
GDP per Capita (log)	0.322 (1.148)	2.836* (1.166)	3.143* (1.109)	−17.508* (7.229)	−21.174* (8.277)	−26.442** (8.194)
Trade Openness	0.026* (0.013)	0.032** (0.011)	0.030** (0.011)	0.056 (0.078)	0.056 (0.080)	0.075 (0.082)
Military Expenditure	0.004 (0.166)	0.061 (0.151)	0.039 (0.135)	1.705 (0.929)	1.612 (0.934)	1.546 (0.948)
Inflation	0.011 (0.026)	0.025 (0.027)	0.020 (0.027)	0.097 (0.148)	0.090 (0.149)	0.127 (0.148)
Unemployment	0.363** (0.074)	0.399** (0.069)	0.364** (0.069)	−0.809* (0.411)	−0.877* (0.409)	−0.632 (0.421)
Population Aged 19 and Under	−0.010 (0.120)	−0.083 (0.107)	−0.079 (0.105)			
Population Aged 15-29				1.897* (0.936)	1.825 (0.936)	2.048* (0.944)
Constant	3.313	−17.215	−18.482	183.050**	216.568**	245.569**
<i>Rho</i>	0.789	0.726	0.720	0.833	0.837	0.847
<i>R</i> ²	0.371	0.441	0.449	0.236	0.236	0.243
<i>N</i>	442	442	442	442	442	442

Pre/Pri/Sec is the aggregate of the preprimary, primary, and secondary levels.

Figures in parentheses are standard errors.

Significance levels: * = 0.05, ** = 0.01, based on two-tailed t-test.

Table 4.9: Determinants of Enrollment Rates by Educational Level, 1950–1985

Variable	Pre/Pri/Sec		Tertiary	
	I	II	I	II
Left Government	2.994 [*] (1.250)	2.726 [*] (1.281)	1.036 [*] (0.495)	0.634 (0.500)
Christian Dem. Government	0.694 (0.987)	1.050 (0.902)	1.616 ^{**} (0.406)	1.750 ^{**} (0.374)
Right Government	0.580 (0.865)	0.372 (0.844)	0.788 (0.428)	0.506 (0.410)
Women's Labor Force Participation	−0.722 (0.524)	−0.677 (0.518)	1.168 ^{**} (0.214)	1.273 ^{**} (0.212)
Voter Turnout	−0.355 (0.474)	−0.325 (0.453)	−0.481 ^{**} (0.153)	−0.571 ^{**} (0.160)
Regional Authority	1.438 (0.834)		0.615 (0.353)	
Veto Points		0.704 (5.257)		−2.583 (1.961)
GDP per Capita (log)	36.963 (20.395)	42.100 ^{**} (19.354)	43.570 ^{**} (7.444)	49.167 ^{**} (7.522)
Trade Openness	0.319 (0.195)	0.317 (0.194)	0.064 (0.071)	0.065 (0.069)
Unemployment	−0.987 (1.271)	−0.746 (1.262)	2.062 ^{**} (0.374)	2.312 ^{**} (0.383)
Population Aged 19 and Under	−0.925 (1.979)	−1.677 (1.868)		
Population Aged 15-29			1.945 (1.037)	2.192 [*] (1.022)
<i>Prewar Regime^a</i>				
School-Based Vocational	−52.901 ^{**} (16.738)	−51.315 ^{**} (16.713)	4.356 (8.026)	7.692 (7.781)
Firm-Based Vocational	−67.582 ^{**} (26.637)	−53.719 (34.012)	−30.032 ^{**} (9.891)	−14.276 (11.310)
Extensive General Education	17.706 (23.672)	31.975 (24.237)	49.382 ^{**} (9.689)	60.440 ^{**} (9.725)
Constant	449.037 ^{**}	425.724 ^{**}	−430.931 ^{**}	−479.102 ^{**}
<i>Rho</i>	0.804	0.799	0.827	0.912
<i>R</i> ²	0.723	0.722	0.274	0.336
<i>N</i>	612	612	612	612

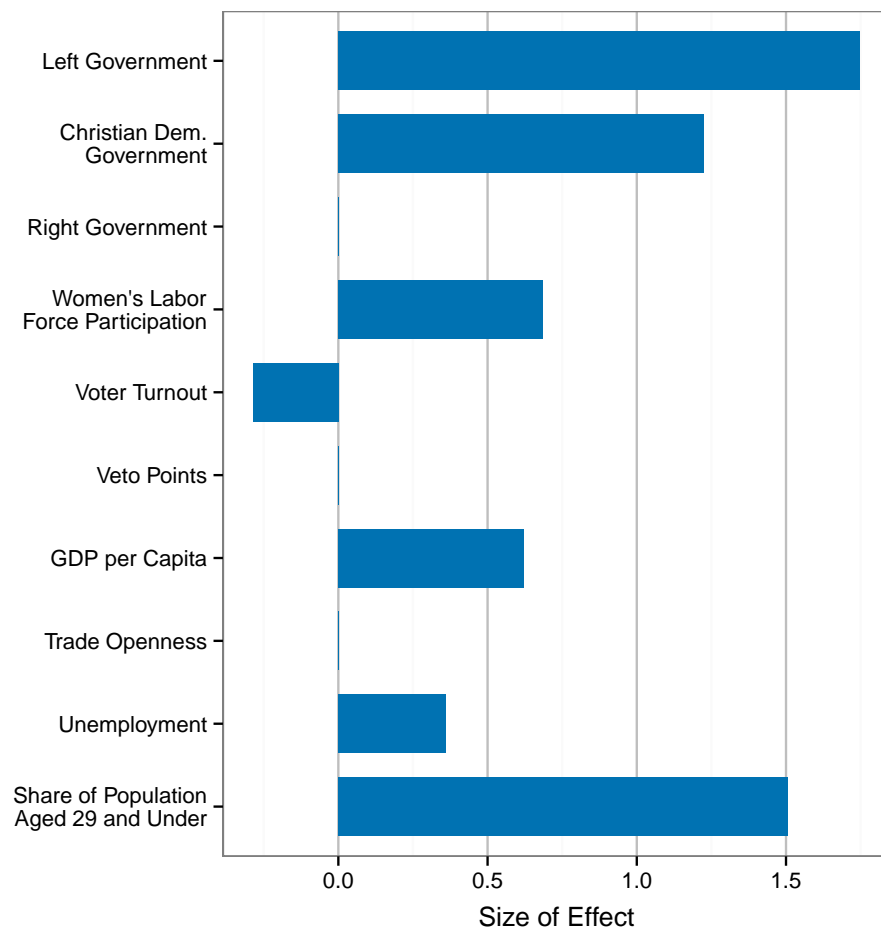
Pre/Pri/Sec is the aggregate of the preprimary, primary, and secondary levels.

Figures in parentheses are standard errors.

Significance levels: * = 0.05, ** = 0.01, based on two-tailed t-test.

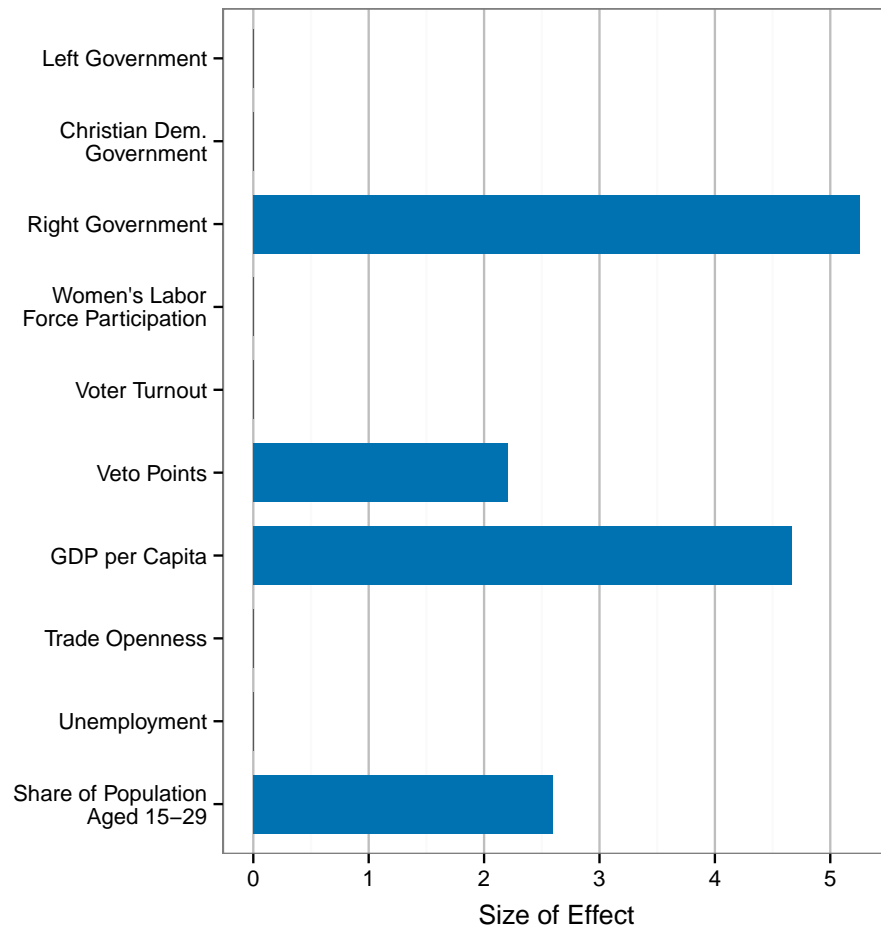
^a Base case is the regime featuring limited general education (e.g., Ireland and the United Kingdom).

Figure 4.1: Relative Effects of Explanatory Variables on Public Expenditures on Education



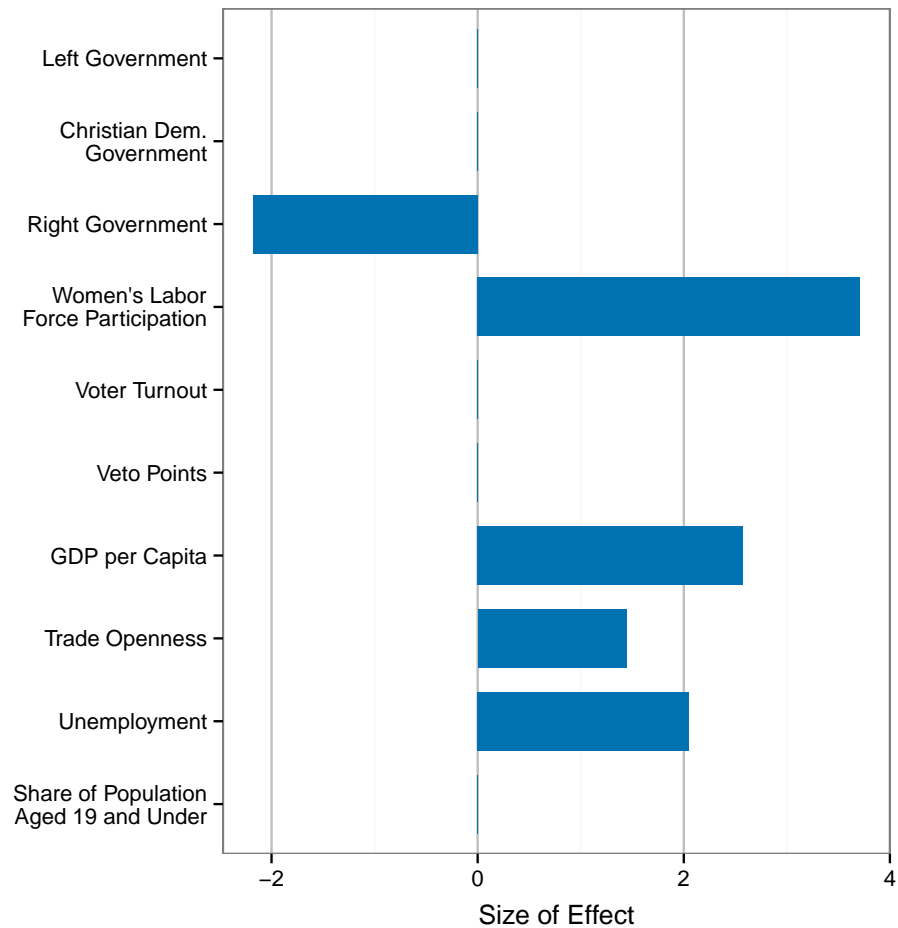
Note: Based on results for Model III in Table 4.6 and assumes a two standard deviation shift in each variable.

Figure 4.2: Relative Effects of Explanatory Variables on Tertiary Share of Public Expenditures on Education



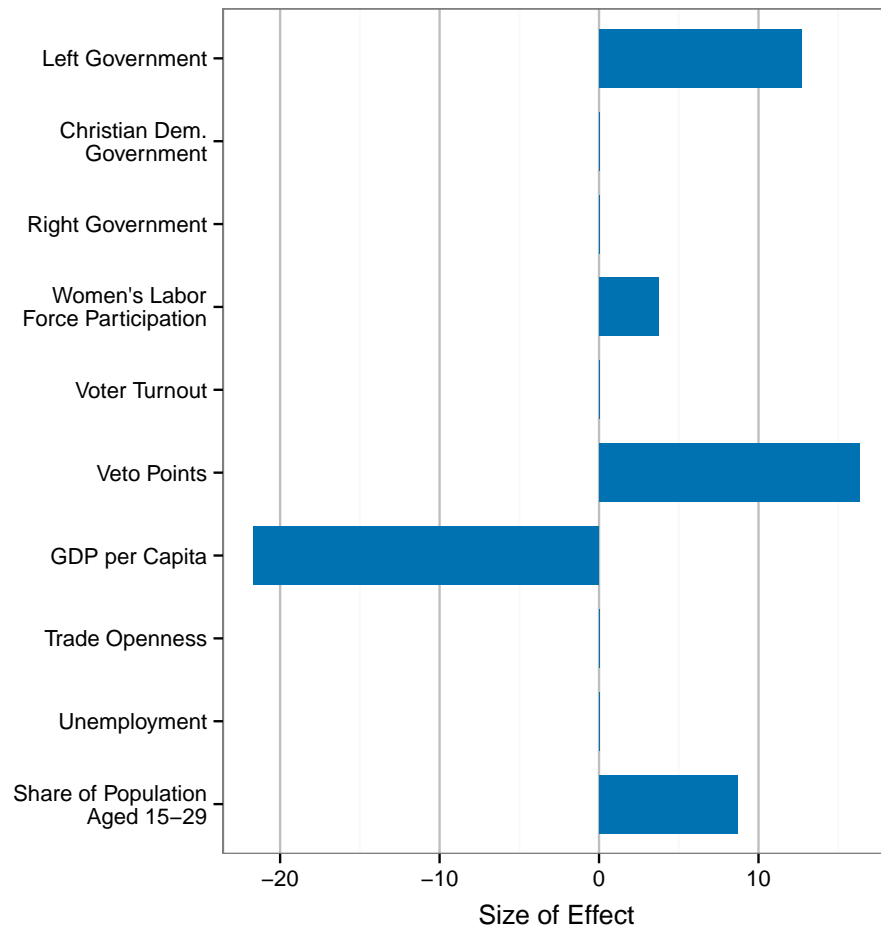
Note: Based on results for Model III for tertiary education in Table 4.7 and assumes a two standard deviation shift in each variable.

Figure 4.3: Relative Effects of Explanatory Variables on Public Expenditures Per Student at Preprimary, Primary, and Secondary Levels



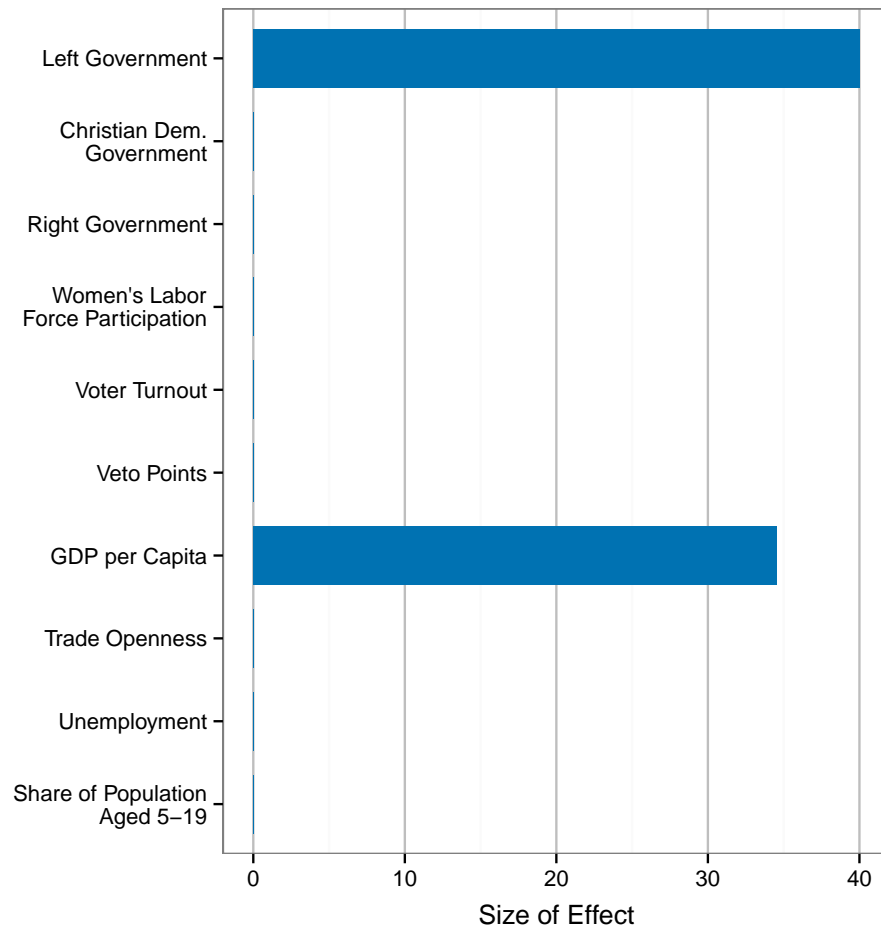
Note: Based on results for Model III for preprimary, primary, and secondary education in Table 4.8 and assumes a two standard deviation shift in each variable.

Figure 4.4: Relative Effects of Explanatory Variables on Public Expenditures Per Student at Tertiary Level



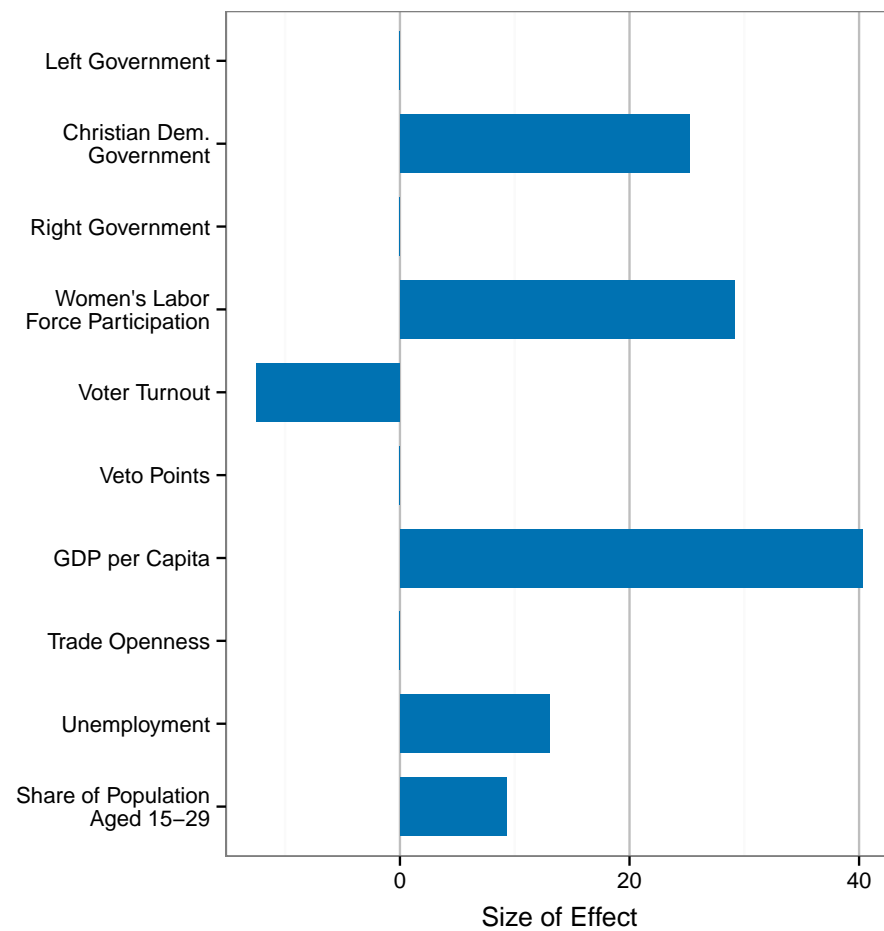
Note: Based on results for Model III for tertiary education in Table 4.8 and assumes a two standard deviation shift in each variable.

Figure 4.5: Relative Effects of Explanatory Variables on Enrollment Rate at Preprimary, Primary, and Secondary Levels



Note: Based on results for Model II for preprimary, primary, and secondary education in Table 4.9 and assumes a two standard deviation shift in each variable.

Figure 4.6: Relative Effects of Explanatory Variables on Enrollment Rate at Tertiary Level



Note: Based on results for Model I for tertiary education in Table 4.9 and assumes a two standard deviation shift in each variable.

5 CONCLUSION

This dissertation set out to explore why affluent countries in Europe, North American, and Oceania have adopted different approaches to educating their citizens. Even though the provision of extensive and generous mass education has become a hallmark of these advanced capitalist societies, they have followed remarkably different paths in reaching this milestone, and they continue to exhibit significant variation in how they support and structure their education systems. This variation is particularly evident when one compares the evolution of education systems in Germany, Sweden, the United Kingdom, and the United States. Once the clear leader in the provision of general education, the German education system is now best known for its highly developed system of apprenticeship-based vocational training. The Swedish education system also provides extensive vocational training – though typically through schools – but its most distinctive feature has become its high level of public investment in education across the entire life course. While the American education system was once recognized as a global pioneer in mass-oriented secondary education, it now distinguishes itself by strongly emphasizing tertiary education. Unlike these three other cases, the British education system has never been viewed as a major innovator in mass education; rather, it has been deemed noteworthy for its historically underdeveloped and highly stratified education system. As these four experiences show, education systems have undergone significant change and experienced notable divergences, particularly over the past century.

Throughout this dissertation, it has been shown that distributional politics underlie many of the long-run divergences observed among the education systems of advanced capitalist societies. Ever since the idea of mass education gained a foothold in modern

politics, it has been the object of contestation between conservative elites and progressive reformers. Both of these sides have long recognized that education is a key determinant of economic success and social status in modern societies, and consequently they have waged many battles over how education is to be distributed. Given their central roles in distributing education to new generations, education systems and their institutional designs have attracted significant attention from both sides of this struggle over education. To preserve their high levels of economic success and social status, elites have pushed for the construction of highly segmented education systems that restrict educational access for the masses. By contrast, reformers have advocated for the development of broadly inclusive education systems that encourage all segments of society to maximize their educational potential. The balance of power between these two competing sides has largely determined whether education has become more segmented or integrated over time.

5.1 Findings

These struggles over education and the ways in which it is structured have taken many different forms. This dissertation has focused on two sets of political struggles that left extensive and lasting imprints on the education systems found in affluent societies, namely the struggles over the development of mass education at the secondary level and the struggles over the development of mass education at the tertiary level. Although these two sets of struggles occurred in different historical contexts, both of them were primarily driven by concerns over the distribution of education.

Chapters 2 and 3 showed that variations in the prewar political struggles over secondary education were responsible for the emergence of different mixes of general education and vocational training. Using statistical techniques to analyze a new set of data on education systems covering 17 countries for the period from 1880 to 1939, Chapter 2 found that these variations stemmed from the interaction of two institutional factors: the structure of state authority over general education and the strength of coordination legacies in vocational

training. In its comparative historical analysis of educational development in Germany, Sweden, the United Kingdom, and the United States during the nineteenth and early twentieth centuries, Chapter 3 revealed that these two institutional factors had strongly shaped the nature and success of the strategies employed by elites and reformers in their struggles over secondary education.

The combined results of Chapter 2 and 3 provided substantial support for a new theory for the emergence of distinct education-training regimes at the secondary level. According to this theory, cross-national differences in educational authority and training legacies gave rise to different political logics in the development of secondary education. In societies where educational authority was highly dispersed, conservative elites attempted to redirect pressures for educational expansion by promoting vocational training as a substitute for general education. These diversionary efforts were only successful, however, in environments where preindustrial guilds had left strong traditions of non-state coordination in training. Where educational authority was highly centralized, conservative elites were less aggressive in establishing programs of vocational education for the working masses, as they could stall or veto major educational reforms with democratizing effects. Yet, if strong legacies of coordinated training existed, reform-minded actors found it possible to establish school-based models of vocational training that were eventually adopted and propagated by state authorities.

As seen in both Chapters 2 and 3, these varying political logics gave rise to four types of education-training regimes at the secondary level. In some European countries, like Germany, where conservative elites successfully revived guild-based traditions of vocational training, educational expansion was largely confined to apprenticeship-based programs. In other European countries, such as Sweden and the United Kingdom, where conservative forces adopted more defensive approaches to educational reform, restrained growth occurred in general education. However, those countries among this group that inherited

strong traditions of coordinated training also experienced some expansion in vocational training, particularly the school-based variant. In the United States and other Anglo-settler countries, where conservative elites could not easily steer education reform from above and legacies of non-market coordination in vocational training were weak, general education expanded unevenly but rapidly.

Chapter 4 revealed that postwar political struggles over education were responsible for the emergence of different institutional configurations involving tertiary education and lower levels of education. In defining these configurations, this chapter considered three different dimension of education, namely generosity, distribution, and coverage. Focusing on these three dimensions, Chapter 4 used statistical techniques to analyze another new set of data on education systems covering the same 17 countries as before, but for the early postwar period from 1950 to 1985. Based on this series of analyzes, the chapter determined that variations in education along these dimensions were likely the product of cross-national differences in partisan government participation and constitutional veto points. In particular, this chapter showed that left government participation and, to a lesser extent, Christian democratic government participation were associated with higher levels of generosity in education, both overall and across different levels. At the same time, the chapter found that right government involvement and strong veto points were strong predictors of distributional arrangements in education that were skewed toward tertiary education. Finally, the study showed that left government participation was associated with higher enrollment rates across all levels of education. These varying trends gave rise to many different patterns of v

5.2 Implications

What broader lessons do these findings offer for politics at large? While there is always some risk in making broad generalizations based on the results of one research project, three points stand out most clearly from this dissertation.

First, to explain the long-term development of education systems, it is necessary to consider how the different types and levels of education found in these systems are politically related. Although functional demands, such as the increasing need for skilled workers, have certainly spurred the development of education systems over the past two centuries, politics have often determined how these functional pressures have been translated into institutional outcomes. These politics have, in turn, been heavily shaped by existing distributional patterns in education.

Second, the impact of constitutional structures on the development of education and other forms of social policy is not necessarily fixed across time. While many studies have found federalism, bicameralism, and other constitutional structures to be inimical to the development of generous and universal welfare entitlements, it should not be assumed that this relationship holds in every context. As this dissertation shows, there are instances where the dispersion of authority in policy-making has encouraged the growth of such entitlements and limited the capacity of powerful minority interests to intervene. Based on the patterns of educational development examined in this dissertation, it appears that constitutional structures are most likely to have protective effects when a social policy is relatively inexpensive to provide and does not benefit much from economies of scale. The high school movement was able to expand rapidly across many areas of the United States because early high schools required minimal amounts of public investment. As education has become a more resource-intensive service, however, the benefits of dispersed authority have been overwhelmed by new costs.

Third, when the types and levels of education systems are taken together with an understanding that education and other social policy vary across time, we can recognize a broader view in which there are five worlds of education. This dissertation provides the theory, methods, and framework for identifying those five worlds and provides a launching point for future studies of the development of education systems in advanced capitalist

societies.

A APPENDIX A: MEASURES FOR OUTCOME VARIABLES, 1880–1939

As emphasized before, one of the main contributions of this dissertation is its use of a new set of cross-national data capturing the early development of education and training at the secondary level. Prior research on this subject has produced many inferences about the institutional differences found between advanced capitalist societies in the late nineteenth and early twentieth centuries, but these inferences have mostly been made based on the findings of narrow empirical analyses. By analyzing a broad set of cross-section time-series indicators on education and training, this dissertation has been able to produce observations and explanations that are, at least in theory, more generalizable and less conjectural.

Of course, the validity of these new observations and explanations is dependent on the quality of the new data upon which they are based. As is the case for each step of the scientific process, data collection is inherently vulnerable to error. This is particularly true when data collection involves the construction of new quantitative measures, such as those employed in this dissertation to operationalize the institutional development of general education and vocational training at the secondary level. Devising measures for these phenomena requires many steps, moving from general theory to specific coding, and each step entails a number of decisions. Small changes in these decisions can potentially produce large differences in the final scorings of institutional variables, so care must be taken at each point in this process.

The purpose of this appendix is to describe the approaches used in constructing the three measures of education and training that are analyzed as outcome variables in Chapter 2. Two of these measures are designed to capture the development of vocational training while the third is used to assess the expansions of general education. This appendix discusses the conceptual foundation of these measures, lays out their core dimensions, and summarizes the ways in which these dimensions have been operationalized. In tackling

these interdependent steps, the overriding objective of this data generation process has been to create schemes that validly capture the institutional variation in secondary education for a large swath of space and time.

A.1 Concept

The main phenomenon examined in Chapter 2 is the institutional composition of secondary education. As education became a more prominent endeavor in human society, a wide range of methods and rules were created to make it a more orderly and uniform process and to ensure that it reached particular groups of people. This formalization of education became increasingly visible as more resources – buildings, personnel, equipment, etc. – were dedicated to this social process. Moreover, as part of this formalization, distinct types, or levels, of education were established to serve different purposes and populations. One of these levels was secondary education, which could, to some degree, be found in all of the more developed societies of the world by the onset of the nineteenth century.

Although its exact form varies from society to society, secondary education does have a few features that are common to all societies. In the most basic sense, it is the stage of education that lies in between elementary (primary) education and higher (tertiary) education. Secondary education is distinguished from primary education by its stronger emphasis on specialized learning. Instruction in secondary education is usually organized around distinct subjects or courses and it is typically provided by teachers with subject-specific training. Unlike in tertiary education, however, the subject-based instruction associated with secondary education is not expected to produce extensive mastery of covered subjects. Instead, secondary education is meant to prepare students for either direct entry into work life or additional education at the tertiary level. Given its position in the educational ladder, secondary education is generally provided to older adolescents and young adults – those in their second decade of life.

Secondary education can also be divided into two basic types – vocational training

and general education – based on the aims and content of particular programs. Vocational training programs are structured to prepare students for specific occupations and trades, and thus they tend to focus on the acquisition of skills that have direct applications in the labor market. General education programs, by contrast, are designed to give students a basic set of skills that are useful for continued learning in a variety of different settings – not just one particular work environment. Although both of these types of secondary education can lead to higher educational levels, vocational training tends to have more terminal routes than general education, which means that vocational-training students are likely to enter the labor force sooner than their general-education counterparts. General education at the secondary often represents the most direct path to higher education.

A further distinction can be made between programs in secondary education in terms of how they deliver instruction to students, with some programs emphasizing firm-based instruction and others focusing on school-based instruction. In the firm-based approach, students are educated through their involvement in work activities at real businesses and other economic organizations. The nature and content of learning that occurs in this environment is mostly driven by economic considerations, such as the skills need to perform certain productive tasks. In the school-based approach, students are educated through their participation in more theoretical and abstract lessons provided by schools and other similar institutions. Learning in this school-based setting is guided by a wide range of factors that often extend beyond economic practicalities. When this is the case, schools are not simply designed to produce new cohorts of workers, but also new cohorts of citizens, scholars, and other non-economic actors.

Combining these two distinguishing features – type and delivery – one can identify three different forms of secondary education: firm-based vocational training, school-based vocational training, and school-based general education. Firm-based vocational training at

the secondary level is usually associated with apprenticeships, whereas school-based vocational training is typically provided in freestanding technical schools or in distinct tracks of integrated schools. School-based general education, which is found in all examined societies, constitutes the default form of secondary education.

A.2 Dimensions

To create valid measures of abstract concepts, it is usually necessary to break the concepts down into smaller parts, or dimensions. If measures are meant to connect concepts with reality, then it is necessary to identify ways to draw connections from the general to the specific. By splitting a concept into smaller pieces, it becomes more feasible to isolate these connections and make better sense of them. Once these individual connections have been established, one is on firmer ground to draw broader links between specified concepts and the real phenomena they are purported to represent.

Although there is no standard method for selecting the dimensions for this process of moving from abstraction to reality, a set of dimensions should satisfy three basic criteria (De Leeuw 2005). First, the aggregate of the individual dimensions should closely reflect the meaning of the specified concept. While it is often useful to decompose a concept into smaller pieces, efforts should be made to ensure that this process does not significantly distort the meaning of the abstract concept being considered. Second, the dimensions should be more concrete than the concept they are supposed to represent. As pointed out before, the aim of this decomposition strategy is to move down the ladder of abstraction; so individual dimensions should lie closer to reality. Third, the dimensions are relatively simple and do not have many dimensions of their own. Otherwise, it can be difficult to estimate these dimensions in a meaningful and consistent manner because there are too many moving parts. In sum, these three criteria offer benchmarks against which the quality of a set of dimensions can be evaluated.

With these criteria in mind, three different dimensions have been devised to capture the

institutional development of secondary education in its various forms: coverage, formality, and intensity. These dimensions are briefly defined below (see also Tables A.1 and A.2).

- Coverage represents the extent to which a particular type of education system serves a relevant subgroup in a given society. As an education system develops, it is likely to broaden its reach across society and serve a large share of the population. When it becomes accessible to nearly all members of the relevant segments of society, then this education system is usually considered to be a mass system.
- Formality describes the degree to which a given type of education system offers meaningful instruction to its target population. As discussed above, education tends to become more formal as its scale increases. The establishment of dedicated schools and training arrangements is often tied to or gives rise to efforts to improve the uniformity and standards of education.
- Intensity refers to the level of effort that relevant elements of a society devote to building and maintaining a particular type of education system. An education system can be expected to have a greater impact on human development as more resources are put into it. Participation in education systems should also increase as education systems become more established and better supported. Therefore, an education system is not likely to reach mass status unless it receives significant backing from a major public or private group.

Each of these dimensions captures a different yet important way in which an education system can develop over time. Therefore, when the dimensions are aggregated together, they should provide a valid representation of how a particular form of secondary education has evolved, institutionally speaking, over time.

A.3 Indicators

The selected dimensions outlined above are operationalized using a number of different indicators. The purpose of an indicator is to convert a dimension into a form that can easily be estimated using available empirical evidence. An indicator achieves this aim by providing a set of rules for gathering relevant information and summarizing this information. An essential feature of an indicator is that it can summarize information about an object in a way that is inferential (Tal 2013). Given these characteristics then, the indicators presented here are meant to link secondary education, broken down by type and dimension, to institutional variation that can be readily estimated. Therefore, in the movement from the abstract to the concrete in a concept like secondary education, choosing indicators represents the final step.

Given that three different forms of secondary education are assessed in this dissertation, separate sets of indicators must be devised for each of these forms. Firm-based vocational training and school-based vocational training are treated similarly in this process, so most of their indicators are similarly structured. For both of these forms of education, the indicators are aggregated to create composite indexes. For general education, however, only one indicator – an enrollment rate – is used. The details of these indicators and how they were devised are discussed in separate sections, one focus on vocational training and the other on general education.

A.4 Vocational Training Indexes

The indicators used to operationalize the three dimensions of each form of vocational training are presented in Tables 1 and 2. These indicators are designed to be as concrete as possible given the data that are available to estimate them. Each indicator is estimated using a limited number of intervals, which adhere to the following principles.

First, each interval contains a set of necessary and sufficient conditions that must be satisfied to receive a particular score. Second, the intervals are cumulative, meaning that

each interval has attributes that build on those contained in the preceding interval. Third, to greatest extent possible, the attributes of each interval have been made binary to reduce ambiguity in the judgment process. Fourth, the intervals have equidistant spacing, which means that a one-unit shift on one dimension is equivalent to a one-unit shift on another dimension. Overall, these principles help ensure that the indicators are reliably estimated. After these indicators are properly assessed, the scores are used to derive indexes of institutional development for the two respective forms of vocational training. Each index is simply the sum of the scores for the three dimensions; with each dimension being weighted the same. Given that the indicator for each dimension ranges from 0 to 2 and there are three dimensions, the composite index ranges from 0 to 6 with half-point increments. This index serves

A.4.1 Scoring

The process of scoring cases involves collecting and analyzing information to assign the cases numerical values. Although the indexes have been designed to reduce ambiguities and enhance reliability, the need for some judgments remains unavoidable. When specific judgments are required, it is important to be open and transparent about the approaches and rationales used to make these judgments. The steps of this scoring process are as follows:

- *Gather and interpret primary sources.* The first step is to gather publicly available sources that contain information relevant to the indicators discussed above. For the most part, this involves finding and examining legal records to determine when certain institutional features came into existence and whether they were later modified or eliminated. Given the limited resources of this research project, this form of data collection remains fairly limited. Although some legal records from the late nineteenth and early twentieth centuries have found their way on to the internet, most continue to reside in print archives scattered around the globe. At the same time, the validity of these sources is sometimes questionable – nineteenth-century record keeping was

hardly free of errors and biases. Consequently, it can require significant time and expertise to interpret these particular sources and draw definitive conclusions. For these reason, primary sources have mostly been used to identify the major legal milestone in the development of the firm-based and school-based forms of training.

- *Locate and consult secondary sources.* The second step is to engage the secondary literature to see what information other researchers have found and how they have interpreted it. Secondary accounts of the development of training put together by historians and other scholars represent the most accessible sources on this subject. For the larger societies, such as France, Germany, and the United States, many scholarly works have produced on this subject. Even for smaller societies, such as the Netherlands and Sweden, there are some books and dissertations that examine the emergence and evolution of vocational training during this formative period around the onset of the twentieth century. Where possible, enrollment and financial figures are used to make and verify the estimates for the scope and provision dimensions, respectively.
- *Address ambiguities and gaps.* The third step is to deal with the cases that have gray areas or missing information.
- *Adjudicate scores.* The fourth step is to check and adjust scores to maximize the integrity of the entire dataset.

Table A.1: Scoring Scheme for Firm-Based Vocational Training

Coverage – Extent to which training is provided on a universal basis.	
2.0	= Training is provided in essentially all parts of the country and covers most major economic actors (usually backed by a national legal framework).
1.5	= Training is provided in most parts (i.e. localities and regions) of the country and covers most major economic sectors (industry, construction, and others).
1.0	= Training is provided in many localities that are spread across many different types of geographical areas (i.e. regions, urban and rural, etc.) and covers some economic sectors (industry and construction).
0.5	= Training is provided in many localities, but these localities are concentrated in a few regions or just urban areas (or rural areas) – limited to a few economic sectors.
0.0	= Training is non-existent or limited to some localities and a handful of occupations sectors (e.g. construction trades).
 Formality – Extent to which training emphasizes the acquisition of meaningful skills.	
2.0	= Training is clearly defined, highly standardized, and strongly coordinated – meets all four criteria listed below.
1.5	= Training Is well defined and highly standardized and/or coordinated – meet d) and two of a), b), and c).
1.0	= Training Is well defined and moderately standardized and coordinated – meet d) and one of a), b), and c).
0.5	= Training is largely vocational in nature, but not standardized – meet only d).
0.0	= Training is mostly improvised and varies significantly from one instance to another – none of the four criteria are fully met. Criteria: a) standardized curriculum, b) professional instructors (trained and certified masters), c) formal certification process, and d) emphasis on acquisition of occupations-specific skills (50%+ of time) – not just used as cheap labor.
 Intensity – Extent to which training is intensive, both in terms of time and resources.	
<i>Time</i>	
1.0	= Training is usually provided on a full-time basis in well-established apprenticeship (20 or more hours per week)
0.5	= Training is usually provided on a part-time basis (less than 20 hours per week), and it is mostly delivered through formal apprenticeships.
0.0	= Training is provided on a part-time basis or more sporadically, and it is mostly delivered in informal arrangements.
 <i>Resources</i>	
1.0	= Firms are principal financier of training
0.5	= Firms are one of several major financiers of training
0.0	= Firms are not significantly in funding training

Table A.2: Scoring Scheme for School-Based Vocational Training

Coverage – Extent to which training is provided on a universal basis.	
2.0	= Training is provided in essentially all parts of the country (usually backed by a national policy framework).
1.5	= Training is provided in most parts (i.e. localities and regions) of the country.
1.0	= Training is provided in many localities that are spread across many different types of geographical areas (i.e. regions, urban and rural, etc.).
0.5	= Training is provided in many localities, but these localities are concentrated in a few regions or just urban areas (or rural areas).
0.0	= Training is non-existent or limited to some localities.
Formality – Extent to which training emphasizes the acquisition of meaningful skills.	
2.0	= Training is clearly defined, highly standardized, and strongly coordinated – meets all four criteria listed below.
1.5	= Training Is well defined and highly standardized and/or coordinated – meet d) and two of a), b), and c).
1.0	= Training Is well defined and moderately standardized and coordinated – meet d) and one of a), b), and c).
0.5	= Training is largely vocational in nature, but not standardized – meet only d).
0.0	= Training is mostly improvised and varies significantly from one instance to another – none of the four criteria are fully met. Criteria: a) standardized curriculum, b) professional instructors (trained and certified), c) formal certification process, and d) emphasis on acquisition of occupations-specific skills (50%+ of time).
Intensity – Extent to which training is intensive, both in terms of time and resources.	
<i>Time</i>	
1.0	= Training is usually provided on a full-time basis in well-established schools (20 or more hours per week).
0.5	= Training is usually provided on a part-time basis (less than 20 hours per week), and it is mostly delivered through dedicated schools.
0.0	= Training is provided on a part-time basis or more sporadically, and it is mostly delivered in informal school settings.
<i>Resources</i>	
1.0	= State is principal financier of training.
0.5	= State is one of several major financiers of training.
0.0	= State is not significantly in funding training.

B APPENDIX B: MEASURES FOR EXPLANATORY VARIABLES, 1880–1939

This appendix provides a more detailed overview of the measures used to operationalize the explanatory variables in the analyses of education-training regime development (see Chapter 2). For each measure, there is an entry containing a description of the measure, a list of its sources, and a breakdown of its historical coverage by country.

Table B.1: Measures for Explanatory Variables, 1880–1939

Political Mobilization

Polity Score

The level of democracy in a political system, measured as a composite index. The main elements of this index include the degrees to which chief executives are elected and constrained and the levels of competition, openness, and participation in elections. The values of this measure range from –10 (strongly autocratic) to 10 (strongly democratic), with 0 representing anocracy.

Source: POLITY IV Project (variable POLITY2) (Marshall, Jaggers, and Gurr 2011).

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States (missing 1914, 1939 for Belgium); 1901–1939 for Australia; 1919–1939 for Finland; and 1922–1939 for Ireland.

Liberal–Socialist Government

The presence of a liberal or socialist head of government, measured as a binary outcome. The two possible values for this measure are: 0 = conservative, Catholic/Christian democratic, fascist, or other (typically monarch-appointed) head of government; 1 = liberal or socialist head of government.

Source: Ansell and Lindvall 2013.

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1918–1939 for Finland; and 1919–1939 for Ireland.

Table B.1: Measures for Explanatory Variables, 1880–1939 (continued)

Union Density

The share of labor force participants who are trade union members, expressed as a percentage. The membership totals used in computing this ratio are largely based on gross figures, which do not exclude retired and inactive union members. Net figures are employed for France and the Netherlands, as there are no gross membership series available for these two countries.

Sources: Trade Union Membership – Bain and Price 1980; Visser 1989, 1994; Crouch 1993. Labor Force Size – Bain and Price 1980; Flora, Kraus, and Pfeening 1987; Visser 1989.

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1919–1939 for Finland; and 1922–1939 for Ireland.

Social Cleavages

The extent to which social (i.e. non-economic) cleavages were present at the beginning of the twentieth century, measured as a composite index. The main elements of this index include the presence and strength of religious, ethno–linguistic/cultural, and urban–rural cleavages. The values of this measure range from 1 to 3 with 0.5 increments.

Source: Martin and Swank 2012.

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1918–1940 for Finland; and 1919–1940 for Ireland.

Economic Development

GDP per Capita

The gross domestic product per capita, expressed in 1990 international (Geary-Khamis) dollars (PPP-adjusted, constant prices).

Source: Maddison 2010.

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1918–1939 for Finland; and 1919–1939 for Ireland.

Share of GDP from Industry

The share of the gross domestic product attributable to domestic industrial production, expressed as a percentage. The economic sectors associated with industrial production include:

Sources: Mitchell 2007b for Denmark, France, Germany, Ireland, Italy, Norway, and United Kingdom; Australia, Haig 2001; Austria, Schulze 2000; Belgium, Smits, Woltjer, and Ma 2009; Canada, Urquhart 1986 (for 1870–1926) and Leacy, Urquhart, and Buckley 1983 (for 1927–1940); Finland, Hjerpe 1989; Netherlands, Smits, Woltjer, and Ma 2009; Sweden, Schön and Krantz 2012; Switzerland, Ritzmann 2013 and Lechner et al. 2013; United States, Johnston and Williamson 2012

Coverage: 1880–1940 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1918–1939 for Finland; and 1919–1939 for Ireland.

Table B.1: Measures for Explanatory Variables, 1880–1939 (continued)

Share of GDP from Industry

The share of the gross domestic product attributable to domestic industrial production, expressed as a percentage. The economic sectors associated with industrial production include:

Sources: Mitchell 2007c for Denmark, France, Germany, Ireland, Italy, Norway, and United Kingdom; Australia, Haig 2001; Austria, Schulze 2000; Belgium, Smits, Woltjer, and Ma 2009; Canada, Urquhart 1986 (for 1870–1926) and Leacy, Urquhart, and Buckley 1983 (for 1927–1940); Finland, Hjerpppe 1989; Netherlands, Smits, Woltjer, and Ma 2009; Sweden, Schön and Krantz 2012; Switzerland, Ritzmann 2013 and Lechner et al. 2013; United States, Johnston and Williamson 2012.

Coverage: 1880–1940 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1918–1939 for Finland; and 1919–1939 for Ireland.

Trade Openness

The level of external trade as a share of economic output, expressed as a percentage (all figures at current prices). This measure is calculated by dividing the sum of imports and exports by the gross domestic product (i.e. $(IM + EX)/GDP$).

Sources: Imports and Exports – Mitchell 2007a,b; Mitchell 2007c for all countries except: Canada, Urquhart 1986 (for 1870–1926) and Leacy, Urquhart, and Buckley 1983 (for 1927–1939); Finland, Hjerpppe 1989; Italy, Baffigi 2011; Sweden, Schön and Krantz 2012. GDP – Australia, Hutchinson 2012; Austria, Schulze 2000 and Maddison 1991 (for 1870–1913) and Mitchell 2007c (for 1924–1937); Belgium, Smits, Woltjer, and Ma 2009; Canada, Urquhart 1986 (for 1880–1926) and Leacy, Urquhart, and Buckley 1983 (for 1927–1940); Denmark, Mitchell 2007c; Finland, Hjerpppe 1989; France, ?; Germany, Flandreau and Zumer 2010 (for 1880–1913) and Bordo et al. 2001 (for 1914–1938); Ireland, Mitchell 2007c; Italy, Baffigi 2011; Netherlands, Smits, Woltjer, and Ma 2009; New Zealand, New Zealand Long-Term Data Series 2013; Norway, Grytten 2004; Sweden, Schön and Krantz 2012; Switzerland, Halbeisen et al. 2013 (for 1880–1913) and Bordo et al 2001 (for 1914–1940); United Kingdom, Hills, Thomas, and Dimsdale 2010; United States, Mitchell 2007c (for 1880–1888) (GNP), Sutch 2006a (for 1889–1929), and Sutch (2006b) (for 1930–1939).

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, Norway, Sweden, United Kingdom, United States (some missingness for Austria, Belgium, Germany, 1901–1939 for Australia; 1918–1939 for Finland; 1924–1939 for Ireland; and 1885–1939 for Switzerland missing for New Zealand.

Territorial Area

The total territorial area, measured in square kilometers.

Source: Cross-National Time Series Data Archive (Wilson 2012).

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1919–1939 for Finland; and 1922–1939 for Ireland.

Table B.1: Measures for Explanatory Variables, 1880–1939 (continued)

Control

Share of Population Aged 5–19

The share of the total population aged 5–19, expressed as a percentage.

Source: Human Mortality Database (Wilmoth, Shkolnikov, and Barbier 2013); Mitchell 2007a,b; Mitchell 2007c.

Coverage: 1880–1939 for Austria, Belgium, Canada, Denmark, France, Germany, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States; 1901–1939 for Australia; 1919–1939 for Finland; and 1926–1939 for Ireland.

C APPENDIX C: MEASURES FOR ALL VARIABLES, 1950–1985

This appendix provides a more detailed overview of the measures used to operationalize all of the variables in the analyses of educational generosity, distribution, and coverage in the postwar era (see Chapter 4). For each measure, there is an entry containing a description of the measure, a list of its sources, and a breakdown of its historical coverage by country.

Table C.1: Measures for All Variables, 1950–1985

Educational Generosity

Public Expenditures on Education

Public expenditures on education (all levels), as a percentage of GDP.

Sources: Expenditures – UNESCO 1963–1990, 2013; Wilmoth, Shkolnikov, and Barbier 2013.
GDP – Feenstra, Inklaar, and Timmer 2013.

Coverage: 1950–1985 for all countries.

Educational Distribution

Share of Public Expenditures on Education Allocated to the PPS Levels

Share of public expenditures on education devoted to the preprimary, primary, and secondary levels, expressed as a percentage. The sum of this variable and the one following it is 100 percent.

Source: UNESCO 1963–1990

Coverage: 1950–1985 for all countries.

Share of Public Expenditures on Education Allocated to the Tertiary Level

Share of public expenditures on education devoted to the tertiary level, expressed as a percentage. The sum of this variable and the one preceding it is 100 percent.

Source: UNESCO 1963–1990.

Coverage: 1950–1985 for all countries.

Table C.1: Measures for All Variables, 1950–1985 (continued)

Public Expenditures on Education per Student at the PPS Levels

Public expenditures on preprimary, primary, and secondary (PPS) education divided by the number of students enrolled at these educational levels as a percentage of GDP per capita, all at current prices (final figure is a percentage).

Sources: Expenditures and Enrollment – UNESCO 1963–1990, 2013; Wilmoth, Shkolnikov, and Barbier 2013. GDP – Feenstra, Inklaar, and Timmer 2013.

Coverage: 1960–1985 for all countries.

Public Expenditures on Education per Student at the Tertiary Level

Public expenditures on tertiary education divided by the number of students enrolled at this educational level as a percentage of GDP per capita, all at current prices (final figure is a percentage).

Sources: Expenditures and Enrollment – UNESCO 1963–1990, 2013; Wilmoth, Shkolnikov, and Barbier 2013. GDP – Feenstra, Inklaar, and Timmer 2013.

Coverage: 1960–1985 for all countries.

Educational Coverage

Enrollment Rate at the PPS Levels

Number of students in preprimary, primary, and secondary (PPS) education as a percentage of the relevant school-age population (ages 0–19).

Sources: UNESCO 1963–1990, 2013; Wilmoth, Shkolnikov, and Barbier 2013

Coverage: 1950–1985 for all countries.

Enrollment Rate at the Tertiary Level

Number of students in tertiary education as a percentage of the relevant school-age population (ages 15–29).

Sources: UNESCO 1963–1990, 2013; Wilmoth, Shkolnikov, and Barbier 2013

Coverage: 1950–1985 for all countries.

Political Agency

Left Government

The cumulative sum of parliamentary seat shares for left parties in government from 1946 to the year of observation. For example, the cumulative score for Australia in 1950 is equal to the seat shares of left parties in government for 1946, 1947, 1948, 1949, and 1950.

Source: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014)

Coverage: 1950–1985 for all countries.

Table C.1: Measures for All Variables, 1950–1985 (continued)

Christian Democratic Government

The cumulative sum of parliamentary seat shares for Christian democratic parties in government from 1946 to the year of observation. All center and right parties with Christian roots (Protestant or Catholic) are considered Christian democratic.

Source: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014)

Coverage: 1950–1985 for all countries.

Right Government

The cumulative sum of parliamentary seat shares for secular right parties in government from 1946 to the year of observation.

Source: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014)

Coverage: 1950–1985 for all countries.

Women's Labor Force Participation

The share of women aged 15–64 in the labor force, measured as a percentage.

Source: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014).

Coverage: 1950–1985 for all countries except Denmark (missing 1950–1954), France (missing 1950–1954), and the Netherlands (missing 1950–1954).

Voter Turnout

The total number of votes cast (valid or invalid) in the most recent election divided by the number of people registered for the election, expressed as a percentage.

Sources: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014); Mackie and Rose 1991.

Coverage: 1950–1985 for all countries.

Measures of Political Institutions

Regional Authority

The level of authority that regional governments have, measured using a composite index. This index capture both the strength of regional self-rule and the degree to which authority is shared between central and regional governments. The values of this index range from 0 (no regional authority) to 37 (strong regional authority).

Source: Hooghe, Marks, and Schakel 2010.

Coverage: 1950–1985 for all countries except Austria (missing 1950–1954)

Table C.1: Measures for All Variables, 1950–1985 (continued)

Economic Development

Veto Points

The degree to which policy changes can be blocked or stalled by minority interests, measured as a composite index. The index is constructed by adding the scores for measures of federalism, presidentialism, bicameralism, and the use of national referendums. The values of this index range from 0 (no veto points) to 6 (strong veto points).

Source: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014)

Coverage: 1950–1985 for all countries.

GDP per Capita

The real gross domestic product per capita (expenditure-side method), expressed in 2005 international dollars.

Sources: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014); Penn World Table 8.0 (Feenstra, Inklaar, and Timmer 2013).

Coverage: 1950–1985 for all countries.

Trade Openness

The level of external trade as a share of economic output, expressed as percentage (all figures at current prices). This measure is calculated by dividing the sum of imports and exports by the gross domestic product (i.e. $(IM + EX)/GDP$).

Sources: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014); Penn World Table 8.0 (Feenstra, Inklaar, and Timmer 2013).

Coverage: 1950–1985 for all countries.

Education-Training Regimes

Regime Type at Secondary Level

Type of education-training regime at the secondary level for the prewar period (1880–1939): 0 = system with limited general education and no meaningful vocational training; 1 = system with modest general education and highly developed school-based vocational training; 2 = system with modest general education and highly developed firm-based vocational training; 3 = system with highly developed general education and no meaningful vocational training.

Sources: Author created.

Coverage: 1950–1985 for all countries.

Table C.1: Measures for All Variables, 1950–1985 (continued)

Controls

Military Expenditures

Military expenditures as a percentage of GDP.

Sources: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014); Stockholm International Peace Research Institute (SIPRI 1975–2003, 2013).

Coverage: 1950–1985 for all countries.

Unemployment

Harmonized unemployment rate, defined as the number of unemployed persons as a percentage of the civilian labour force.

Sources: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014); OECD 1999, 2002, 2003, 2013a.

Coverage: 1950–1985 for all countries except Finland (missing 1950–1955), France (missing 1950–1955), and New Zealand (missing 1950–1951), and Switzerland (missing 1950–1954).

Inflation

Inflation rate, defined as the percentage change in consumer prices from the prior year to the current year.

Sources: Comparative Welfare States Dataset (Brady, Huber, and Stephens 2014), OECD 2013b.

Coverage: 1950–1985 for all countries.

Shares of Population Aged 5–19, 15–29, 19 and Under, and 29 and Under

The share of the total population aged 5-19, 15-29, 19 and under, or 29 and under, expressed as a percentage.

Sources: OECD 2012 and Human Mortality Database (Wilmoth, Shkolnikov, and Barbier 2013) for West Germany.

Coverage: 1950–1985 for all countries.

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