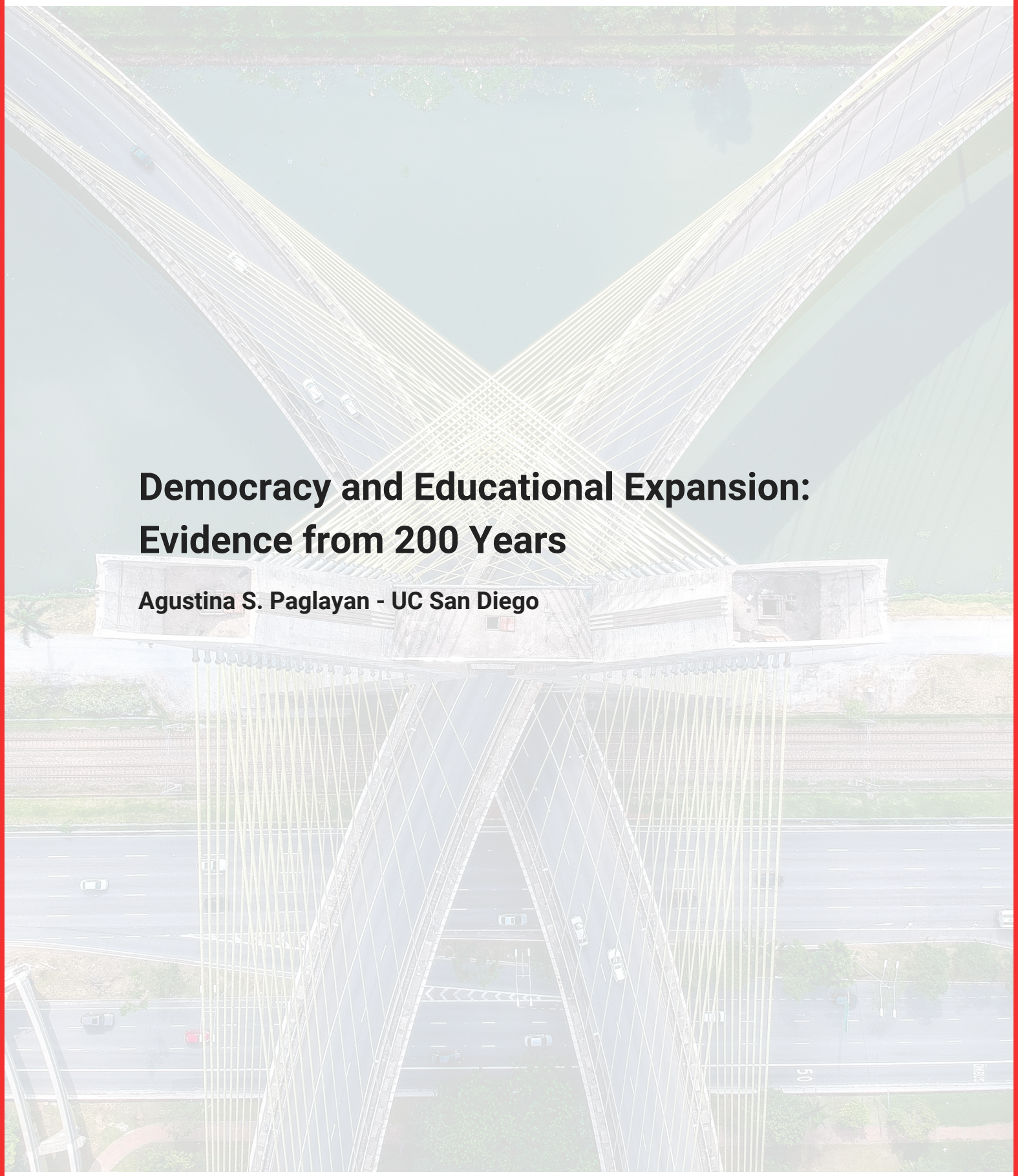

Democracy and Educational Expansion: Evidence from 200 Years

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Because primary education is often conceptualized as a pro-poor redistributive policy, a common political economy argument is that democratization leads to increases in its provision. But primary education can also serve the goals of autocratic regimes, including industrialization, inculcation of loyalty, and nation-building. To examine the relationship between regime type and education provision empirically, this paper leverages new country-level datasets spanning 200 years. Difference-in-differences and interrupted time series estimates indicate that democratization had no or little impact on primary school enrollment rates. The analysis reveals two historical patterns that can explain this null finding: first, state-controlled primary education systems emerged about a century before democratization; and second, in most countries, a large majority of the population already had access to primary education before democratization. These findings challenge the centrality given to democracy and the enfranchisement of the poor in existing theories of what drives governments to provide basic education.

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Education shapes many of the things we care about most: individual wellbeing, economic development, social cohesion, political participation, and more. Around the world, the provision of education is a political matter. Governments fund, manage, and regulate schools, and choose policies that affect the quantity and quality of schooling. Judging by the quantity of primary schooling available, the historical record paints a remarkably positive picture of governmental intervention in education. While in the early-twentieth century only a handful of countries provided universal access to primary education, today most countries have reached universal primary school enrollment rates. What explains the expansion of access to primary schooling or basic education?[1]

A large literature in political science and economics argues that "the spread of democratic voting rights played a leading role in explaining … the rise of primary schooling" (Lindert 2004, 105). The theory, which builds on median voter models predicting increased redistribution following the enfranchisement of the poor,[2] assumes that primary education constitutes a form of progressive redistribution[3] that raises the human capital of the poor[4]—hence the poor will demand more of it, and politicians will address this demand in societies where the poor can vote (e.g., Lindert 2004; Brown and Hunter 2004; Stasavage 2005a; Ansell 2010). While recent studies of the determinants of healthcare provision (Ross 2006), land reform (Albertus 2015), wealth taxation (Scheve and Stasavage 2016), and welfare spending (Ansell and Samuels 2014) question the idea

[1] "Primary" and "basic" education are used interchangeably throughout.
[2] Meltzer and Richard 1981; Boix 2003; Acemoglu and Robinson 2006a.
[3] E.g., "universal education is the sharpest edge of progressive redistribution" because it "undermines the position of the rich – and their children – in the distribution of income" by making income dependent on "meritocracy over heredity" (Ansell 2010, 2); "primary education is the kind of tax-based education that redistributed the most from rich to poor" (Lindert 2004, 107).
[4] E.g., [education spending] "greatly enhances the prospects of human capital formation" (Brown and Hunter 2004, 843); "basic services like … education lead to accumulation of human capital" (Stasavage 2005a, 343).

that democracies redistribute more toward the poor than autocracies, democracy remains salient in explanations of why some governments provide more education than others, backed by a consistent empirical finding that democratization and suffrage extensions are all associated with higher school enrollment rates and education spending levels (Brown 1999; Mariscal and Sokoloff 2000; Lake & Baum 2001; Kaufman and Segura-Ubiergo 2001; Lindert 2002, 2004; Baum and Lake 2003; Brown and Hunter 1999, 2004; Stasavage 2005a; Avelino, Brown, and Hunter 2005; Ansell 2008, 2010; Harding and Stasavage 2014). Indeed, recent surveys of the literature characterize the argument that democracies provide higher quantities of education than autocracies as an established truth (Gift and Wibbels 2014, 294; Hoffman 2015).

Despite its salience, there are theoretical reasons that warrant a reexamination of the idea that democracy promotes the expansion of basic education. First, the argument relies on the assumption that the provision of education, particularly primary education, is a pro-poor policy that disproportionately raises the human capital of the poor. This assumption is at odds with mounting evidence that schools, especially those available to the poor, often fail to promote learning and reduce poverty and inequality (Pritchett 2013; Hanushek and Woessmann 2015; World Bank 2018). If education systems do not have the equalizing benefits that political economy theories attribute to them, the demand for schooling among low-income citizens may also be weaker than these theories assume. Second, by emphasizing schools' potential to promote human capital, and overlooking their potential role as an indoctrination and nation-building tool that can shape students' political values and behaviors (Darden and Grzymala-Busse 2006; Alesina and Reich 2013; Darden and Mylonas 2015; Cantoni et al. 2017; Paglayan 2017), the democracy argument may understate autocratic rulers' incentives to provide schooling even in the absence of popular demand for it. Third, even if increased access to basic schooling was a salient political demand among the poor, democratic politicians

might not be responsive to it—e.g., due to capture of policymaking by the upper classes (Ross 2006; Ansell and Samuels 2014; Albertus and Menaldo 2014); rampant clientelism that makes poor voters accountable to politicians instead of the other way around (Stokes 2005); voting according to race or ethnicity rather than social class (Stasavage 2005b; Kramon and Posner 2016); and/or difficulty introducing redistributive policies given the greater number of veto players in democracies compared to autocracies (Albertus 2015).

Adding to these theoretical considerations, we lack empirical research that convincingly assesses the presence of a causal relationship between democracy and education for a large number of countries and regions over a period that encompasses most of the history of public schooling. Past studies concluding that democratization leads to educational expansion raise questions about internal and external validity due to: (i) the absence of controls for long-standing country-level characteristics that could simultaneously affect a country's political and educational trajectories; (ii) the absence of controls for the global upward trend in the quantity of education provision observed during the postwar period, both in countries that democratized and in those that did not;[5] (iii) limited geographic coverage focusing on a single region or country; and/or, crucially, (iv) reliance on school enrollment or spending data from the 1960s on, which raises questions about the relationship between regime type and education provision in earlier periods—a key question in the case of state-controlled primary education systems, which have been around for well over a century (Ansell and Lindvall 2013).[6]

This paper shows that once we examine the long history of primary education systems worldwide, and address the methodological issues limiting past studies' internal

[5] Ross (2006) finds that, after including country and year fixed effects, there is no longer evidence that democracy reduces infant or child mortality, suggesting the need for a similar study on education.

[6] Table A1 of Online Appendix A summarizes these methodological characteristics across past studies.

validity, democracy no longer plays a meaningful role in explaining why some governments provide more education than others. Analyses based on new country-level datasets spanning the period from around 1820 to 2010 reveal three main findings. First, state-controlled primary education systems emerged under non-democratic regimes well before governments had electoral incentives to redistribute toward the poor: on average, central governments began to regulate primary education about a century before democratization. Second, non-democratic regimes provided large quantities of primary education: in most countries that transitioned to democracy, over two thirds of school-aged children were already enrolled in primary school at least a decade before democratization. Third, difference-in-differences and interrupted time series estimates that exploit variation in the timing of democratization and control for country and year fixed effects provide little support for the claim that democratization led to the expansion of access to primary education.

Why did democracy not have an average positive effect on primary school enrollment rates? I argue that the null findings are, in fact, consistent with the median voter theorem. Past studies often build on this theorem to predict a generalized expansion of primary schooling once the poor become enfranchised. However, this prediction assumes that the median voter did not have access to primary schooling before democracy emerged—an assumption that rarely holds: in three-fourths of democratizing countries, a majority of the population already had access to primary education before democratization. Indeed, in analyses that unpack the average null effect of democratization, I find that democracy leads to increased primary education provision in those cases where the majority did not already have access to primary schooling before democracy emerged, but not otherwise.

Together, these findings do not question that democratization can sometimes play a role in promoting educational expansion, but they do challenge core beliefs about the

importance of democracy and the voice of the poor in explaining why some governments provide more primary education than others. The rise and spread of primary education systems took place mostly under non-democratic regimes. In addition to underscoring the importance of future research on the non-democratic roots of mass education, the findings have implications for the literatures on the political economy of development, the politics of redistribution, and the determinants of public goods provision.

Rethinking the Public Provision of Education

Studies in comparative politics and political economy usually focus on understanding what determines governments' decision to increase the quantity of schooling or the size of education systems, as reflected by the choice of school enrollment rates and education spending as the dependent variables of interest. That is also my focus here, but I depart in important ways from existing theories of the incentives to expand schooling. In particular, past studies predicting that democratization will lead to the expansion of primary education typically assume that: (1) increases in access to, and spending on, primary education will lead to increases in human capital, especially among the lower classes; (2) a majority of citizens in newly-emerging democracies will demand increased provision of primary education; and (3) democratically-elected politicians are more responsive to these demands than autocrats. I suggest, instead, that there is sufficient research stemming from multiple disciplines to question the empirical validity of each of these assumptions. And I argue that the decision to expand the provision of primary schooling need not stem from an incentive to improve the material conditions of the poor. It can also stem from an interest in molding individuals' ideology and attitudes toward the government to enhance the legitimacy of the status quo, and/or equipping individuals with the skills to contribute to the state's industrial and military goals. When schooling is conceptualized this way, it is no longer obvious that democracies will provide higher quantities of it than autocracies.

Formal Education vs. Human Capital

The conceptualization of primary education as a "good" or "service" that increases the human capital of the poor is widespread in political science, and is the starting point of the theory that democracy promotes educational expansion. Primary schooling, the theory assumes, benefits the poor by increasing their human capital, so the poor will demand increased access to it.

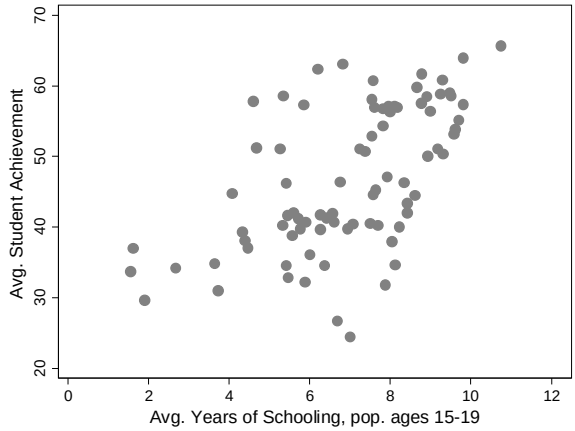
The idea that schooling enhances human capital is at odds with empirical studies in development economics and economics of education showing that too many schools around the world, especially those available to the poor, fail to promote even basic literacy and numeracy skills and fail to reduce poverty and income inequality (Pritchett 2013; Hanushek and Woessmann 2015; World Bank 2018). That schooling and skills need not go hand in hand is shown in Figure 1: across countries, for any given quantity of schooling (measured here by average years of schooling among young individuals), there is considerable variation in students' skills (measured by average scores on international tests of student achievement). Indeed, the observation that too many students do not acquire very basic skills is the main concern guiding foreign aid for education (World Bank 2011).

The dissociation that exists between schooling and skills points to an aspect of education policymaking that is insufficiently integrated into political economy theories:[7] namely, that the political incentives to increase the quantity of schooling need not be aligned with the incentive to promote human capital accumulation.

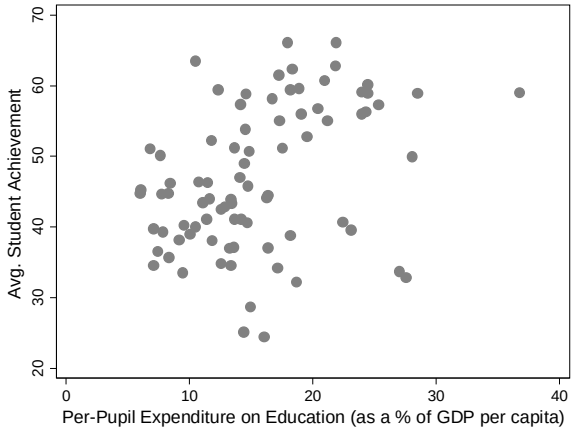
[7] See Harding and Stasavage (2014) for an exception.

Figure 1. Quantity and Quality of Education, By Country, Average over 1970-2010

Panel A:
Student achievement and
Years of Schooling



Panel B:
Student achievement and
Education Spending



SOURCES: Altinok et al. (2014); Barro-Lee dataset; and World Bank EdStats.

Demand for Primary Education

The second key assumption of the democracy argument is that a majority of citizens want the government to expand the provision of basic schooling. I leave it for future research to measure the degree to which parents demand increased provision of primary education. My goal here is much more modest. Building on existing work from other disciplines, I simply aim to show that the demand for education is a more complex issue than existing theories assume.

Surveys conducted worldwide find that student absenteeism on any given day ranges from 14-50% of enrolled students, and that most absenteeism stems from children's unwillingness to attend school, and parents' inability and/or unwillingness to compel them (Banerjee and Duflo 2011, 72; World Bank 2018). Indeed, many interventions in developing countries, including conditional and unconditional cash transfers, seek precisely to identify cost-effective ways to foster demand for schooling among low-income families (Murnane and Ganimian 2016).

Economic and psychological factors may explain why the demand for education among the poor often remains low. Sending children to school requires foregoing current consumption (because children become unavailable to work) and diverting some current consumption to buy school supplies, in exchange for the promise of future higher income and consumption. It may be that the future returns to schooling do not outweigh the current economic losses for low-income families—for instance, if the schools to which these families have access are of poor quality and do not have the equalizing benefits we presume they have (Hanushek, Lavy, and Hitomi 2008; Banerjee and Duflo 2011); or if patronage and social connections, rather than meritocracy, are the main criteria used in hiring decisions. Alternatively, the returns to schooling may be positive—whether because schools promote human capital, signal innate talent, or provide valuable social connections—, but low-income parents may underestimate those returns (Jensen 2010) due to inaccurate information and the deep hopelessness that is often engendered by sustained hardship (Appadurai 2004; Dalton, Ghosal, and Mani 2016). Even if parents know that the returns to schooling are positive, financial constraints and short-term consumption needs may prevent them from investing in their children's schooling (Burztyn 2016; Banerjee and Duflo 2011, 79-80). Finally, parents who value education and can afford to send their children to school may still not advocate for more education, conditioned by their understanding of what constitutes a "good" education system.[8] For instance, parents whose children have greater access to schooling than they did when they were young may be quite content with the status quo.

As a final point, it is important to note that the mental model associating primary education with social mobility and economic development was not nearly as salient a hundred years ago as it is today. Historically, primary schools served societal and

[8] Similarly, voters' specific understanding of what is an "equitable" tax policy may prevent them from advocating for progressive taxation (Scheve and Stasavage 2016)

political goals much more than individual or economic ones, and the promotion of industrialization was left to secondary and tertiary education institutions, which were only available to the children of elites (Green 1990, 44-55; Brockliss and Sheldon 2012, 2-3; Pritchett 2013; Ansell and Lindvall 2013, 505-506; Paglayan 2017). Excepting the United States, where elementary schools were regarded as a social mobility tool already in the eighteenth century, in most countries the current idea that education can empower individuals and contribute to economic development only became widespread after World War II (Green 1990; Brockliss and Sheldon 2012; Bonal 2016; Hanushek 2016). If, in earlier periods, people did not even think of primary schools as a tool that could improve their material wellbeing, the demand for education may have been even lower than it is today.

Accountability for Education Provision

Even if low-income voters demand increased provision of basic schooling, the presence of open and competitive elections may not be enough to incentivize politicians to respond to that demand. First, the policymaking process in democratic regimes may be more responsive to the upper classes than the poor (Ansell and Samuels 2014). What gives the poor leverage is that they are numerous (Brown 1999), but this may also make it difficult for them to organize collectively (Olson 1965; Kosack 2013). Wealthy individuals are more likely to vote and participate in politics than the poor; can devote considerable resources to lobby for their preferred policies; and can capture the democratic policymaking process by purposefully designing institutions prior to a democratic transition to prevent future redistribution (Ross 2006; Acemoglu, Ticchi, and Vindigni 2011; Albertus and Menaldo 2014). Where dense clientelistic networks exist, politicians may find it cheaper to win over the poor by distributing boxes of food close to election day rather than providing a steady stream of social services (Stokes 2005). Second, it is entirely possible that, once elected, politicians respond not so much to voters as to organized interest groups (Hacker and Pierson 2014). Third, in democracies

where race or ethnicity is a salient political cleavage, politicians may lack incentives to provide education for everyone (Stasavage 2005b; Miguel 2004; Kramon & Posner 2016). Fourth, democratically-elected politicians may face more obstacles when trying to expand education compared to an autocratic ruler, given the greater number of veto players in a democracy—a mechanism that has been shown to be at play in the case of land redistribution (Albertus 2015).

Autocracy and Education

Even if the median voter theorem provides a good characterization of policymaking under democracies, it is not obvious that democratization will lead to increased access to basic education. Under a median voter framework, if a majority of citizens already had access to primary education *prior to* democratization, then we should not expect democracy to lead to increased provision of it—even if voters at the low end of the income distribution lack access. Whether democratization leads to the expansion of basic education will depend on the quantity of education provided under autocracy.

Autocrats may have incentives to provide high quantities of primary schooling to influence both human capital and ideology. First, autocrats may introduce growth-promoting policies if they expect to be around long enough to benefit from increased aggregate income and rent-extraction opportunities (Olson 1993; Acemoglu and Robinson 2006b).[9] Stalin and Mao's decision to expand primary schooling are good examples of this. Russia achieved universal primary education during the 1930s. Stalin linked primary schools to the USSR's economic goals: schools had to inculcate in peasants the importance of collectivization and provide the lower classes with strong technical and scientific skills to contribute to the industrialization goals of the Five-Year Plan (Fitzpatrick 1979). In China, primary schooling expanded at an unprecedented rate

[9] Time horizons are especially relevant in education policy decisions, because it usually takes many years before educational investments can translate into economic growth.

during the 1950s. The Communist Party promoted this expansion and reshaped the curriculum partly to increase labor productivity and promote the acquisition of practical technical skills that could help transform China from a backward economy to a major economic power (Elliott 1982).

Additionally, autocratic regimes may turn to mass primary schooling to inculcate specific values, ideas, attitudes and behaviors that strengthen the regime's legitimacy and stability. In Prussia and France, comprehensive national laws organizing primary schooling and mandating a common curriculum emerged in 1763 and 1833, respectively, under the absolutist regime of Frederick II in Prussia, and during the July Monarchy in France. In both cases, the expansion of primary schooling in rural areas was an elite-driven initiative that advanced despite peasants' reluctance to send their children to school (Weber 1976; Budde 2012; Squicciarini and Voigtlander 2016). Prussian and French rulers believed primary schools were needed to shape the moral character of children, foster respect for the king's authority and the rule of law, forge a national identity and patriotic attitudes, and encourage the poor to be satisfied with their material condition (Guizot 1816; Weber 1976; Ramirez and Boli 1987; Melton 2002; Brockliss and Sheldon 2012). In Prussia, the curriculum sought to teach "loyalty, obedience, and devotion to the king" and discourage aspirations for social mobility (Johann Felbiger, quoted in Melton 2002, 186). Frederick II believed "we do not confer upon the individual or upon society any benefit when we educate him beyond the bounds of his social class and vocation … and awaken in him pretensions and needs which his lot in life does not allow him to satisfy" (quoted in Ramirez and Boli 1987, 5). In France, François Guizot—the Minister of Education who wrote the 1833 school law—believed the state had to provide primary education to improve the moral life of the poor more than their material condition (Guizot 1860, 63-64). By teaching a curriculum

focused on moral and religious education, a common language, and "French" festivities and cultural symbols, primary schools sought to turn "peasants into Frenchmen" (Weber 1976), ensure everyone "learned from childhood to understand the fundamental laws of the country and to respect its sovereign," foster "a true patriotism" (Guizot 1816, 9-10), and encourage children to "always remain faithful to … duty and fatherland" (Bruno 1877, 150).

Schools' ability to socialize or indoctrinate citizens, contribute to nation- and state-building, and shape political values and behaviors to sustain the status quo, sometimes dismissed as "cynical" (Lindert 2004, 99), has gained renewed attention in political economy (Darden and Grzymala-Busse 2006; Ansell and Lindvall 2013; Cantoni et al. 2017; Paglayan 2017). This conceptualization of what schools do departs both from theories that emphasize the expansionary effect of democratization and from modernization theories. The former do not recognize that schools can impact individual political behavior. The latter do, but assume that schools *empower* individuals and support democratically-oriented political behaviors (Almond and Verba 1963; Lipset 1960), thereby predicting that autocrats will block the expansion of education systems to protect their own stability (Bourguignon and Verdier 2000).

Still, neither logic alone nor knowledge of specific cases is sufficient to infer whether democracies or autocracies will have greater incentives to expand primary education systems. In addition to the famous cases of Prussia, the USSR, and China, there are equally famous cases of expansion under democratic regimes—e.g., the United States and Canada in the nineteenth century. To determine whether education systems have expanded more under democracies or autocracies, we need a systematic analysis of a large number of cases.

Existing Empirical Research

To what extent does the spread of democracy help explain the expansion of primary schooling observed from the nineteenth century to the present?

That democracies provide higher quantities of education than non-democracies, and especially, that they provide more primary education, is one of the most consistent empirical findings in cross-national studies of the relationship between regime type and education provision, as noted in recent surveys of the literature (Gift & Wibbels 2014; Hoffman 2015). While the literature usually argues that democracy *leads* to increases in enrollment rates and education expenditures, there are several methodological reasons that warrant caution against causal claims. First, some early statistical studies are likely to overestimate the effect of democracy because they do not control for long-standing features of a country that could explain why some countries both became democratic and have higher levels of education provision.[10] The importance of accounting for these features is demonstrated in Lake and Baum's (2001) study of the relationship between democracy and secondary school enrollment rates in 90 countries during 1970-1990: while enrollment rates in democracies are 18 percentage points higher than in autocracies with similar observable characteristics such as GDP per capita, when considering the relationship between changes in regime type and changes in enrollment rates *within* a country, the study finds that moving from a highly autocratic to a highly democratic regime is associated with only a 5 p.p. increase in enrollment.

Because controlling for permanent country features allows us to better isolate the effect of democracy, most studies incorporate country fixed effects to their regression

[10] For instance, Brown (1999) compares primary school enrollment in democracies and non-democracies in 136 countries during 1960-1987; finds that democracies have higher enrollment rates than non-democracies with similar observable characteristics such as GDP per capita; and concludes that "the institutions associated with individual rights and electoral competition have an important effect on primary school enrollment" (p. 681).

analyses. While these studies find that within-country transitions from autocracy to democracy are associated with increases in enrollment rates, school attendance, and primary education expenditures (e.g., Stasavage 2005a; Ansell 2008; Harding and Stasavage 2014), this evidence is still insufficient to isolate the effect of democracy. We also need to net out the role of common shocks that could have led to the secular expansion of education in democracies and autocracies alike. For instance, in the 1990s, while many African countries were democratizing, international commitment among 155 countries to the goal of universal primary education led to an expansion of access to primary schools in both democratic and non-democratic countries. More generally, the end of World War II; competition for economic, technological and military supremacy during the Cold War; the role of international organizations like the U.N. and the World Bank; and the spread of new ideas highlighting the role of education in economic development, are some of the factors that may have contributed to an acceleration in the expansion of primary schooling during the postwar. Ross (2006) finds that, once we account not just for country but also for *year* fixed effects, there is no longer evidence that democracy lowers infant or child mortality. However, few peer-reviewed studies of the relationship between democracy and education provision include both country and year fixed effects, and those that do arrive at conflicting conclusions, perhaps because they cover different periods and sets of countries (Lindert (2004) studies developed countries from 1880-1930; Lott (1999) analyzes 99 countries over 1985–92).

Finally, because education statistics from the World Bank and UNESCO are available from the 1960s on, most studies focus on this relatively recent period in the history of public schooling. The few peer-reviewed studies that explore the relationship between democracy and education provision over a longer period raise questions about external validity due to their limited geographic coverage (Lindert (2004) focuses on OECD countries; Mariscal and Sokoloff (2000), on the Americas).

In sum, we lack empirical research that convincingly assesses the presence of a causal relationship between regime type and the quantity of education provision for a large number of countries and over a period that encompasses most of the history of state-controlled education systems. This paper seeks to help fill this important gap.

Research Design

To assess the role of democratic institutions in explaining the expansion of primary education around the world, the paper follows a three-step empirical strategy. First, I examine: what came first, states' interest in the provision of primary education, or democracy? To determine when states became interested in primary education, I employ two historical datasets. The first is an original dataset documenting the year when central governments in 33 European and Latin American countries began to regulate the provision of primary education. In comparative perspective, European countries have been leading providers of education since the mid-nineteenth century, and Latin America was the first developing region to reach near-universal primary school enrollment rates (Figure A1), so a look at these regions can provide particularly useful insights about what motivated the emergence of state-controlled primary education systems—whether electoral incentives or something else. The second dataset, compiled by Lee and Lee (2016), provides information about the year when central governments in 109 countries began to monitor primary education systems by collecting statistics about the number of students, schools, and teachers.

Second, I ask: besides regulating and monitoring schools, to what extent did non-democratic regimes expand access to primary education? To measure the quantity of provision, I use country-level primary school enrollment rates—the most common measure of education provision in the extant literature. Two new historical datasets spanning from 1820 to 2010 enable me to examine the relationship between regime type

and primary education provision over a much longer period than has been possible in the past.

Third, I use difference-in-differences and interrupted time series methods—discussed later on—to assess whether and how transitions to democracy impacted primary school enrollment rates. I examine democracy's average impact on enrollment rates over the whole period of analysis from 1820 to 2010, as well as separately for democratic transitions taking place before or after 1945. The 1945 cutoff is informed by two factors. First, primary school enrollment rates across developing countries increased at an accelerated pace after that year (Figure A2). Examining the degree to which democratization contributed to this acceleration is an important question. Second, as noted earlier, scholars have argued that the idea that education can contribute to individual earnings and economic development only became widespread after World War II. As a result, demands for education during the postwar may have been more salient than in earlier periods, and—if democracies are responsive to popular demands—the effect of democratization may have differed across periods, too.

Historical Datasets

Timing of initial state intervention in primary education. State intervention to shape primary education systems can take many forms. For 33 countries in Europe and Latin America, I used over 80 country-specific history of education books, articles, and Ph.D. dissertations published in English, Spanish, or Portuguese, supplemented by consultations with history of education experts,[11] to code the year when central governments began to: (i) fund primary schools; (ii) manage them; (iii) establish curriculum requirements for all primary schools; (iv) establish certification requirements

[11] Expert consultations were conducted when the relevant dates could not be found in written sources in English, Spanish, or Portuguese. Overall, 91% of the data come from text sources and 9% from expert consultations.

for primary school teachers; (v) train prospective teachers (e.g., through state-run Normal Schools); (vi) mandate local authorities to provide universal access to schooling; (vii) mandate free provision for the poor; and (viii) establish compulsory primary education. Because central governments sometimes began intervening in primary education after subnational governments, we cannot be certain that the dataset captures the earliest expression of politicians' interest in education, but it does allow us to make statements of the form "politicians were interested in primary schooling *at least* as far back as X." The sources used for each cell entry and a brief narrative of the timing of central government intervention in primary education by country are available in Online Appendix B.

To extend the analysis to all regions, I examine an additional form of governmental intervention in education which involves the use of official inspections and gathering of school-level statistics to monitor the state of primary schooling. Lee and Lee (2016) identify the first year when official statistics about student enrollment in public primary schools became available in 111 countries—of which 109 can be matched to information about regime type. As we will see, other forms of state intervention—such as the provision of funding for primary schools or the enactment of mandatory curricula—usually occurred before statistics reports were produced, so again, the timing of these statistics enables us to say that "politicians were interested in primary schooling *at least* as far back as X."

School enrollment rates. I employ two separate datasets that measure primary school enrollment rates. The first is an original country-level dataset containing annual primary school enrollment rates as a proportion of the population ages 5-14 for 38 countries in Europe and Latin America going as far back as 1828 and up to 1945—though there is variation in the initial date of data availability across countries partly due to variation

in the timing of emergence of state-controlled primary education systems. The construction of this dataset involved contrasting and merging historical data on student enrollment from several secondary sources (Benavot and Riddle 1988; Mitchell 2003; the U.S. Bureau of Education's annual *Reports of the Commissioner of Education* for 1872-1915; Flora 1983) and supplementing this with country-specific primary and secondary sources. Online Appendix C provides detailed information about how the dataset was assembled and what sources were used.

The second dataset, assembled by Lee and Lee (2016), contains quinquennial country-level data on primary school enrollment rates as a proportion of the school-aged population for 111 countries from 1820 to 2010. The authors merged data on primary school enrollment available from UNESCO with more historical data compiled from similar—but not the same—sources I used.

Each dataset has its own advantages and limitations, and using both helps me assess the robustness of the conclusions. On one hand, my dataset goes farther back in time for Europe and Latin America. Although Lee and Lee provide extrapolated enrollment rates for all countries since 1820, in reality only 9 countries in their dataset have non-extrapolated pre-1870 data, compared to 17 countries in mine. Indeed, my dataset contains one extra decade of historical data for Argentina, Brazil, and England, two decades for Costa Rica, Ecuador, France, and Spain, and four decades for Austria, Germany and Norway. On the other hand, their dataset covers all regions. Although data preceding 1870 are scarce, 63 countries in their dataset have enrollment data beginning in 1900, 85 have data preceding 1920, and 105 countries have data preceding 1950. This enables us to improve on the external validity of past studies that employ data from UNESCO or the World Bank, which are only available from the 1960s on.

In the mechanisms section of the paper, I also examine the relationship between democracy and secondary and tertiary enrollment rates. The data for these come from Lee and Lee (2016).

Democratization. What constitutes democracy and how to measure it remains a contested issue. The choice of measures for this study is informed by the theory that is being tested, which posits that the main reason why democracies provide more primary education than autocracies is because they confer greater "political voice" to the poor through the extension of the franchise. Accordingly, a natural measure of the extension of the franchise to the poor is the introduction of universal male suffrage, which I retrieve from the PIPE dataset (Przeworski et al. 2013). For a less demanding measure, I use the Boix, Miller, and Rosato (2012) (hereafter, BMR) measure of democracy, which counts as democratic any country that has competitive elections and has enfranchised a majority (more than 50%) of the adult male population, though not necessarily all. Lastly, I use a measure of democracy from the Polity Project, which considers not just whether there are open and competitive elections but also whether there are constraints on the Executive. The analyses rely on a binary measure constructed following the convention that a country is democratic if *polity2* ranges between 6 and 10. To facilitate comparison with past studies, the main text presents results based on the Polity measure, but the main conclusions hold when considering all measures (see Online Appendix A).

State-Controlled Primary School Systems Emerged Under Autocracies

A comparison of the timing of democratization and initial state intervention in education reveals that, around the world, states began to intervene in the primary education sector well before the poor had the right to vote.

In Europe and Latin America, two early leaders in the expansion of public primary schooling, central governments began to intervene in primary education on average 107 years before democratization took place (as measured by Polity or BMR) and 91 years before the introduction of universal male suffrage laws. In general, the earliest intervention took the form of funding and directly managing primary schools. About a decade later, central governments began to establish curriculum and teacher certification requirements, and took over responsibility for the training of prospective teachers. Education statistics followed about another decade later. Compulsory schooling laws were usually the latest form of state intervention in primary education, but were still introduced about 52 years before democratization and 36 years before universal male suffrage. These findings are not driven by a few countries; they reflect a general pattern shown in Panel A of Figure 2. The orange dots indicate when a compulsory education law was first passed. The red dots indicate when any other form of central government intervention in primary education first took place.[12] The blue dots indicate the timing of democratization as measured by Polity. The pattern is clear: in general, the red dots precede the orange dots, which precede the blue dots. Figure A3 shows this is true regardless of the measure of "political voice" employed.

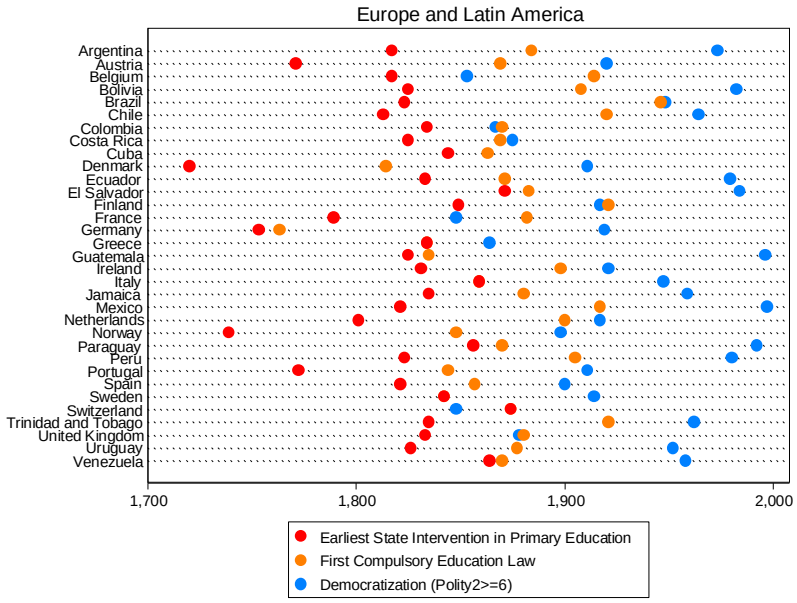
The conclusion holds when examining other regions: political authorities began to monitor primary school systems, in part by gathering statistics about these systems, many decades before the enfranchisement of the poor. As Panel B of Figure 2 shows, official statistics on primary school enrollment became available on average 61 years before democratization in Europe and Latin America; and 63 years before democratization in the rest of the world.

As a global phenomenon, then, political interest in primary education preceded democracy and the enfranchisement of the poor by many decades.

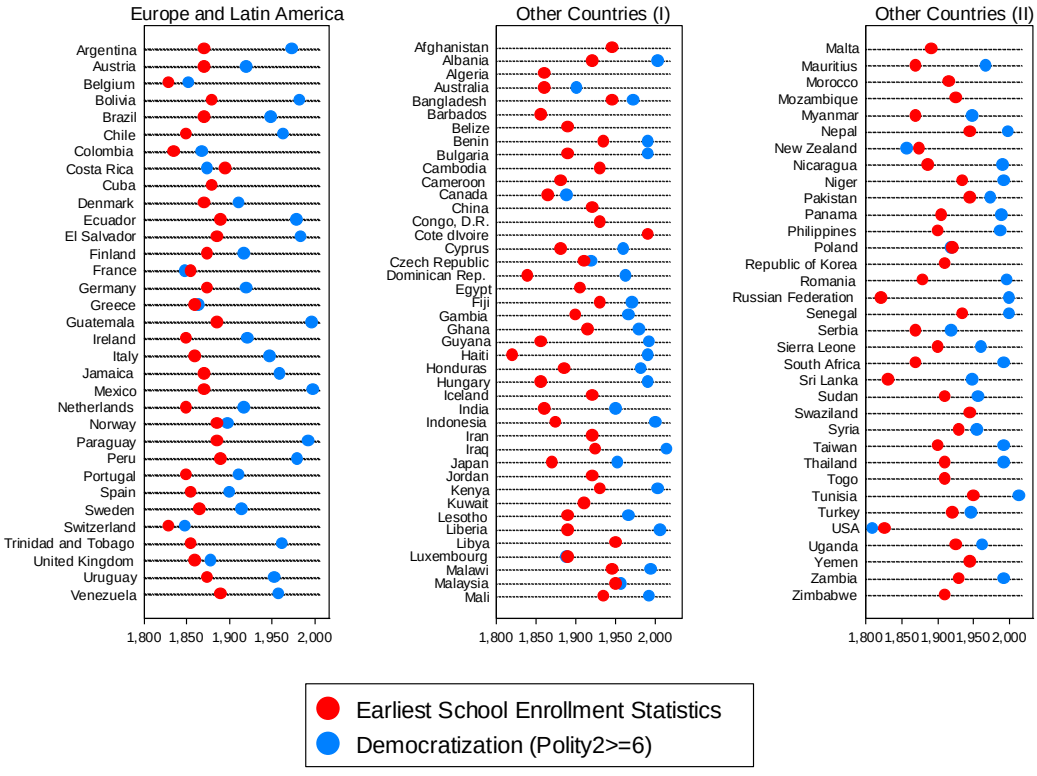
[12] Figure A3 provides separate graphs for different forms of intervention in primary education.

Figure 2. Timing of Democratization and State Intervention in Education, by Country

Panel A: Europe and Latin America



Panel B: All Regions



SOURCES: Author for timing of education interventions (see Online Appendix B); Lee and Lee (2016) for first enrollment statistics; Polity Project for timing of democracy.

Autocracies Considerably Expanded Primary Schooling

State intervention in primary education prior to democratization was not trivial. The way in which elites structured the emerging public education systems in this early stage created patterns of authority and organization that remained in place for a long time (Ansell and Lindvall 2013). It was not uncommon for curriculum plans crafted prior to democratization to remain in place several decades after a transition to democracy; and the basic setup for training teachers in state-run Normal Schools usually remained unchanged well into the late-twentieth century. Indeed, when we look at education systems today—how classrooms are arranged, teachers trained, schools inspected—we can trace many of their features to decisions made in the early stages of provision.

But states didn't just regulate or monitor primary education; they also made considerable efforts to expand its provision despite the absence of mass electoral pressure to do so. This is shown in Figure 3, where the thick black line represents the world average primary school enrollment rate twenty years before and twenty years after each country's first transition to democracy. Two observations stem from the graph. First, primary education systems had reached a considerable size well before democratization, with 60 percent of children already enrolled in primary school two decades *before* democratization. Second, there was no dramatic change in the enrollment trend after democratization. At the regional level, in all regions except for Sub-Saharan Africa, a large majority of children were already enrolled in primary school at least two decades before democratization; and across the board, including in Sub-Saharan Africa, democratization was not followed by a sharp acceleration of primary school enrollment. These observations hold regardless of how we measure democracy (see Figure A4).

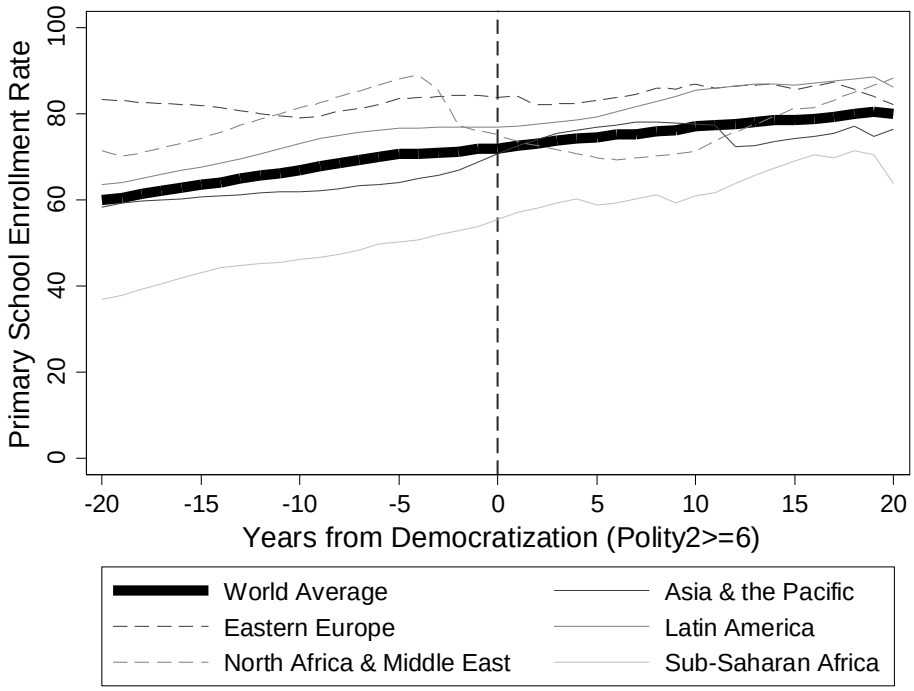
A different way to look at the data is to compare the average primary school enrollment rate in each region over time, from 1820 to 2010, and the degree to which democracy was prevalent or not. This is what Figure 4 does. What it shows is that, in

every developing region, primary school enrollment rates expanded greatly, and a majority of children got access to primary education, well before there was a move toward democracy in the region.

While there are specific non-democratic regimes in each region that are famous for their extensive efforts to expand education—e.g., Russia, China, Cuba, Prussia—, the pattern of high quantities of primary education provision under non-democratic regimes shown in Figures 3 and 4 is not driven by exceptional cases. In 65% of countries that experienced a transition to democracy, a majority of school-aged children were already enrolled in primary school at least 20 years before the first democratic transition; and that proportion climbs to 74% of countries if we look at enrollment rates 10 years before democratization.

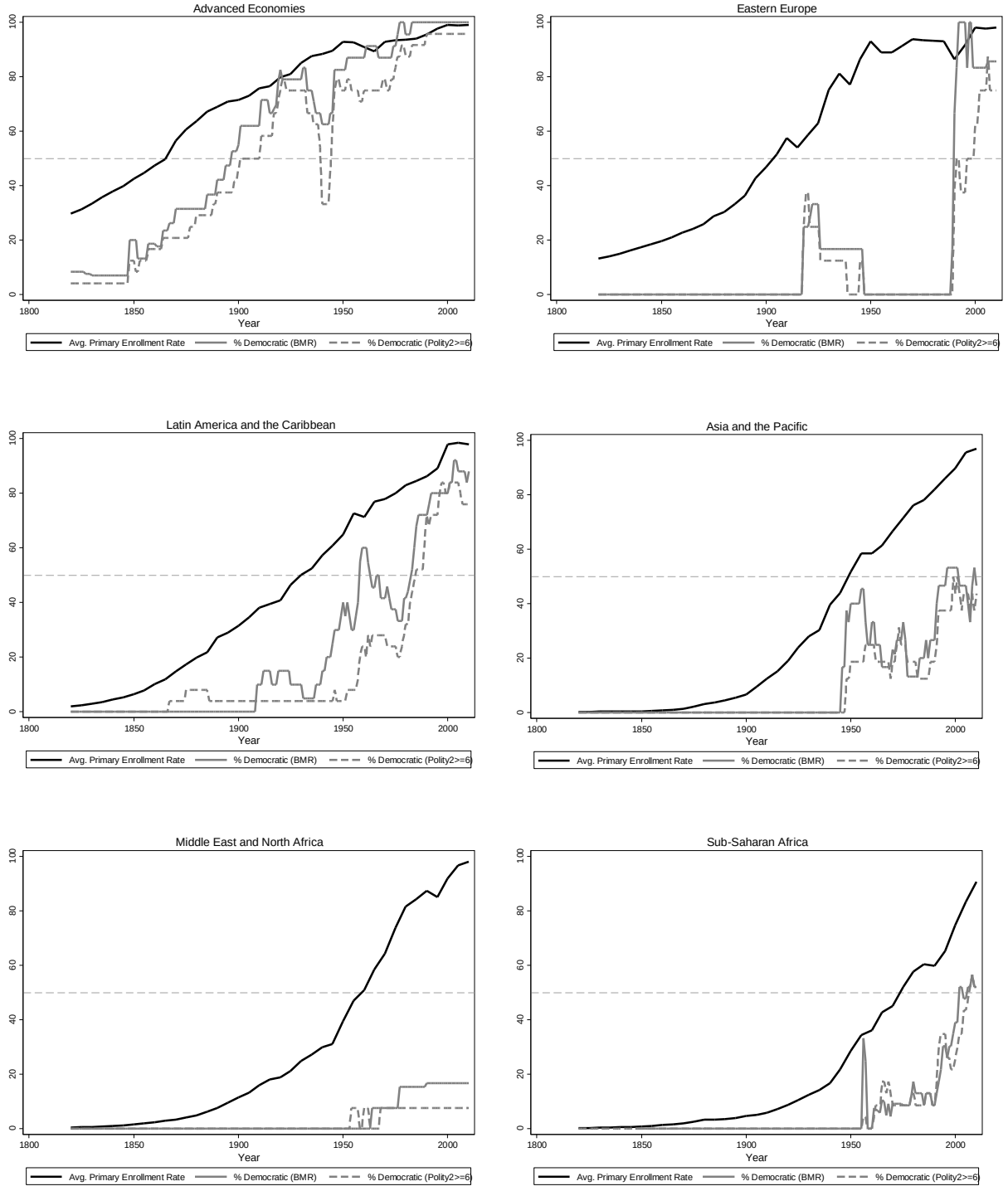
In sum, in addition to regulating and monitoring primary schools, non-democratic regimes provided high quantities of primary education. In most countries, a majority of children were already enrolled in primary school well before the first transition to democracy.

Figure 3. Primary School Enrollment Rate Before and After Democratization, World and Regionals Means, 1820-2010



NOTE: For visualization purposes, quinquennial data on enrollment rates were linearly interpolated to obtain annual estimates. Trends based on the original (quinquennial) data are shown in Figure A5.
SOURCES: Lee and Lee (2016) for enrollment rates; Polity Project for timing of democracy.

Figure 4. Primary School Enrollment Rates and Percentage of Countries that are Democratic, by Region, 1820-2010



SOURCES: Lee and Lee (2016) for enrollment; Polity Project and BMR for democracy.

Did Democracy Lead to Greater Access to Primary Education?

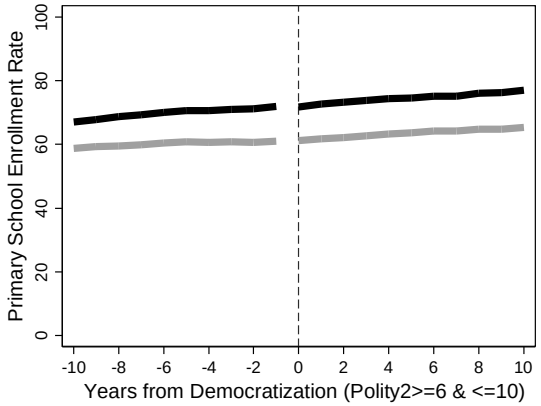
As a first step to understand how democracy impacted the level of access to primary education, I begin by exploring visually how primary school enrollment rates evolved over time in countries before and after a country's first transition to democracy (the black line in Figure 5), and how that compares to the evolution of enrollment in countries that, at any given point, were non-democratic (the grey line).[13] Panel A displays these trends for the entire period from 1820 to 2010; Panel B examines only democratizations that occurred between 1820 and 1945; and Panel C, only those that occurred after 1945.

Beginning with the patterns for the full period from 1820-2010, Panel A suggests that democratization did not lead to an expansion of primary school enrollment rates. Historically, countries that became democratic already had higher levels of access to primary education *before* they transitioned to democracy, but democratization did not lead to an acceleration of primary education provision compared to non-democratic countries. To facilitate comparison with prior studies, democracy here is measured using Polity Project data, but the same pattern emerges when using universal male suffrage laws or BMR's measure of democracy (Figure A6).

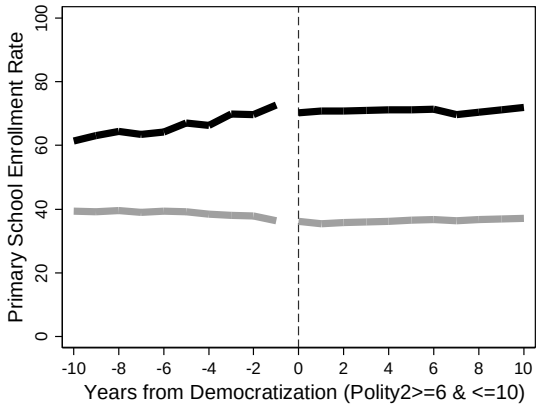
[13] For each country that democratized in year $t=T$, I compute the average primary school enrollment rate of a comparison group, which in any given year t is composed of countries that were non-democratic in that year. I then compute the average primary school enrollment rate across all comparison groups, displayed in grey in Figure 5.

Figure 5. Average Primary School Enrollment Rates Before and After Democratization, Treated and Comparison Group

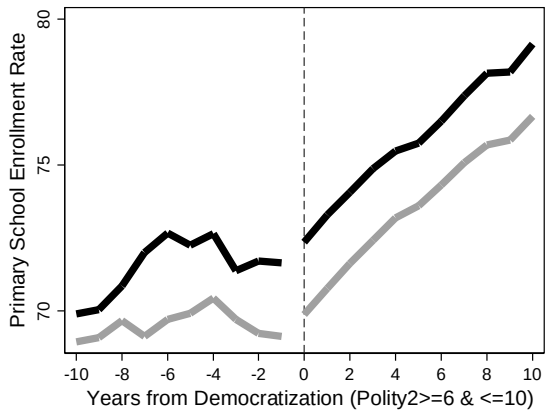
Panel A: 1820-2010

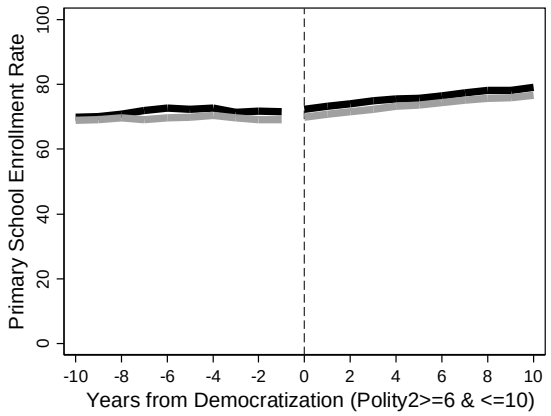


Panel B: 1820-1945



Panel C: 1945-2010





NOTE: Democratizing countries' trend in black; non-democracies' in grey. For visualization purposes, quinquennial enrollment rates at the country level were interpolated to obtain annual estimates.
SOURCE: Lee and Lee (2016) for enrollment rates; Polity Project for timing of democratization.

Are these conclusions different if, following past studies, we focus on more recent democratic transitions? They are not, but Panel C helps us understand why past studies concluded differently. The left-side graph provides a zoomed-in look at enrollment rate trends before and after democratization. The right-side graph illustrates the same trends but with the y-axis ranging from 0 to 100 percent (like Panels A and B), to put the trends in historical perspective. Recall that most studies compare education provision before and after democratization *within* countries that democratize, accounting for country fixed effects but not year fixed effects. This is analogous to focusing on the black line of the graph, which shows that democratic transitions coincided with an acceleration of education provision. While looking at the black line alone might lead us to conclude that democratization *caused* that acceleration, the grey line shows that countries that did not democratize experienced the same acceleration. If we overlook this fact, we will likely overestimate the impact of democratization—which, based on these preliminary graphs, appears to be null.

What about the impact of democratic transitions that occurred before 1945? This period has received much less attention in the extant literature, a notable gap in our knowledge considering that public school systems have been around for well over a century. An emerging middle class, not mass revolution from workers or peasants, appears to have been the main driver of early democratizations (Moore 1966; Collier 1999), and there is some evidence that, in these cases, the middle and upper classes formed an alliance to prevent pro-poor redistribution (Ansell and Samuels 2014). Indeed, the trends in Panel B suggest that the adoption of democratic institutions did not lead to an expansion of primary schooling. In countries that became democratic between 1820 and 1945, primary school enrollment rates were higher *and* growing faster compared to non-democratic countries *before* they adopted democratic institutions. We cannot know whether the pre-democratic expansion was driven by elites who, anticipating and fearing political change, turned to primary education to inculcate

values and beliefs that would help them maintain power despite the extension of the franchise; or whether it responded to the educational demands of those who were already enfranchised. What we know is that, once democratic institutions were adopted, we no longer see a divergence in the enrollment rates of democratic and non-democratic countries—suggesting that, if anything, democracy led to a reduction in the provision of primary schooling.

To better quantify the impact of democratization on primary school enrollment rates, I use two estimation strategies, difference-in-differences (DD) and interrupted time series with a comparison group (ITS). Their assumptions require some consideration before turning to the results. Specifically, I estimate the following DD and ITS models, respectively:

(1) $Y_{i,t} = \gamma_i + \phi_t + \delta_1 . T_{i,t} + \epsilon_{i,t}$

(2) $Y_{i,t} = \gamma_i + \phi_t + \beta_0 (year_{i,t} - year_i^*) . EverD_i + \beta_1 EverD_i . P_{i,t}$

$$+ \beta_2 (year_{i,t} - year_i^*) . EverD_i . P_{i,t} + \epsilon_{i,t}$$

In both models, γ_i accounts for long-standing country characteristics that might be correlated with both the chance of democratization and the level of primary education provision; while ϕ_t accounts for year fixed effects or shocks that affect education provision in all countries regardless of the type of political regime. In the DD model, $T_{i,t}$ equals 1 if country i in year t had experienced a transition to democracy, and equals 0 otherwise; and δ_1 is the average treatment effect of democratization on primary school enrollment rates under the assumption that enrollment rates in countries that democratized, had they not transitioned to democracy, would have changed just as much as they did in countries that did not become democratic. Visual evidence of parallel pre-treatment trends in Figure 5 suggests that DD is a valid approach when estimating the average impact of democratization for the whole period of analysis (1820-

2010) and for the post-war period (1945-2010), but that a different causal inference method is needed for the 1820-1945 period.

An ITS model's identifying assumption is not that the trend of treated countries would have been parallel to that of comparison countries in the absence of democratization, but that treated countries' trend in the post-treatment period would have changed by the same (linear) amount as comparison countries' trend had they not experienced democratization (Shadish, Cook & Campbell 2002). In equation 2, $(year_{i,t} - year_i^*)$ is the number of years relative to democratization in country i; $EverD_i$ equals 1 if country i ever democratized during the period of analysis, and equals 0 otherwise; and $P_{i,t}$ takes a value of 1 if country i had already democratized in year t, and equals 0 otherwise. The ϕ_t dummies trace out the trend of comparison countries non-parametrically. β_0 is the linear difference in the pre-treatment trend between treated and comparison countries; β_1 is the average one-time shift in treated countries' trend in the first year under democracy; and β_2 measures the linear change in the slope of treated countries' trend after democratization. Under the identifying assumption, (β_1+k.β_2) measures the effect of democracy k years after democratization. This magnitude can be thought of as the *difference* between treated and comparison countries in the *difference* between their post-treatment slopes net of *differences* in their pre-treatment slopes. Intuitively, if treated countries' enrollment rate was already growing faster than control countries' in the pre-democracy period, and diverged even more during the post-democratization period, we would interpret the additional amount of divergence as the positive impact of democratization. Conversely, if we observed that, after democracy, treated countries' trend diverged from control countries' trend less

than it did in the pre-democracy period, we would interpret the reduction in the amount of divergence as the negative impact of democratization on enrollment rates.

As preempted by Figure 5, the results provide little support for the claim that democratization led to an increase in primary school enrollment rates. In Figure 6, Panel A plots the coefficient on democracy obtained from (i) a regression with country fixed effects but not year fixed effects, the most common method used in prior studies; (ii) a DD model including both country *and* year fixed effects, as in equation 1; and (iii) a model that adds country-specific linear time trends to equation 1, to control for observable and unobservable features of a country that change linearly over time. In turn, Panel B provides the estimated impact of democracy within 10 years of democratization based on the ITS model given by equation 2, which is particularly helpful for the period 1820-1945. 95% confidence intervals based on standard errors clustered at the country level are also reported. All equations are estimated using quinquennial data on primary school enrollment rates from Lee and Lee (2016) for the entire period 1820-2010, and separately for 1820-1945 and 1945-2010. Additionally, all equations are estimated using the three different binary measures of democracy discussed earlier.

When looking at the period 1820-2010, Panel A shows that accounting for country fixed effects but not for year fixed effects would lead us to severely overestimate democracy's impact on primary school enrollment rates. For instance, using Polity to measure democracy, the results suggest that democracy increases primary school enrollment rates by 30 percentage points. However, when year fixed effects are added to account for secular increases in the provision of education not driven by democratization, the coefficient on democracy as measured by Polity is no longer statistically different from zero, the point estimate is *negative*, and the upper bound of the confidence interval implies that *at most* democracy increases primary school enrollment rates by 2.4 p.p. Recall from Figures 3 and 5 that the average primary school

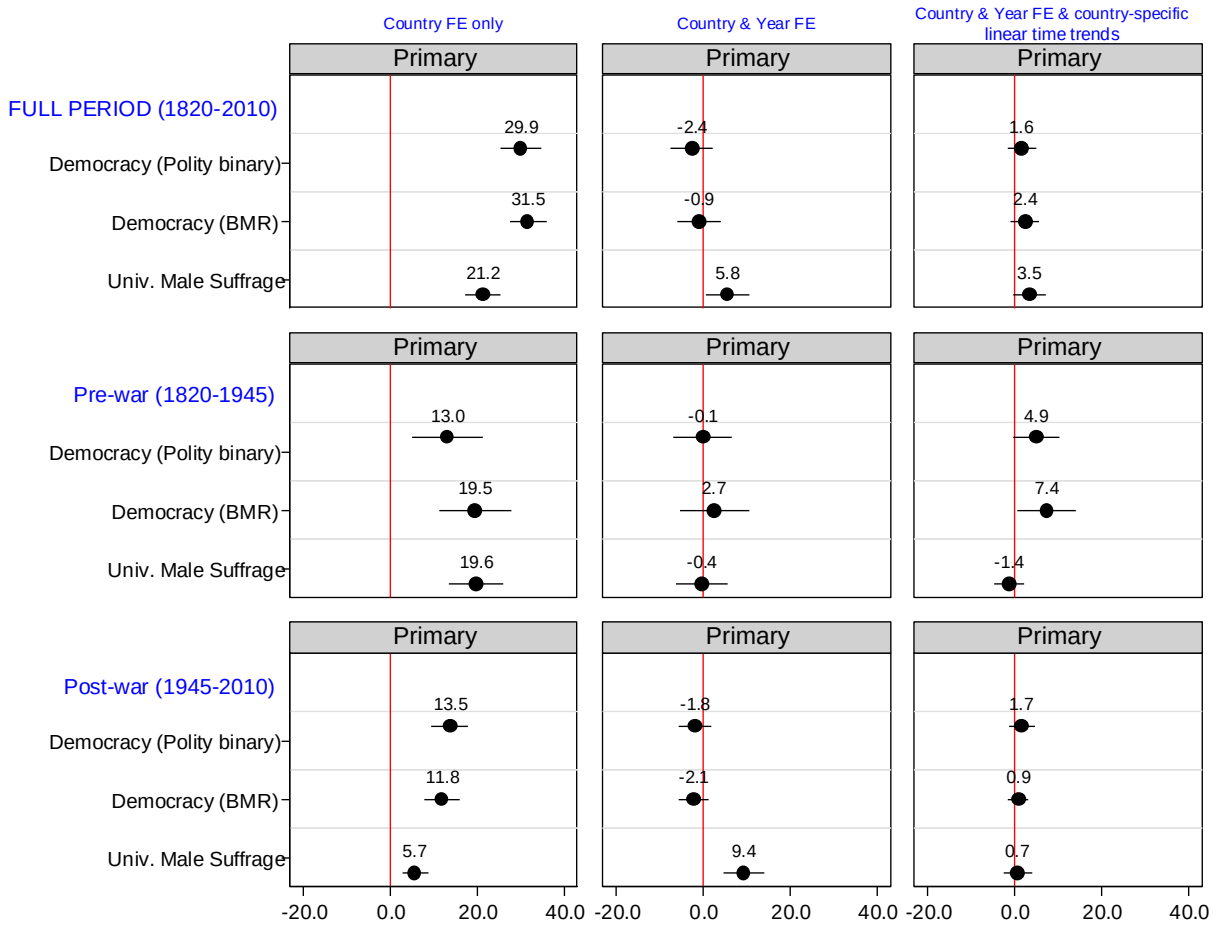
enrollment rate in democratizing countries already exceeded 70% prior to democratization, so even a 2.4 p.p. increase would represent a small effect. In sum, when looking at the long history of education provision, the spread of democracy does not play a meaningful role in explaining the global expansion of access to primary schooling.

A more appropriate comparison with prior studies is one that focuses on the impact of democratizations occurring during the postwar period. Here again, Panel A of Figure 6 shows that estimating the impact of these democratic transitions using country fixed effects but not year fixed effects leads us to overestimate democracy's impact on education provision. Once year fixed effects are added, the estimated coefficient for democracy becomes negative and is no longer statistically significant if democracy is measured by Polity or using the less conservative definition of BMR. The only measure of democracy that appears to have a positive effect on primary school enrollment rates is the introduction universal male suffrage, but this effect also disappears once we account for country-specific linear time trends.

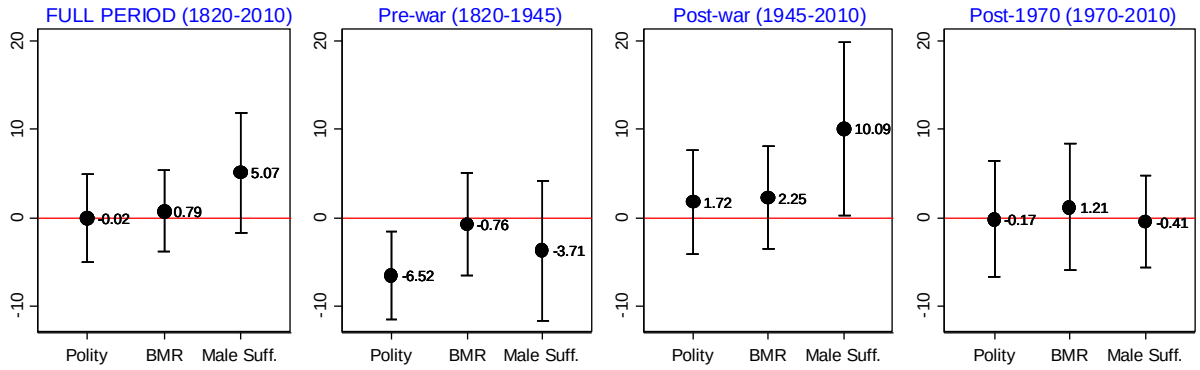
Finally, for democratic transitions taking place during 1820-1945, the DD estimates in Panel A overestimate the impact of democracy because they overlook that primary school enrollment rates were growing faster in democratizing countries prior to democratization. If we account for the difference in the pre-treatment slopes, and assume that this difference would have remained the same in the absence of democratization, our conclusions about the impact of democracy change dramatically. As shown in Panel B of Figure 6, and in line with the visual evidence in Panel B of Figure 5, ITS estimates of the impact of democratization provide no support for the claim that democracy leads to an expansion of primary school enrollment rates. The point estimates for all measures of democracy are negative (and statistically significant in the case of Polity).

Figure 6. Democracy's impact on primary school enrollment rates

Panel A: DD estimates



Panel B: ITS estimates



SOURCES: Lee and Lee (2016) for enrollment rates; Polity Project, BMR, and Przeworski et al. (2013) for timing of democratization.

Robustness

The findings presented above provide little support for the claim that democracy leads to an expansion of primary schooling. The conclusion that democracy has not played a meaningful role in explaining the expansion of primary education systems holds if we: (i) use Tobit instead of OLS to estimate the coefficient on democracy, to correct for the possibility of sample selection bias due to the presence of a censored (upward-bounded) dependent variable (Table A2); (ii) look at the effect of continuous changes in regime type instead of using binary measures of democracy (Table A3); (iii) employ a different historical dataset of primary school enrollment rates for the 1820-1945 period (Figure A7); (iv) use public spending on primary education (available from previous studies) instead of enrollment rates to measure the quantity of primary education provision (Figure A8); and (v) examine the impact of democratization separately for each region (Figure A9; Table A4).

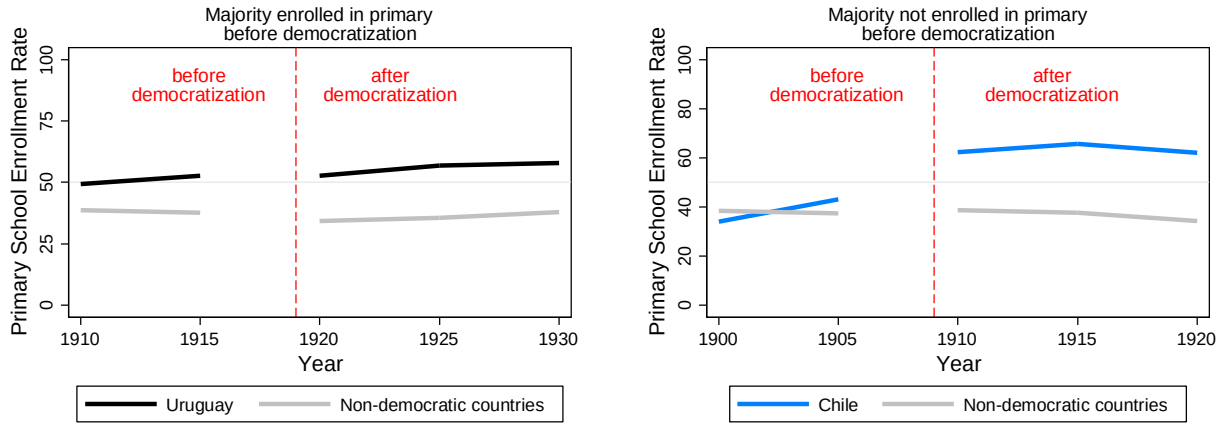
Mechanisms

In analyses analogous to those conducted for primary school enrollment rates, I find evidence of a positive, statistically significant effect of democracy on secondary and/or tertiary school enrollment rates, especially when considering democratizations that occurred after 1945 (Panels B and C of Figure A10). Because these are the types of education that the upper classes are more likely to demand, it may be tempting to conclude that democracy did not lead to the expansion of access to primary education due to capture of the democratic policymaking process by the rich. Notwithstanding the possibility that capture by the rich may influence other aspects of education policymaking, the absence of a positive effect of democracy on primary school enrollment rates, and the presence of a positive effect on secondary enrollment rates, can be explained within the framework of theories of redistribution in which the median voter, not the rich, determines what policies are adopted.

Specifically, median voter theories would predict increased primary education provision after a democratic transition in countries where autocratic regimes did not provide access to primary schooling to a majority of citizens. This represents only one-fourth of countries that transitioned to democracy. However, in three-fourths of countries that experienced a democratic transition, a majority of the population had access to primary schooling but not to secondary education already before democracy emerged. In these cases, median voter theories would predict increased provision of secondary education, but not primary education, as a result of democratization.

To illustrate these dynamics, consider Chile and Uruguay, two countries with similar levels of economic development, state capacity, and colonial history, and whose first transition to democracy occurred at a similar time. However, in Uruguay, a majority of the population already had access to primary schooling before democracy emerged, while in Chile, the majority did not have access to primary education. Figure 7 shows that, following democratization, and in line with median voter theories, primary schooling barely increased in Uruguay, but expanded considerably in Chile.

Figure 7. Primary education in Uruguay and Chile before and after democratization



SOURCES: Lee and Lee (2016) for enrollment rates; BMR for timing of democratization.

Table 1. Heterogeneous effect of democracy depending on whether a majority of children already had access to primary schooling before democratization

	Panel A: OLS			*Panel B: Tobit*		
	Primary	**Secondary**	**Tertiary**	**Primary**	**Secondary**	**Tertiary**
	school enrollment rate			**school enrollment rate**		
Independent variable:						
Polity2 between 6 and 10						
democracy	5.3	-5.1	-2.6	5.1	-5.2	-2.6
	(3.5623)	(3.2870)	(2.6150)	(3.0542)	(3.3095)	(2.5901)
democracy x majority	-8.6 *	13.2 **	3.6	-8.0 *	13.1 **	3.6
enrolled in primary	(4.1463)	(3.9961)	(3.2115)	(3.8664)	(4.0243)	(3.1808)
Democracy (BMR)						
democracy	8.0 *	-12.2 **	-7.2 **	6.2 *	-12.4 **	-7.2 **
	(3.2197)	(2.7032)	(2.2573)	(2.9740)	(2.7360)	(2.2366)
democracy x majority	-9.7 **	18.2 **	6.1 *	-7.2 *	18.2 **	6.1 *
enrolled in primary	(3.4496)	(3.0982)	(2.4868)	(3.4015)	(3.1331)	(2.4640)
Universal male suffrage (PIPE)						
democracy	15.7 **	-17.3 **	-9.4 **	15.9 **	-17.3 **	-9.4 **
	(3.1897)	(2.6090)	(1.4518)	(3.3165)	(2.6001)	(1.4394)
democracy x majority	-10.2 **	18.7 **	3.1 *	-9.9 **	18.5 **	3.1 *
enrolled in primary	(2.9843)	(2.6514)	(1.2598)	(3.3067)	(2.6297)	(1.2490)

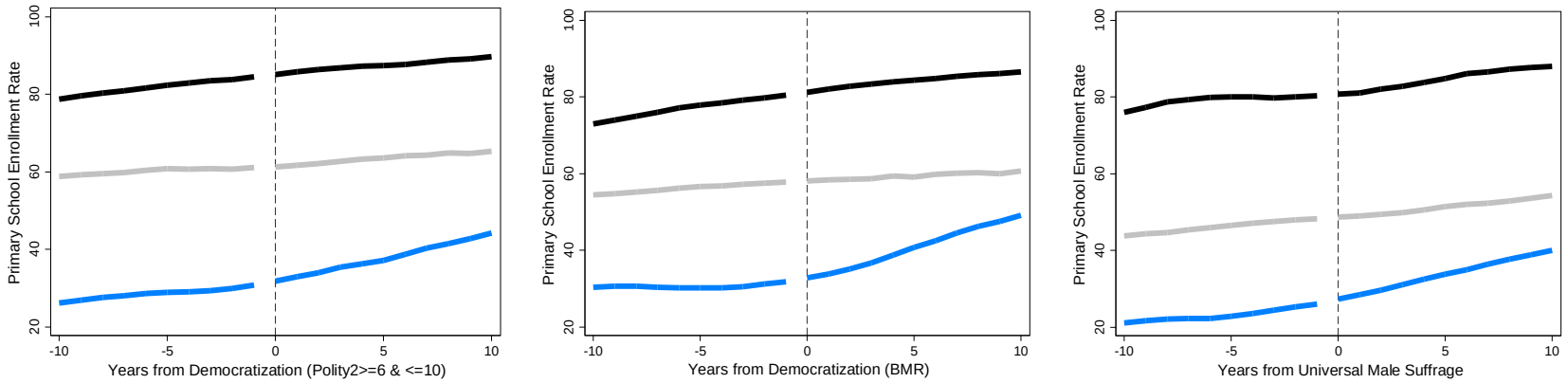
NOTE: Results based on a linear DD model with country and year fixed effects similar to the one given by Equation 1 but allowing for heterogeneous treatment effects depending on the level of primary school enrollment rates prior to democratization. OLS estimates (Panel A) and Tobit estimates (Panel B). Standard errors clustered at the country level in parenthesis. Stars denote statistical significance at the *0.05 and **0.01 level.
SOURCES: Lee and Lee (2016) for enrollment rates; Polity Project, BMR and Przeworski et al. (2013) for timing of democratization.

To assess the possibility that the null effects of democracy on primary education provision are explained by a median voter framework, I re-estimate equation 1 for the full period allowing for heterogeneous treatment effects of democracy depending on whether or not a majority of children were enrolled in primary school before democratization. Panel A of Table 1 reports OLS results. Panel B reports Tobit results that correct for the possibility of sample selection bias due to censored (upward-bounded) data on the dependent variable.

The results provide some support for median voter theories. In countries where most children lacked access to primary education prior to democratization, a transition to

democracy leads to increases in primary school enrollment rates based on two of three measures of democracy (BMR and PIPE); and leads to declines in the provision of secondary and tertiary education. However, in most democratizing countries, most children were enrolled in primary education before democracy emerged. Here, democratization does not lead to an increase in primary school enrollment rates based on two of three measures of democracy (Polity and BMR), and leads to increased enrollment in secondary education. Figure 8 provides visual evidence of these effects.

Figure 8. Heterogeneous effect of democracy depending on whether a majority of children already had access to primary schooling before democratization



NOTE: Average primary school enrollment rate in democratizing countries where a majority of children were enrolled in primary education before democratization (black line); democratizing countries where a minority of children were enrolled in primary education before democratization (light blue); and in control countries (grey).
SOURCES: Lee and Lee (2016) for enrollment rates; Polity Project, BMR and Przeworski et al. (2013) for timing of democratization.

Summary & Implications

This paper challenges the centrality that has been given to democracy in explanations of why some governments provide more primary education than others. Using new historical datasets and methods that address common internal and external validity limitations of past studies, the paper finds that: (1) state-controlled primary education systems emerged about a century before democracy; (2) in most countries, a majority of children were already enrolled in primary schools under non-democratic regimes; and (3) democratization had little or no impact on primary school enrollment rates.

A question that emerges for future research is whether these conclusions hold when other measures of the size of education systems are employed as dependent variables. In analyses that employ primary education spending data from Stasavage (2005a), I show that, once country and year fixed effects are accounted for, the conclusion that electoral competition in Africa led to increases in spending no longer holds (Figure A8). However, further data collection efforts are needed to cover more regions and years. Additionally, while the focus of this paper, as that of past studies, is on the quantity of education, future research should complement this literature by examining whether democratization leads to an improvement in educational quality. Addressing this question requires extensive data collection efforts and the identification and validation of appropriate historical measures of quality, since comparable test score data measuring student skills in a reasonable number of countries are only available from the mid-1990s onward. Understanding how democracy shapes not just the quantity but also the quality of education is necessary before we can make a conclusion about how democracy impacts economic growth via the promotion of human capital accumulation.

The paper has implications for several literatures and debates. The most obvious contribution is to a sizable and growing literature on the political economy and comparative politics of education provision, where the view has prevailed that the

spread of democracy played a leading role in explaining the expansion of primary schooling. By addressing methodological issues that have led to overestimating the causal impact of democracy, and placing the magnitude of democracy's impact on school enrollment rates in historical perspective, the findings presented here show that the spread of democracy did not play a meaningful role in the global expansion of access to primary education.

Further, the paper provides support for a conceptualization of basic education that acknowledges schools' ability to influence skills *and* values, with implications for the large literatures on the political economy of development and the determinants of public goods provision. These literatures usually conceptualize schools as one of many publicly-provided "goods" or "services" that increase individual wellbeing. This paper suggests the need for caution around this interpretation of what schools do. First, it draws on recent research and presents evidence showing that, empirically, schooling and skills often fail to go hand in hand. Second, it proposes that, theoretically, schools may not only increase ordinary citizens' wellbeing but also help political elites advance their own goals of industrialization, the inculcation of loyalty, and nation-building. This reconceptualization of schools illuminates why it is not obvious that democracies will provide more schooling than autocracies; and highlights the need to develop political economy theories that distinguish the incentive to increase the quantity of schooling from the incentive to improve its quality.

The results also speak to the question of whether democracies are pro-poor or not. Capture of the democratic policymaking process by the upper classes is a common explanation for why the enfranchisement of the poor often does not translate into pro-poor policies (Ross 2006; Ansell and Samuels 2014; Albertus and Menaldo 2014). In the case of education provision, however, the analysis suggests that democracies are responsive to what a majority of the population wants or needs, but that they often

respond to the majority to the detriment of the poorest in society. When the majority lacks access to primary schooling, democratization leads to increased primary education provision. However, when a majority of the population already had access to primary schooling before democratization, democratic governments expand access to secondary schooling, and do not expand primary education even if a sizable portion of the poor still lacks access to it.

It is important to acknowledge that, despite these findings, democracies may still promote more human development than autocracies. If we agree with Sen (1999) that human development entails the ability to freely determine how we want to live our lives, and that this requires certain political and civil rights that can only be present under democratic regimes, then almost by definition democracy will be preferable to non-democratic regimes in promoting human development—even if it does not lead to the expansion of access to primary schooling.

Finally, complementing recent calls to make education central in comparative politics (Busemeyer and Trampusch 2011; Gift and Wibbels 2014; Hoffman 2015), this paper identifies a central and previously underappreciated puzzle: What prompted autocrats to make such extensive efforts to provide mass education? Some recent studies that address this question suggest that external threats to territorial integrity (Darden and Mylonas 2015), the presence of widespread domestic conflict (Paglayan 2017), and autocratic rulers' leftist ideologies, including communism (Manzano 2017), all catalyzed autocrats' incentives to provide mass education. The findings presented here underscore that expanding this line of inquiry is crucial for understanding what led to the global expansion of primary schooling. The rise and spread of primary education systems took place mostly under non-democratic regimes.

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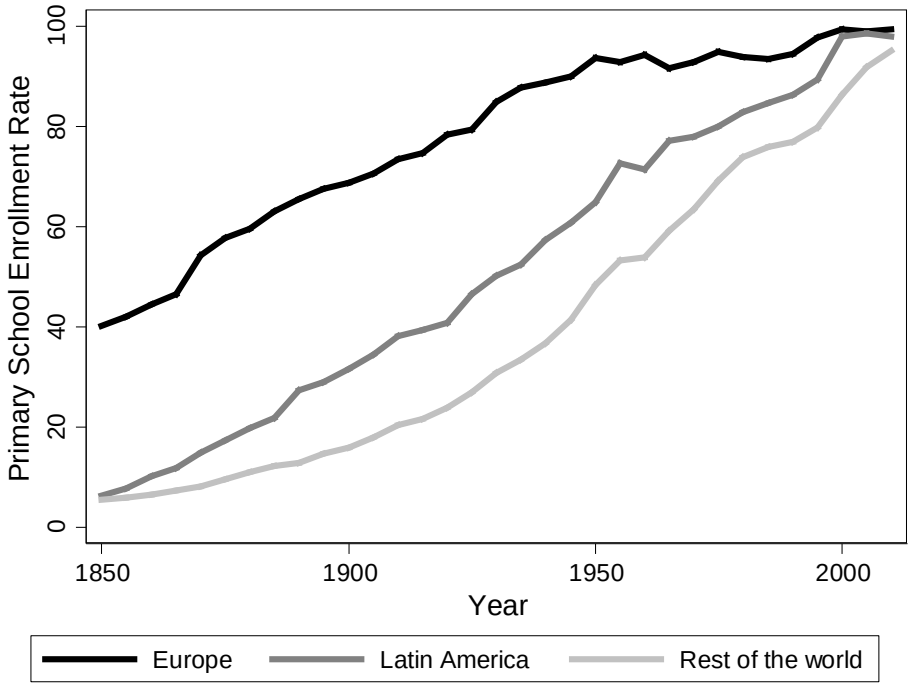
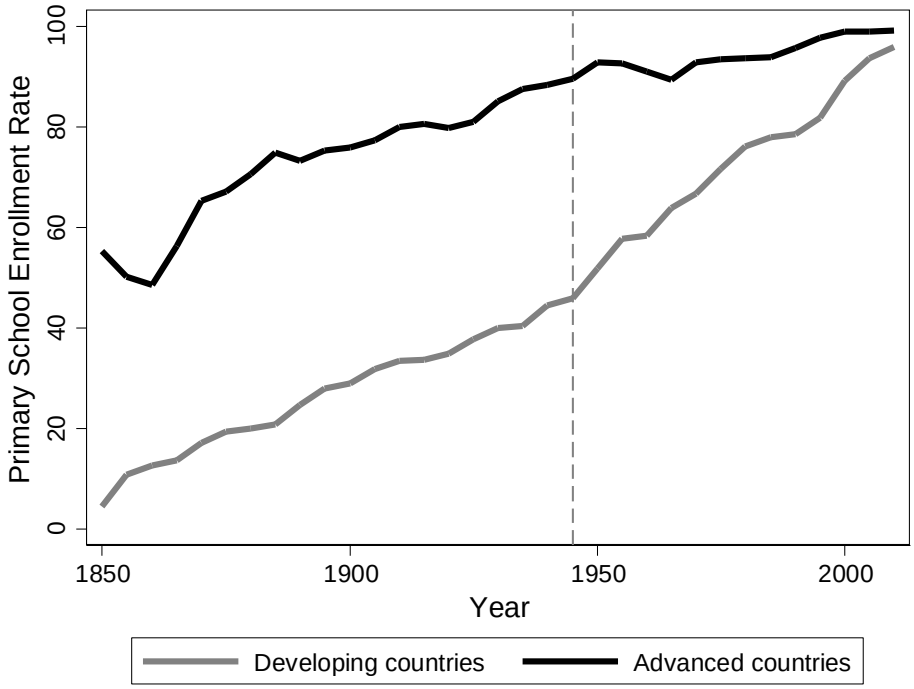
Online Appendix A

Figure A1. Average primary school enrollment rate in Europe, Latin America, and the rest of the world, 1850-2010



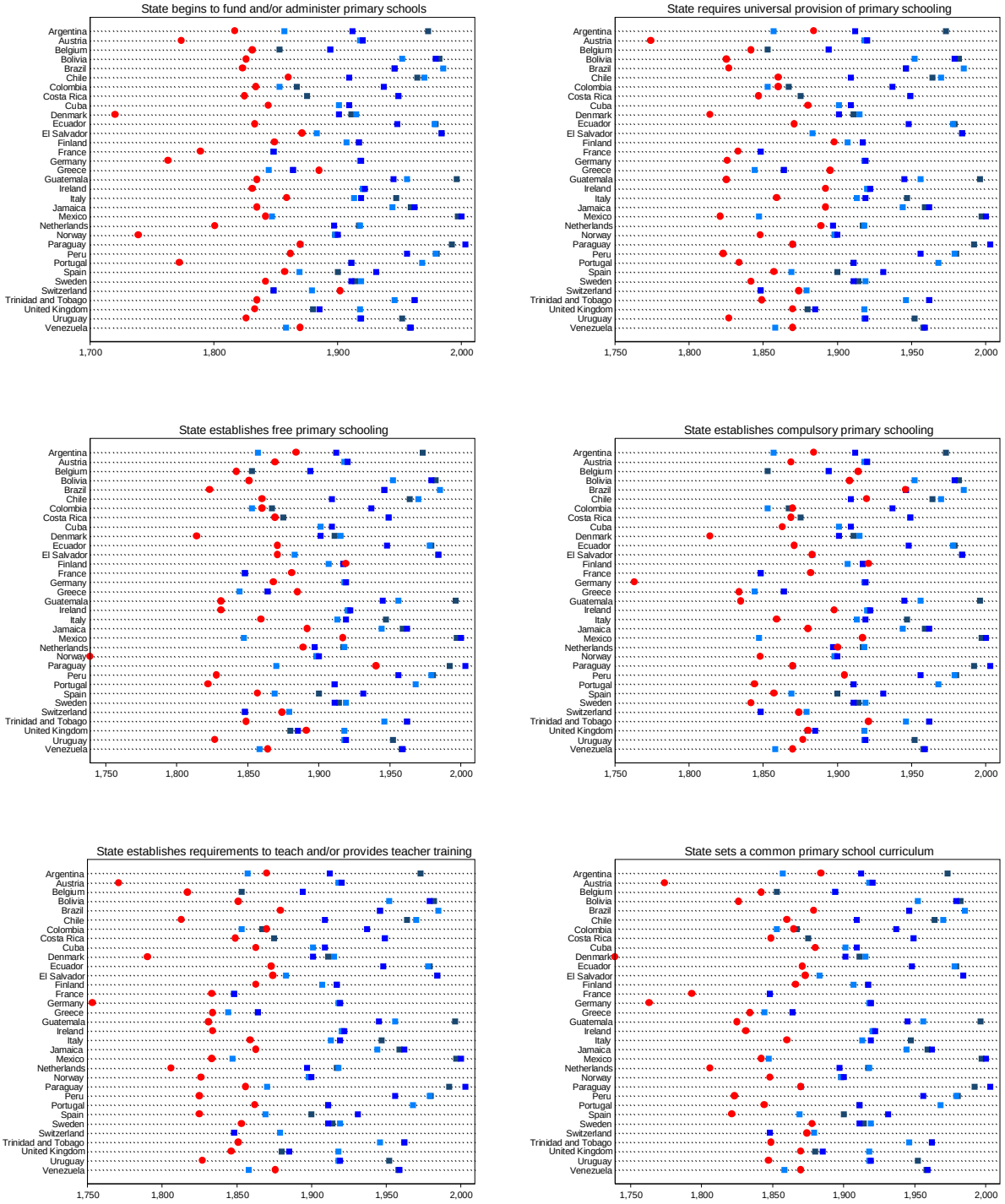
SOURCE: Author based on data from Lee & Lee (2016).

Figure A2. Average primary school enrollment rate in developing and OECD countries, before and after 1945



SOURCE: Author based on data from Lee & Lee (2016).

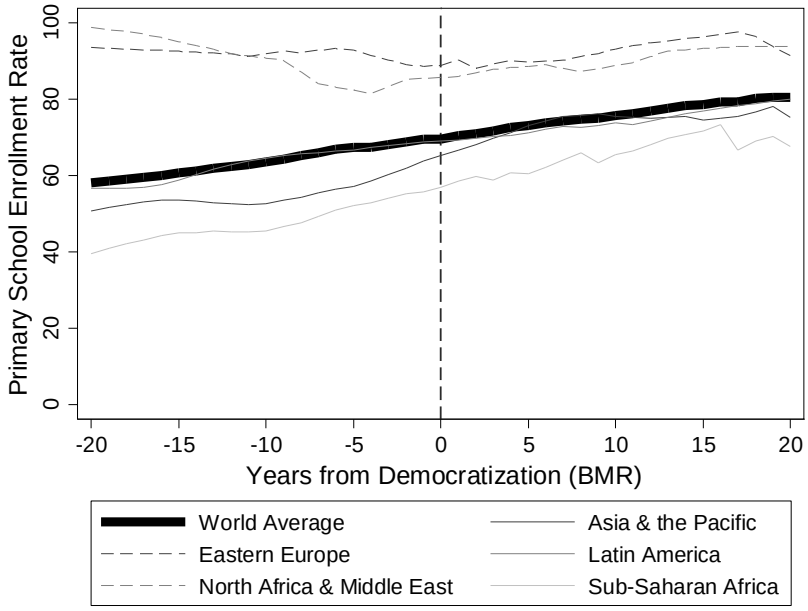
Figure A3. Timing of Different Types of State Intervention in Primary Education vs. Timing of Democratization



NOTE & SOURCES: Red dots indicate the first year in which the state intervened in primary education in the specific way indicated by the graph title (source: author; see Online Appendix B); light blue squares indicate the timing of universal male suffrage (source: PIPE Dataset); dark blue and navy blue squares indicate the timing of the first transition to democracy (sources: Boix-Miller-Rosato and Polity Project, respectively)

Figure A4. Primary School Enrollment Rate Before and After Democratization, World and Regional Means, 1820-2010 – Additional measures of democracy

Panel A: independent variable is democracy as measured by BMR



Panel B: independent variable is universal male suffrage as measured by PIPE

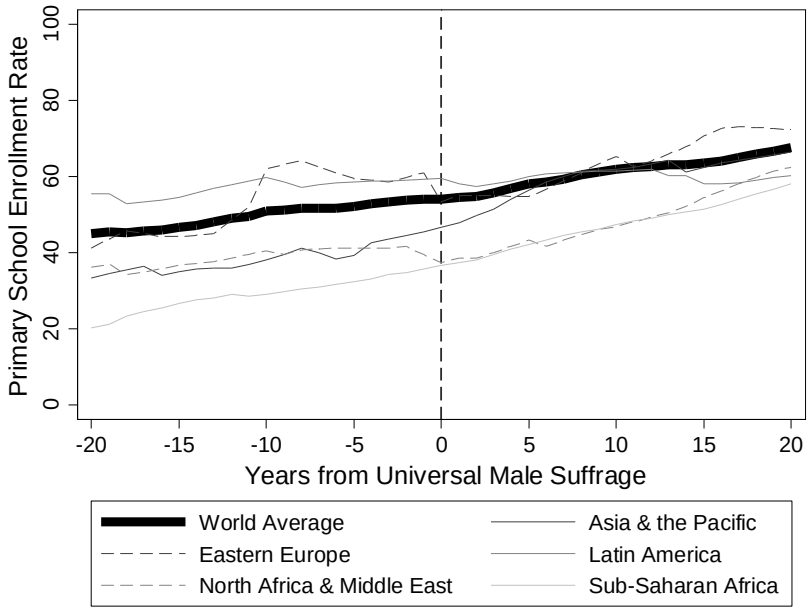
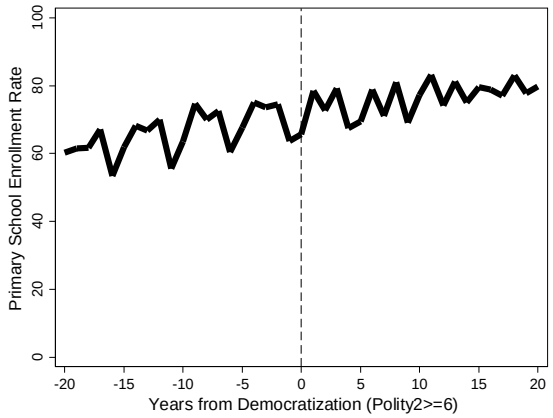
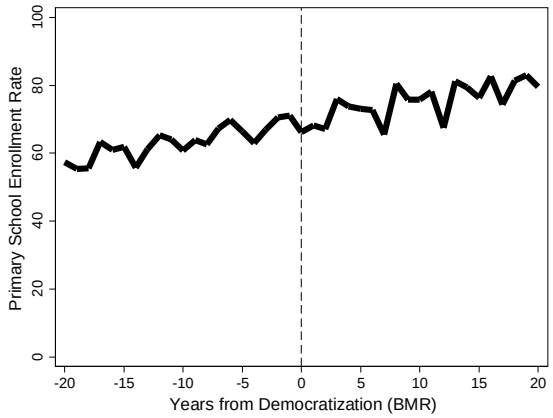


Figure A5. Primary School Enrollment Rate Before and After Democratization, World Mean, 1820-2010 – Non-interpolated (i.e. quinquennial) data

Panel A: independent variable is binary measure of democracy (polity2 between 6 & 10)



Panel B: independent variable is democracy as measured by BMR



Panel C: independent variable is universal male suffrage as measured by PIPE

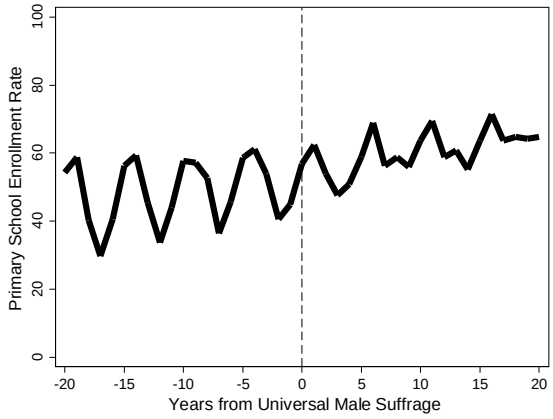
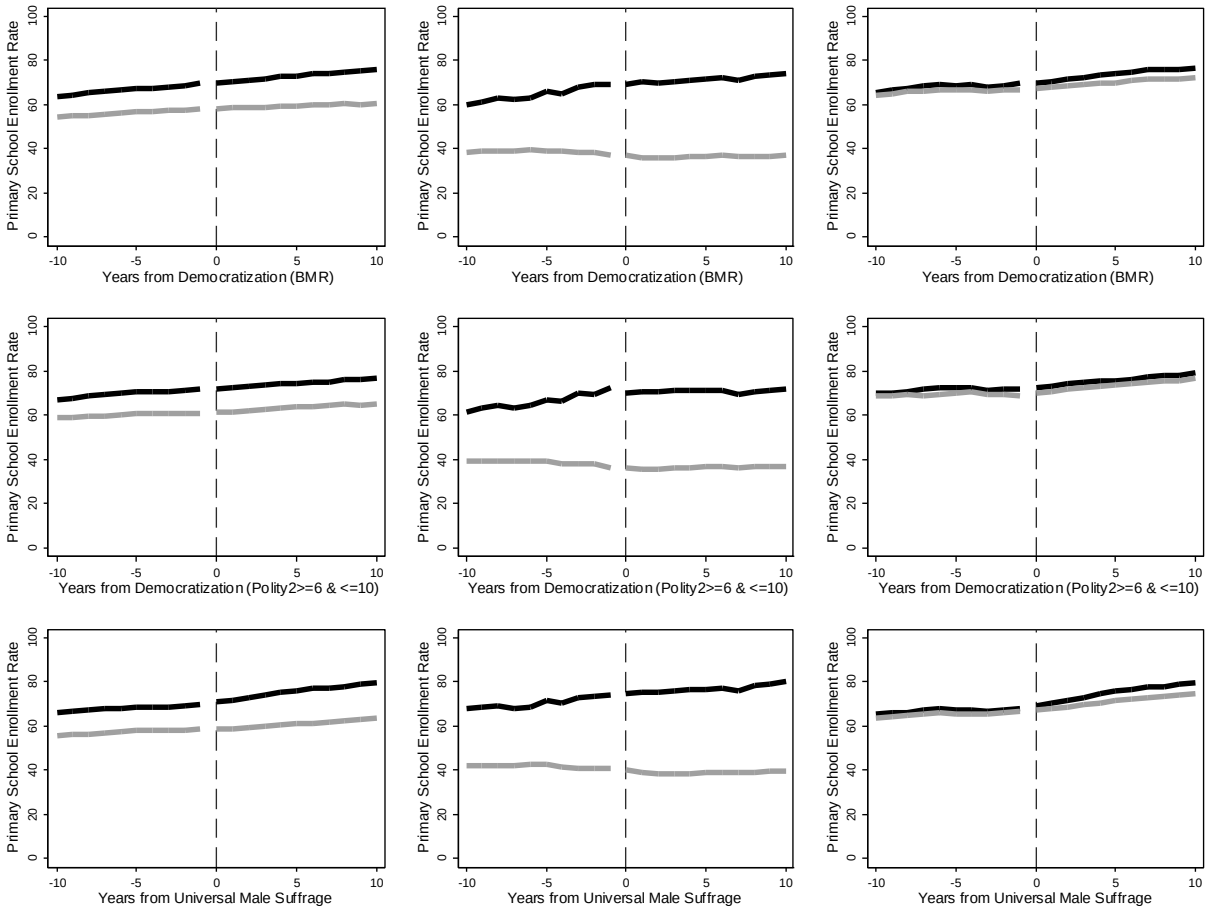


Figure A6. Average Primary School Enrollment Rates Before and After Democratization, Treated and Control Group

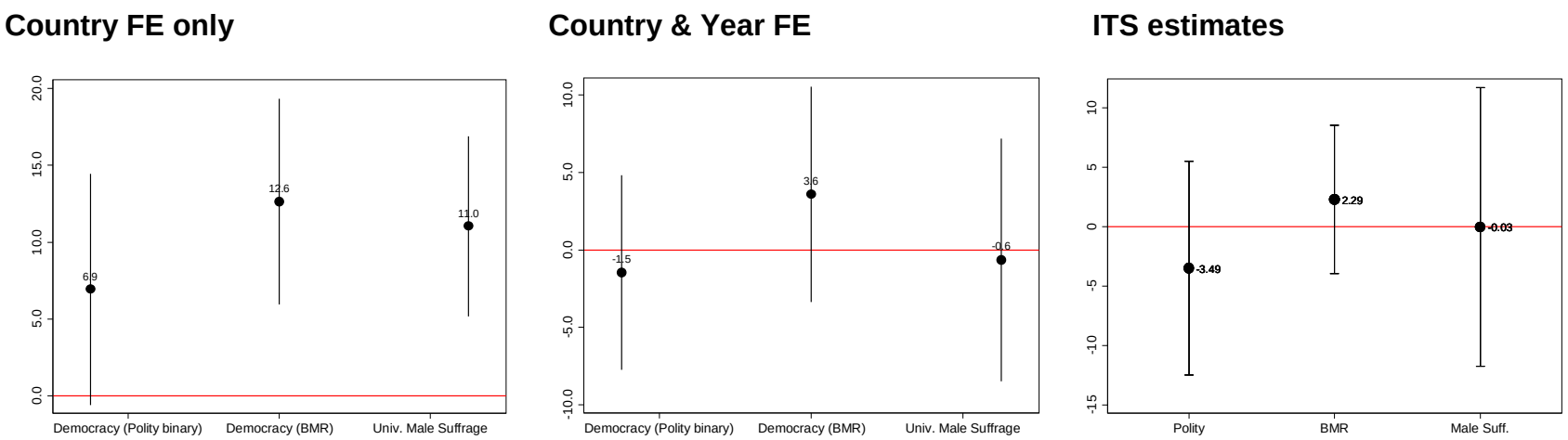
Panel A: 1820-2010 *Panel B1: 1820-1945* *Panel B2: 1945-2010*



NOTE: Average country-level primary school enrollment rates before and after: democratization as defined by BMR (row 1); democratization as defined by Polity IV (row 2); and introduction of universal male suffrage laws (row 3).

SOURCE: Author for primary school enrollment rates; Przeworski et al. (2013) and Boix, Miller and Rosato (2012) for political voice as measured in Panels A and B, respectively.

Figure A7. Democracy's impact on primary school enrollment rates in 1820-1945 – Using an original longitudinal dataset of primary school enrollment rates in Europe and Latin America



SOURCES: Author for enrollment rates (see Online Appendix C); Polity Project, BMR, and Przeworski et al. (2013) for timing of democratization.

Figure A8. Effect of multiparty elections on public spending on primary education in Africa, 1980-1996 – Using spending data from Stasavage (2005a)

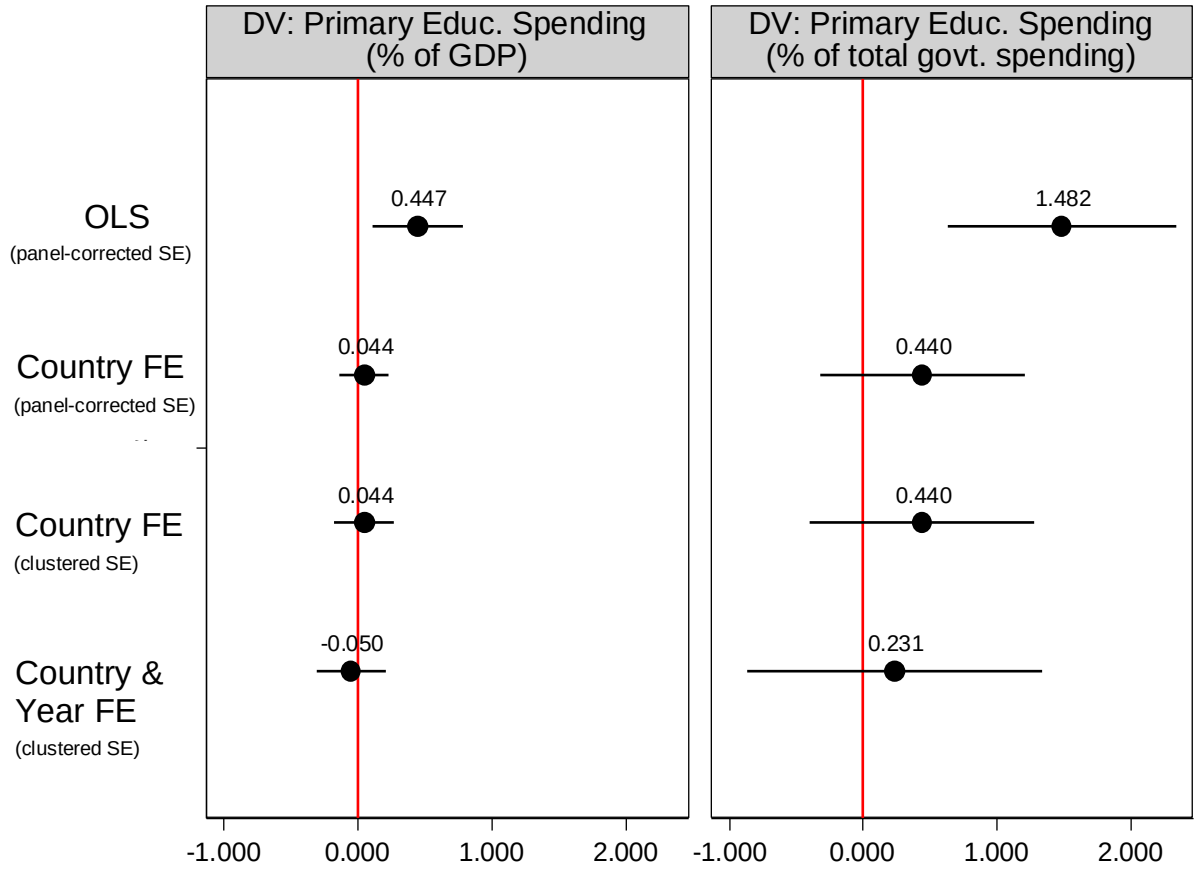


Figure A9. Effect of Democratization on Primary School Enrollment Rates, 1945-2010 – By Region – Visual evidence of primary school enrollment rates in treated (**black**) and control (**grey**) groups suggests democracy had a positive effect only in Asia. In all other regions—including Sub-Saharan Africa—the rapid expansion of primary schooling in recent decades cannot be attributed to the move towards democracy—and for Latin America, visual evidence suggests that democracy had a negative impact on enrollment. See also Tables A4.

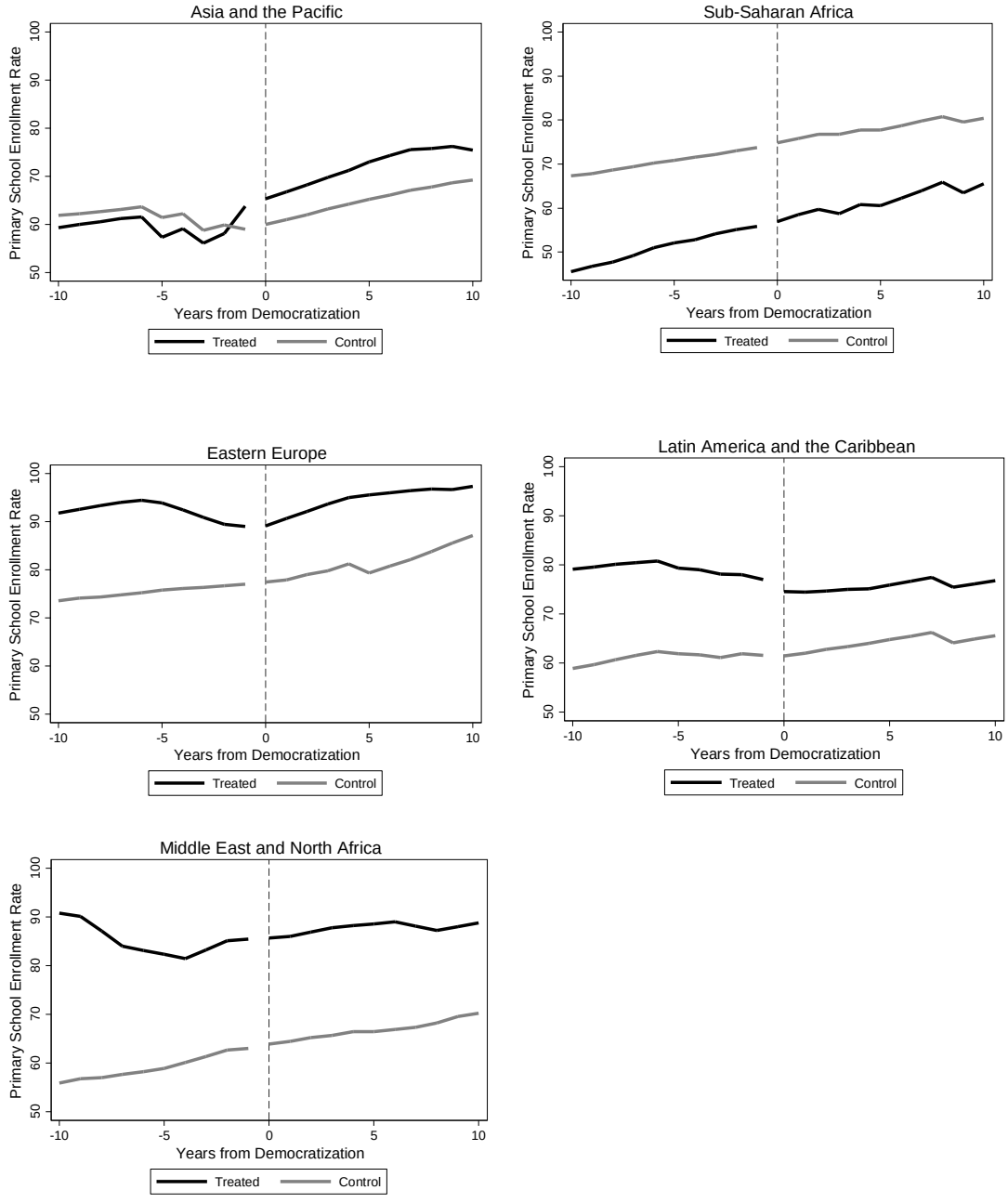
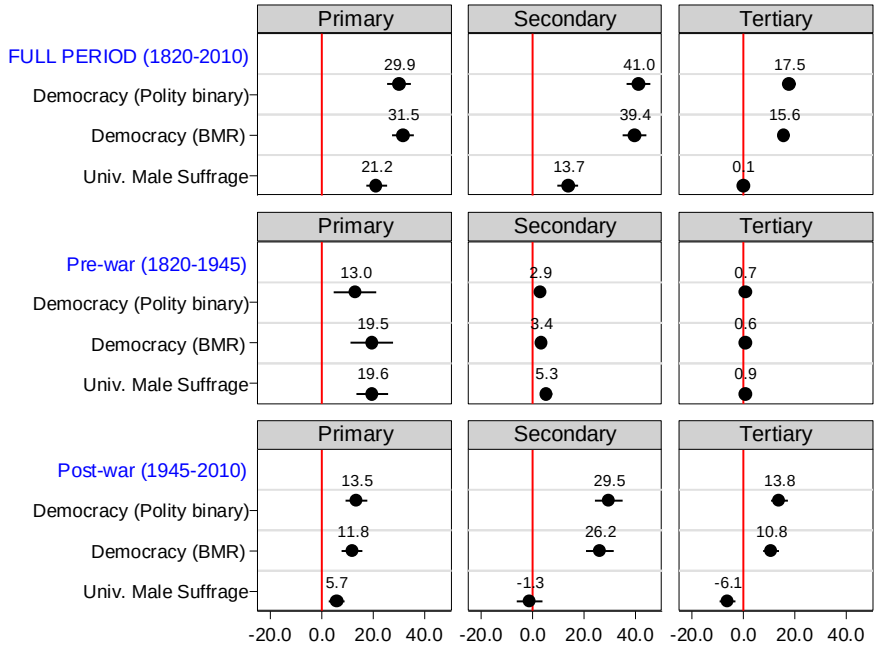
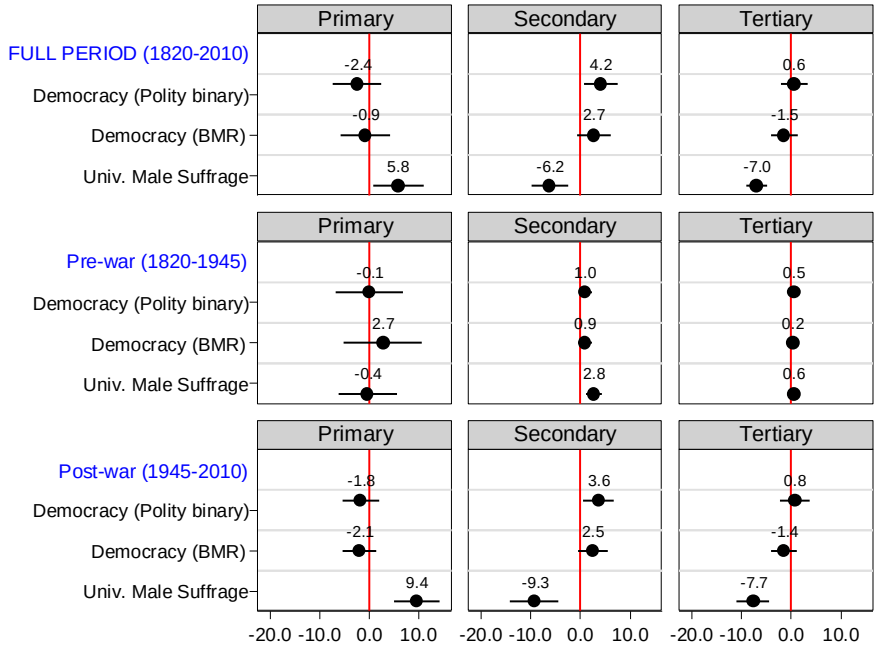


Figure A10. Estimated effect of democratization on primary, secondary and tertiary education enrollment rates

Panel A: Country fixed effects, no year fixed effects



Panel B: Country and year fixed effects



Panel C: Country and year fixed effects, and country-specific linear time trends

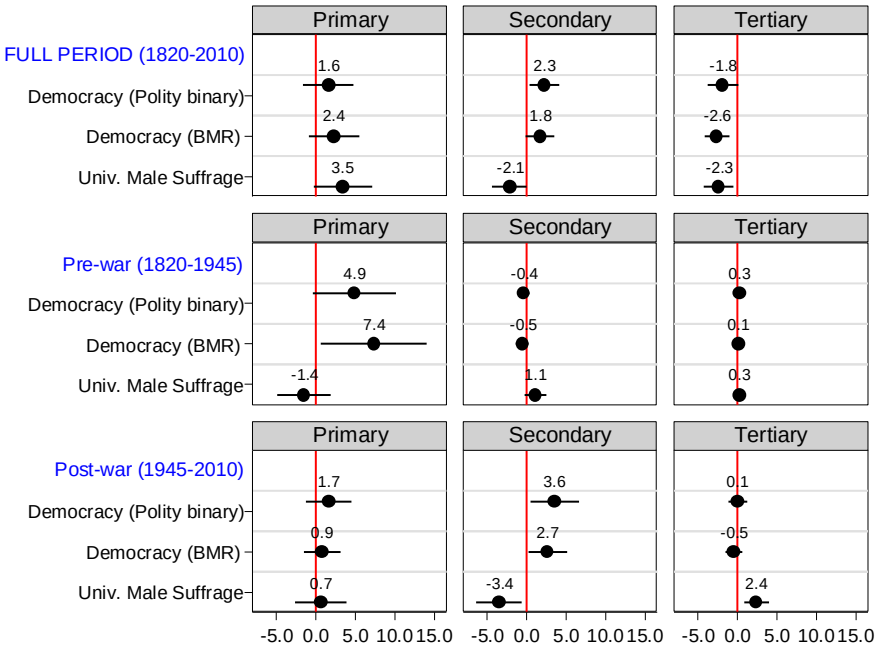


Table A1. Methodological characteristics of past peer-reviewed publications

Peer-reviewed publication *	Internal validity		External validity	
	Country fixed effects?	Year fixed effects?	Global geographic coverage?	Pre-1960 data?
Lindert (2002, JEH)	No	No	No	Yes
Mariscal & Sokoloff (2000, *Hoover Institution Press*)	No	No	No (the Americas only)	Yes
Brown (1999, *PRQ*)	No	No	Yes	No
Brown & Hunter (1999, *APSR*)	Yes (fn. 24)	No	No (Latin America only)	No
Brown & Hunter (2004, *CPS*)	Yes	No	No (Latin America only)	No
Stasavage (2005a, *AJPS*)	Yes	No	No (Africa only)	No
Kosack (2013, *BJPS*)	Yes (implicitly)	No	No (Brazil, Ghana, and Taiwan only)	Yes
Harding & Stasavage (2014, *JoP*)	Yes	No	No (Africa only)	No
Lake & Baum (2001, *CPS*)	Yes	No	Yes	No
Baum & Lake (2003, *AJPS*)	Yes	No	Yes	No
Ansell (2008, *IO*)	Yes	No	Yes	No
Ansell (2010, Cambridge University Press)	Yes	No	Yes	No
Lott (1999, *JPE*)	Yes	Yes	Yes	No
Lindert (2004, Cambridge University Press)	Yes	Yes	No (OECD only)	Yes
Avelino, Brown & Hunter (2004, *AJPS*)	Yes	Yes	No (Latin America only)	No

*Peer-reviewed publications that include school enrollment rates and/or education expenditures among the dependent variables. *AJPS=American Journal of Political Science; APSR=American Political Science Review; BJPS=British Journal of Political Science; CPS=Comparative Political Studies; IO=International Organization; JEH=Journal of Economic History; JoP=Journal of Politics; PRQ=Political Research Quarterly; JPE=Journal of Political Economy*

Table A2. DD estimate of the effect of democracy on primary school enrollment rates – using Tobit to account for the presence of a censored dependent variable

	Full period (1820-2010)	Postwar (1945-2010)
Democracy (Polity2 between 6 and 10)	1.63	1.60
	(1.6256)	(1.3733)
Democracy (BMR)	2.36	0.69
	(1.6208)	(1.1718)
Universal male suffrage	3.48	0.34
	(1.8679)	(1.6539)

NOTE: Tobit estimates for a model with country and year fixed effects and country-specific linear time trends. Dependent variable is primary school enrollment rates (from Lee and Lee 2016). Standard errors clustered at country level in parenthesis. Stars denote statistical significance at *0.05 and **0.01 level.

Table A3. Effect of changes in regime type using a continuous independent variable

	DV: Primary School Enrollment Rate				
	1820-2010	1820-1945		1945-2010	1970-2010
	Lee & Lee enrollment data	Lee & Lee enrollment data	Original enrollment data	Lee & Lee enrollment data	Lee & Lee enrollment data
With country fixed effects only					
polity2	1.61 **	0.80 *	0.18	0.84 **	0.84 **
	(0.2059)	(0.3243)	(0.1902)	(0.1937)	(0.1765)
With country and year fixed effects					
polity2	0.00	0.15	-0.26	-0.03	0.11
	(0.1754)	(0.2656)	(0.1642)	(0.1500)	(0.1581)

NOTE & SOURCES: Estimated effect of democracy as measured by *polity2* scores, which range from -10 to 10. Polity2 scores are from the Polity Project. Scores between 6 and 10 denote that a country is democratic; between -10 and -6, autocratic, and between -5 and 5, a hybrid or anocracy. Stars denote statistical significance at *0.05 and *0.01 level.

Table A4. Effect of Democratization on Primary School Enrollment Rates, 1945-2010 – By Region – A linear difference-in-differences model that allows for heterogeneous treatment effects of democracy by region suggests that the difference between Asia and other regions is not statistically significant (Panel B). See also Figure A9.

	Panel A		*Panel B*	
Democracy	3.67		2.56	
	(2.8061)		(3.0681)	
Democracy x Asia			6.10	
			(7.6800)	
Constant	71.63	**	72.82	**
	(2.6761)		(2.8966)	
No. of clusters	109		109	
Country fixed effects	Yes		Yes	
Year fixed effects	Yes		Yes	

NOTES: Panel A shows results of a linear difference-in-differences model with country and year fixed effects: $Y_{i,t} = \gamma_i + \phi_t + \beta_1 Democracy_{i,t} + \epsilon_{i,t}$. $Democracy_{i,t}$ takes a value of 1 for treated countries in the post-treatment period; and a value of 0 otherwise. Panel B shows results of a linear difference-in-differences model that allows for heterogeneous treatment effects of democracy for Asian and non-Asian countries: $Y_{i,t} = \gamma_i + \phi_t + \beta_1 Democracy_{i,t} + \beta_2 Democracy_{i,t} x Asia_i + \epsilon_{i,t}$. $Asia_i$ takes a value of 1 if country i is in Asia, and a value of 0 otherwise. Standards errors clustered at the country level in parenthesis. Enrollment rates are the number of students enrolled in primary education as a percentage of the school-age population. Stars denote statistical significance at the *0.05 and **0.001 level.

SOURCE: Lee and Lee (2016) for primary school enrollment rates; BMR for timing of democratization.