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BIG BRICS, WEAK FOUNDATIONS:
THE BEGINNING OF PUBLIC ELEMENTARY EDUCATION IN BRAZIL, RUSSIA, INDIA, AND CHINA

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Big BRICs, Weak Foundations: The Beginning of Public Elementary Education in Brazil,
Russia, India, and China

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ABSTRACT

Our paper provides a comparative perspective on the development of public primary education in four of the largest developing economies circa 1910: Brazil, Russia, India and China (BRIC). These four countries encompassed more than 50 percent of the world's population in 1910, but remarkably few of their citizens attended any school by the early 20th century. We present new, comparable data on school inputs and outputs for BRIC drawn from contemporary surveys and government documents. Recent studies emphasize the importance of political decentralization, and relatively broad political voice for the early spread of public primary education in developed economies. We identify the former and the lack of the latter to be important in the context of BRIC, but we also outline how other factors such as factor endowments, colonialism, serfdom, and, especially, the characteristics of the political and economic elite help explain the low achievement levels of these four countries and the incredible amount of heterogeneity within each of them.

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An online appendix is available at:
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1. Introduction

Economists have argued that the “Great Divergence” between the developed and underdeveloped world in the 19th century was reinforced – if not caused – by rapid improvements in schooling that occurred in the advanced economies. For example, the leading positions of the US and German economies in 1900 have been linked to their highly developed education systems (Goldin and Katz, 2008; and Becker et al., 2009). Few nations in the last century have undergone growth convergence without *also* experiencing sustained increases in human capital investment. Therefore, explaining differences in economic development today may hinge on understanding why most societies *failed* to develop adequate primary education in the late 19th and early 20th centuries.

This challenge was laid down by Richard Easterlin in “Why isn’t the Whole World Developed?” his famous 1980 presidential address to the Economic History Association (Easterlin, 1981). Thirty years later, our paper takes up this challenge. Unlike most comparative research on the economic history of education, which focuses on differences among developed societies, or between developed and developing countries, our paper investigates the limited provision of public primary schooling in four of the largest *developing* economies at the turn of the 20th century: Brazil, Russia, India and China (BRIC).¹ These countries comprised more than 50 percent of the world’s population in 1910, but only 12, 20, 8, and 4 percent of school-age children in Brazil, Russia, India and China, respectively, were enrolled in primary school, compared to more than 80 percent in Germany, UK and the USA.² A comparative study of the

¹ Important recent works that do take a broader comparative perspective on the emergence of mass schooling include Frankema (2010) and Lindert (2004 and 2010).

² See Table 1. Note that Lindert’s figures differ from the ones we provide. This stems from different geographic units he considers, as well as slightly different numbers for the school-age populations.

slow emergence of public schooling in BRIC offers a valuable contrast to works that focus on more advanced nations.

Collectively, these four countries enjoy recognition today for their common status as fast growing emerging economies. But their relevance for studying the origins of public primary education in the late 19th and early 20th century lies in their level of comparative economic *and* political underdevelopment, the large scale and variability of their politics and geography, and the availability of previously unexplored data on basic schooling. The main contribution of our paper lies in presenting an analytical framework to understand new empirical evidence on the variation of educational development within and between these four different societies.

Investigating the heterogeneous experiences of the four countries is useful not because of the BRIC acronym's modern connotations, but rather because it broadens the discussion of Easterlin's important question. We also view the BRIC experiences as representative of the majority of the world that had limited publically provided schooling by the early 20th century.

Conditions in BRIC were fundamentally different from the more educationally advanced countries by the late 19th century. Clearly, high incomes and structural economic changes increased the demand for schooling in the United States and Germany, but broad political participation also played an important complementary role in these and other successful cases of early publicly financed primary education (Lindert, 2004; and Gallego 2010). In more advanced economies, the spread of primary education typically entailed a shift towards more progressive tax policies and away from the private provision of schooling. Granting larger shares of the population formal voice over education and fiscal policies prevented elites from blocking the expansion of publically funded mass schooling. The impact of democracy was also reinforced by the relative homogeneity of the populations (in terms of income, ethnicity, or religion), which

enabled majorities to coalesce around support for public schools (Go and Lindert, 2010; and Goldin and Katz, 2008).

Unlike these successful cases, BRIC was less developed, had more restricted political participation, and, exhibited low levels of public schooling despite decentralized political structures. As with most of the world in the early 20th century, these developing economies exhibited low per capita incomes, which limited private and public funding for primary schooling. These primarily agrarian economies may have had limited demand for high skilled labor, and rural households may have faced substantial opportunity costs to educating their children.³ But even accounting for low incomes and potentially low demand for education, we argue that a political economy framework involving public sector capture by local elites helps explain not only the limited overall supply of schooling in BRIC but also the variation within and between the four countries.

In the face of weak central authorities, decentralization of education led to the capture of local public resources and political institutions by elites in all four societies. Resources were often funneled towards private or secondary education catering to the elites, and poor communities were forced to rely on scarce public funds or voluntary contributions to finance primary schools. However, we do not find that a unified elite was always trying to block expenditures on education, because decentralization and subsequent local capture did not always constrain the development of primary schooling. In more commercial, higher-growth areas, where there was more demand for education, many elites supported the expansion of mass schooling because they needed skilled labor and could more easily afford the resulting taxes. In

³.Schultz (1971 and 1983) and others have argued for relatively high returns to literacy and basic numeracy in developing agricultural economies. We acknowledge that this may have been true to some degree within BRIC, but data limitations prevent us from explicitly comparing the returns to education in our four societies. We also note that the nature of child labor might have affected demand for basic schooling in BRIC.

other areas of BRIC, elites supported public education because they perceived direct political benefits. Finally, in all four cases, changes in the composition of, and mobility into and out of, the elites – whether defined by wealth, status, or political power – influenced the support for publically financed primary education.

The composition and policy preferences of the local elite varied across and within BRIC according to economic conditions, barriers to entry into elite circles and the (endogenous) progressiveness of the fiscal structure. In applying a common political economy framework, a key contribution of our study is to characterize the heterogeneity of the elite (or the economic and political conditions they faced) within and across each country and relate how such variation accounts for the differences in educational outcomes. We also show how the mechanisms of elite control of education were delineated by the structure of central – local government relations. From Brazil's adoption of federalism in the 1891 Constitution, to the deterioration of central authority in China in the late-Qing and the Republican periods, to British colonialism in India, the national governments in our countries generally exhibited little substantive involvement in basic education. Only in the case of Tsarist and Soviet Russia after 1900 were central authorities directly active in subsidizing the local provision of primary schooling.

We develop our argument in three steps. First, we present and discuss data on primary school enrollment rates and expenditure levels for BRIC and a set of comparison countries, circa 1910. Drawing on a variety of unexplored contemporary publications and official sources, we move beyond simple cross-country comparisons to also report and comment upon within-country variation in BRIC. In the second step, we outline a simple theoretical framework explaining how the provision of public education in developing societies might be subject to capture by local elites. A key insight is that heterogeneity among elites is an important factor behind variation in

schooling, especially in the contexts of decentralized policymaking and imperfect local democracy that characterized all of our cases. The third step of the analysis applies this theoretical framework to analyze the early development of public primary education in Brazil, Russia, India, and China, roughly over the period 1880-1930. While acknowledging the negative effects of low income levels, we show how variation in income, economic and political conditions, and the social status of the elites interacted with decentralized fiscal policies across the four countries to influence the provision of public primary education.

2. Comparative Perspective

In Table 1 we present data on primary education from BRIC and a set of comparison countries around 1910. We include high-income countries such as England, Germany, and the United States; middle-income European countries such as Italy and Spain; Japan – the leading economy in Asia at the time; other middle-income countries such as South Africa, Uruguay, Chile, and Mexico; and several low-income countries like Peru, Jamaica, and Sri Lanka. The education data for BRIC are from contemporary surveys, government reports, and other original materials, while the data for the other countries come from the Commissioner of the U.S. Department of Education (United States, 1910).⁴ We match these indicators to Maddison’s (2006) per capita income figures and to Lindert’s (2004) enrollment rates for comparison.

[Insert Table 1 about here]

Table 1 starkly reveals the low education levels and expenditures in BRIC relative to the rest of the world. Estimated primary school enrollment rates averaged 8.3 percent, well below

⁴ There are a variety of other sources on education attainment and investments that cover our time period (e.g. Frankema, 2009; Lindert, 2004; and Morrison and Martin, 2009), but we focus on the sources and countries documented in Tables 1-3 because we view them to be representative. Extending the sample in Table 1 in different ways does not alter the points we are making here.

less developed parts of Europe (Italy – 38 percent, Spain – 46 percent), middle-income countries in Latin America (Chile – 28 percent, Mexico – 20 percent), and even poorer countries such as Jamaica (41 percent) and Peru (24 percent).⁵ The poverty of BRICs was clearly an important factor driving the low enrollment rates, as GDP per capita averaged a mere \$762 for BRIC in 1913 (in 1990 PPP-adjusted dollars). But income alone cannot fully account for the observed differences in educational performance. A graph of enrollment rates against income in Figure 1 suggests that primary school enrollment rates in BRIC were below what would be expected given their income levels.⁶ Although we provide evidence only for the 1910 cross-section, this picture is representative of the late 19th and early 20th centuries.

[Insert Figure 1 about here]

We find similar patterns for primary school expenditures. BRIC averaged \$0.6 per school age child (nominal US\$, c1910), compared to over \$20 in the United States and over \$1 in Japan and Mexico. Russia was the leader among BRICs, spending \$2.80 per child, followed by Brazil at almost \$1.32. India and China – two of the three poorest countries in our sample – spent only \$0.10 and \$0.16 respectively.

Beyond per capita expenditures or enrollment rates, we think it is valuable to look at primary school expenditures per pupil as a measure of how elitist the education system was within BRIC. On average, BRIC spent \$3.6 per enrolled student, *higher* than Spain, Japan, and

⁵ We measure enrollment rates as the number of enrolled children in public primary schools over the total school-age population, which we take from censuses and other sources. “Primary students” refers to students in surveyed institutions of basic or elementary education below secondary schools. The original data gatherers may have missed some schools, but we are confident that our measures for BRIC are improvements on the existing literature. Finally, note that the data for BRIC are meant to cover *public* primary schooling and expenditures only (i.e. schooling financed out of formal fiscal resources), but other sample countries may include some private schooling. To a limited degree, we take up the issue of private schooling in the case studies.

⁶ The relatively low provision of schooling in BRIC persists even if the sample of countries in Table 1 is extended to include other observations available in Lindert (2004). Additional evidence that income cannot explain all of the variation in schooling *within* Brazil, Russia, India, and China may be found in Martinez-Fritscher et al., 2010; Nafziger, “Political,” 2011; Chaudhary, 2009 and 2010; and Bai and Kung, 2011.

close to the level of expenditures in Italy. Governments in BRIC spent significant resources on the very few students that actually attended any school. In most of our cases, the children of elites or of upper middle classes close to the ruling elites were significantly overrepresented in publically financed primary schools. For instance, in the case of Brazil, mostly white children attended school and, in India, education catered largely to the privileged upper castes.

The patterns in school size and teachers per school age population further reinforce the evidence on spending. Students in BRIC attended schools of a similar or in some cases even smaller size (31 students per teacher) than in developed parts of the world.⁷ School size averaged 34 students in the United States and the UK and 48 students in Japan. Yet, there were very few teachers available to serve the school-age population in BRIC with only 3.7 teachers per 1000 children of school age compared to 28 in the United States, 10 in Japan and 4.8 in Bolivia. Table 1 broadly suggests the educational system in BRIC favored the very small number of students who were able to attend school compared to the vast majority of the school age population that was not enrolled.

In addition to the similarities and differences in outcomes between BRIC and the rest of the world, there was enormous variation in educational outcomes (enrollments) and inputs (expenditures) *within* BRIC.⁸ Table 2 reports primary school enrollment rates by region or province, and Table 3 reports primary school expenditures per children of school age, both for roughly the year 1910. These tables highlight the wide variation in each country. The provinces

⁷ One must be cautious in drawing strong conclusions from such an indicator because it says nothing about the quality of instruction. Moreover, because we are measuring school size with students per teacher, we may be missing the emergence of a small number of multi-grade schools in BRIC. Recent work by McKinnon and Minns (2009) shows that the shift to multi-grade schools in British Columbia led to substantial improvements in educational outcomes in the early 20th century.

⁸ Admittedly, such intra-country variation was not uncommon in the early 20th century. In 1907, spending per school-age child varied from less than \$5 in Mississippi and South Carolina to more than \$40 in Nevada and Washington (U.S., 1910). The coefficient of variation for state-level spending per capita on primary education in Mexico in 1907 was 0.73 (Engerman, Mariscal and Sokoloff, 2009).

in Brazil and India with low levels of enrollment had comparable enrollment to the typical province in China. Yet provinces with above average enrollment in Brazil or India look more like Russia, which had a much higher GDP per capita. It is worth noting that these numbers are themselves averages over very large regions – in the Russian case, individual provinces had enrollment rates as low as 15 percent (Right Bank Ukraine) and as high as 33.5 percent (Baltic Provinces).

[Insert Table 2 about here]

The substantial heterogeneity is also on display in Table 3, which shows the variation in elementary expenditures per children of school age within BRIC. In the richer regions of Russia, such as the Baltic and Capital (Moscow and Petersburg) provinces, spending was almost double the level in the less developed interior regions. In Brazil the variation was such that in rich states like São Paulo the level of expenditures per school age child was comparable to the more developed parts of Russia.⁹ Yet the poorest provinces in Brazil had expenditures of less than 10 cents per child, a level comparable to China and India. The Brazil-Russia comparison also suggests that factors other than income influenced enrollment and expenditures. Despite being poorer than Russia, Brazil spent \$11 per enrolled student, compared to \$7 in Russia (Table 1), and Brazil exhibited far greater geographic inequality in both spending and enrollment (Tables 2 and 3).

[Insert Table 3 about here]

We identify similar parallels between China and India. Even if India enjoyed a higher GDP per capita, expenditures per enrolled student were only 35% of the level in China (Table 1). Overall, expenditures per school age population in China also exceeded India's average (16 cents

⁹ Note that while these expenditures are in comparable 1910 dollars, they do not take into account differences (across or even within countries) in the relative costs of educational inputs such as school buildings, instructional supplies, and teacher salaries.

compared to 10 cents), while regional variation was considerable in each country. Less developed parts of British India such as the United Provinces were spending 5 cents per school age population compared to 28 cents in Bombay. The variation within China was also large: Henan province spent 13 cents compared to \$1.12 in Liaoning province.

As we show in the case studies, elites in China were less constrained by social status and by higher levels of government compared to India. On account of these differences, local elites in China may have been more successful at promoting public education when it suited their economic interests. These comparisons suggest supply side factors may have influenced the individual education systems that developed in BRIC. Drawing on the literatures on the United States (e.g., Go and Lindert, 2010; Margo, 1990; and Naidu, 2010), Latin America (e.g., Engerman, Mariscal and Sokoloff, 2009; and Vaughan, 1982), and elsewhere (e.g. Gallego, 2010) that identify factors such as policy decentralization, the nature of elites and the extent of the franchise as important for the emergence of public education, we sketch a theoretical framework in the next section to understand the provision of primary schooling in BRIC.

3. Towards a Theoretical Framework

In this section, we outline how three interrelated political factors – democratic mechanisms of governance (even if imperfect); fiscal and policy decentralization; and the composition and exclusiveness of the economic and political elite – influenced the development of publicly funded mass schooling in the 19th and early 20th centuries. Of course, we recognize that other reasons such as the levels of personal and government incomes, the relative demand for skilled workers, the availability of private alternatives, and cultural factors were also relevant.

In the case studies, we try to take these other factors into account, but here we focus on developing a political framework to understand what transpired in BRIC.

The emergence of public education in more developed economies has often been tied to the broadening of democracy in the 19th century. Before the extension of the franchise in Western Europe and its offshoots, national political and economic elites saw little need to redistribute fiscal resources towards education and resisted state policies to support mass schooling. Even where some form of representative politics existed, it was often limited to a select few in what Lindert (2004) has termed an “elite democracy.” But as property qualifications and other voting restrictions were lifted, the political economy shifted in favor of more redistributive policies, including publically provided education.¹⁰

It was the decentralization of school policy and financing that enabled the early development of mass schooling in the 19th century in countries such as Prussia and the United States. In theory, decentralization allows for a tighter fit between local preferences and policies, and a closer monitoring of politicians by constituents (see Bardhan and Mookherjee, eds., 2006). When decentralization also includes the devolution of fiscal authority (i.e., by allowing for local taxes), this may ease the budget constraints of local governments. In both Prussia and the United States (as well as in Canada and, later, Japan, the United Kingdom, and elsewhere), the responsibility of financing public schooling was decentralized to local authorities.¹¹

¹⁰ Acemoglu and Robinson (2000) and Lizzeri and Persico (2004) study the expansion of the franchise in the 19th century. Aidt et al. (2006), Gallego (2010) and Lindert (2004) provide cross-country evidence of positive relationships between various measures of democratization and school enrollments and public spending on primary education in the long 19th century. Engerman, Mariscal and Sokoloff (2009) document how variation in the provision of schooling in late 19th early 20th century Latin America was related to the extent of voting rights. Stasavage (2005) provides modern empirical evidence for a link between democratization and primary school support across Africa.

¹¹ On public school provision in Prussia and the United States, see Lindert (2004) and Go and Lindert (2010).

While Prussia – and later Imperial Germany – retained central oversight of primary education, public schooling in the United States was entirely left to states and communities.¹² The decentralization of schooling to local authorities led communities in the North and Midwest, with relatively representative politics, homogenous populations, and high incomes, to increasingly finance public education through property taxes over the 19th century (Go and Lindert, 2010; and Goldin and Katz, 2008).¹³ In contrast, racial biases and unequal political rights in the South resulted in limited local funding of schooling for African Americans and lower overall expenditures on public education (Margo, 1990; and Naidu, 2010).

The U.S. case directly relates to the third element of our framework – the role played by elites in the functioning of local governments. Well-functioning local democracies can overcome elite resistance to decentralized and publically financed schooling via political channels.¹⁴ But decentralization does not always lead to more provision of public goods such as education when local institutions and, hence, policymaking are controlled by an elite minority with interests that possibly diverge from the majority (Bardhan, 2002).¹⁵ The availability of private schools and the

¹² From the 18th century onwards, the highly centralized Prussian state mandated that local governments provide public schools according to a national model and was eventually adopted in Meiji Japan (Duke, 2009). The decentralization of financial authority that this required – whether conducted through local governments or the church – was effective in generating relatively high enrollment rates by the mid-19th century (Herbst, 2002; and Lindert, 2004). Post-Napoleonic France enacted a strongly centralized school system that required departments and local communities to create and fund public schools. After Falloux’s Law was passed in 1850, special education taxes were supposed to be enacted by each community, although central government subsidies were also available (Grew and Harrigan, 1991). Lindert (2004) notes the lagging education performance of the United Kingdom was due, in part, to the inadequacy of decentralized fiscal resources before the Fees Act of 1891.

¹³ From private tuition and “rate bills” of the early 19th century, the decentralized provision of primary education in the United States increasingly became more “public” with the installation of state and local property taxes under the control of communities and local school boards (Go and Lindert, 2010).

¹⁴ Engerman, Mariscal, and Sokoloff (2009) emphasize that the highly unequal societies of late 19th century Latin America led to elite capture of local and national governments and the formation of institutions – including school systems – that perpetuated inequality. They contrast this with relatively equal societies of northern United States and Canada. The political economy model of Go and Lindert (2010) – which assumes a well-functioning local democracy – generates a positive relationship between inequality and support for public schooling in the 19th century U.S. because the wealthy, taxable elites were in the minority.

¹⁵ For example, and as we examine further below, Wenegast (2010) argues that the traditional landed elite strongly resisted mass schooling in Imperial and Republican Brazil. As Bandiera and Levy (2010) have also recently pointed

burden of taxation necessary to fund public schooling frequently reduces elite support for mass education.¹⁶ Moreover, local elites may constrain educational opportunities to limit upward mobility into elite circles; thereby, allowing them to hold on to power, even if a broadening of education would fuel economic development (Acemoglu and Robinson, 2006).¹⁷

At the same time, exactly who comprises the “local elite,” and their preferences regarding publically financed schooling, may be very different in different places and may change within a society over time. For example, commercial interests, civic engagement, fears of unrest, or other idiosyncratic factors may make some elites willing or especially unwilling to expand educational (and political) opportunities to the local population. Furthermore, significant differences may exist between “national elites” and local ones, and the problem of elite capture may also vary between levels of government. As a result, national policies may aim to undermine local elite resistance to public schooling or other forms of redistribution.¹⁸ Alternatively, weak central governments may create openings for local elites to enact their own education policies.

We argue that differences in what constituted the “elite” in each country are key to understanding the variation in the development of schooling across BRIC. Most models of the provision of public education assume an undifferentiated elite, defined by wealth or political power (i.e. Gallego, 2010; or Galor and Moav, 2006).¹⁹ Hence, such models tend to generate at most two equilibriums – one without mass schooling (and privately provided education for the

out, an elite may be able to take advantage of preference heterogeneity among the poor majority in a party-based democracy to shift policy outcomes in their favor.

¹⁶ For a formal model of how private school alternatives affordable only to the elite may limit public investments in schooling under imperfect democracy, see De la Croix and Doepke (2009).

¹⁷ In this sense, local or national religious “elites” in many European countries may have resisted efforts at creating publically funded secular schooling in the late 19th century (West and Woessman, 2008).

¹⁸ Prussia and Meiji Japan possessed strong, centralized governments that enacted and enforced decentralized school provision across widely varying constituencies.

¹⁹ Ansell (2010) offers a formal model of public schooling that assumes an existence of an elite that do not wish to be taxed to finance schooling for the non-elite (due to the burden and to the loss of scarcity rents from skilled labor). He defines the elite in terms of wealth only.

elite) and one with publically financed education, with “democratization” or other factors shifting the equilibrium from one to the other. In contrast, we argue and provide evidence that local and national elites, or rather their preferences, varied across the four cases. Consequently, elite capture – i.e., the shift of policies away from those preferred by the majority – under decentralized policymaking resulted in multiple “equilibriums” in the provision of schooling.

Brazil, Russia, India, and China had very different political structures by the early 20th century. Although each country possessed some form of “elite democracy,” none of the countries allowed broad representation in policymaking bodies.²⁰ The absolutism of Qing China gave way to some elected bodies after the 1911 revolution, but these highly circumscribed bodies gave little voice to the non-elites. Colonial India had no substantive elections before 1919, and British officials chaired provincial and local councils with some feedback from appointed locals. In Russia, while most provinces possessed quasi-representative local governments after 1864 (the *zemstvo* – see below), and an elected national assembly existed after 1906, the nobility continued to hold sway in both institutions. After 1889, Brazil possessed national and state elections with a restricted and easily co-opted electorate dominated by various elite groups.

Central governments in all four countries largely absolved themselves from the direct provision of public education, and substantial autonomy was devolved, formally or by default, to local government institutions. In post-1889 Brazil, a strong form of federalism entailed the devolution of fiscal authority – especially export tax revenues – to provinces, which contributed to extreme inter-regional disparities in education spending and outcomes. The creation of the *zemstvo* in much of European Russia transferred some property taxes and authority over how to spend them into local government hands. While central colonial authority was strong in British

²⁰ The Polity IV database gives a democracy score of 1 / 10 for Brazil, Russia, and China in 1910. As a colony, British India was not given a score. See Marshall et al., 2009.

India, the provision of education was decentralized to local councils, but without any tax authority. In China, decentralization was more accidental than policy driven. Political instability in the late Qing and the Republic allowed local actors to take military or political power relative to the central authorities.

In such decentralized polities with little or limited democracy, elites were able to capture local governments and influence education policy. However, in the face of relatively low per capita incomes among the masses, the unwillingness of most elites to engage in redistributive policymaking led to low public financing of primary education, as most models of the political economy of education would suggest (e.g. Ansell, 2010). But variation in local economic and social conditions, as well as heterogeneity within the elite, meant that the willingness (or ability) to fund mass schooling differed from place to place and over time. Furthermore, the possibility of mobility into and out of the elite likely influenced policies towards advancing education. For instance, in more commercially developed areas of Brazil and China, traditional local elites – often with roots in land ownership – were under political and economic pressure from newer groups of elites with closer ties to more modern sectors of the economy. It is precisely in those places where we find governments spending more on education.

4. Case Studies of Public Primary Education in Brazil, Russia, India, and China: 1880-1930

The following case studies focus on the level of decentralization, democracy, and commercial orientation to explain the variation in the provision of public education across provinces and over time in each BRIC country. We, however, acknowledge that a number of other factors – from income to religion – may have also been important in the emergence of publically provided primary schooling. At the same time, we do not wish to oversell the

comparison between developments in these large countries, because each possessed a primary school system that arose from a specific historical context. In the conclusion, we discuss the similarities and differences between the four cases and describe how the development of education in these and other less developed and less democratic countries departed from the model of the United States and other successful nations by the early 20th century.

4.1 Brazil

After independence in 1822, the provision of elementary education in Brazil was decentralized. The Constitution of 1824 put states in charge of providing publically funded elementary education, with some transfers²¹ coming from the central government. Yet these transfers and other sources of funds available to local governments were relatively low. Hence, between 1824 and 1891, the overall level of expenditures and enrollments remained low. The first education data published in the early 1870s show that expenditures per school-age child were less than US\$ 0.30 (1910 dollars) and enrollment rates were approximately 12 percent of the school age population. At that time, there was also wide disparity in funding per student, enrollment, and literacy across states. Literacy rates fluctuated from 12 percent in states like Minas Gerais and Paraíba to 26 percent in Pará and Paraná (de Carvalho, 1878).²²

Until 1878, the Brazilian education system was similar to that of Russia in that all of the 4,500 public schools included Catholicism as a core part of the curriculum, and there were also 721 private schools that were mostly Catholic parochial schools. These public and private schools were located predominantly in states controlled by the landed elites that dominated

²¹ Prior to 1889, state-level legislation often put the actual provision of schools and teachers in the hands of municipalities and other local government bodies. These entities financed education with property and commercial taxes. For a brief discussion of local public finances in São Paulo in the late 19th and early 20th centuries, see de Carvalho Filho and Colistete (2010).

²² Slavery and the limited demand for skilled labor in the agrarian and commodity-driven Brazilian economy likely reduced demand for even basic education in the mid-19th century.

politics during the colonial period (e.g., the sugar elite of Pernambuco). Moreover, these schools served the children of the free, mostly white population of Brazil (de Carvalho, 1878).

A significant decentralization of Brazilian public finances occurred after 1891. Before the Constitution of 1891, the federal government collected the majority of taxes (mostly from exports and imports) and spent most of the total budget in the capital or on defense (Villela, 2007). The new Constitution gave states the sole right to tax exports, property, industries and professions, land transfers, and other transactions. Just the transfer of the right to tax exports from the central government to the states significantly increased revenues at the state level (Martinez-Fritscher, 2009). Furthermore, articles 55 and 56 of the Constitution also gave autonomy to municipalities to organize public finances, collect taxes, and spend on schools if they wished to do so.

Following this fiscal decentralization, the elementary school system in Brazil improved steadily over the four decades of the Republic (1889-1930) as states used their new fiscal authority to increase education funding. Literacy increased from less than 20 percent to 40 percent, and enrollment rates went from 12 percent to 23 percent by 1930.²³ Education levels, however, were still low compared to other countries, and expenditures per school age population were small (Table 1). We interpret the high level of expenditures per enrolled student (in comparison to low overall expenditures) and the low enrollment rate as evidence of the persistent elite bias against publically provided education.

²³ There were some efforts at improving the quality of education prior to these changes in fiscal federalism. The Ministry of the Interior pushed for a shift away from the Lancaster system of education and improvements in the quality of teacher preparation after 1878. However, the limited resources invested in these efforts reduced their effectiveness and the decentralization of education allowed states to adopt only the reforms they deemed appropriate. There is evidence that in states controlled by more positivist Republican elites, schools modernized more rapidly, including subjects like science, math, and physical education as individual courses sometimes taught by different teachers. See Martinez-Fritscher et al. (2010).

One important outcome of Brazil's decentralization of tax revenues was that more trade oriented states ended up spending more on education, as they were able to collect greater export taxes. Indeed, the amount of the revenues collected depended on the exact export mix and international commodity prices. States such as Para and Amazonas saw greater revenues because they exported high value wild rubber; São Paulo, Rio de Janeiro, and Minas Gerais exported coffee, which saw rising prices in the late 19th century; but other states like Pernambuco and Bahia exported primarily sugar in the face of falling international prices. According to Martinez-Fritscher et al (2010) the correlation between exports per capita and expenditures on education is almost 0.6, even after controlling for basic state characteristics.

The variation in commercial orientation among Brazilian states is similar to what we find for China, where the elites in provinces with maritime ports had incentives to spend more on education to improve the skills of the local labor force. In Brazil, higher exports per capita usually led state elites to invest more on education. Exports were positively associated with income level, but merchants, trading companies, and small industries in more commercially developed areas also required a larger pool of educated labor.

Decentralization of export tax revenues cannot explain all of the variation in Brazilian schooling in the Republican period. Similar to what we observe in the other BRIC countries, the variation in education expenditures and enrollment rates in Brazil was closely related to specific incentives of local (state) elites.²⁴ Topik (1989), and others have emphasized that in the late 19th century, the traditional Imperial landed elites increasingly splintered into local and regional groups, often with ties to new export sectors. Heterogeneity also existed in the extent to which local elites were able or willing to capture state and municipal governments. In particular,

²⁴ After 1889, the structures of municipal politics and revenues echoed those at the state level. As a result, many of the factors driving the state-level variation that we emphasize here are evident at the municipal level as well (Carvalho Filho and Colistete, 2010).

variation in the rate of mass political participation in local and national elections influenced the scope of elite capture and education policies in the Republican period.

Before 1889, state politicians had few incentives to provide mass education because the electoral system minimized political accountability and limited participation to a few. Between the 1820s and the 1880s Brazil was a constitutional monarchy with a handpicked senate, and congressmen and municipal governments elected by a few voters who passed stringent income and literacy requirements to vote. A reform in 1881 eliminated indirect elections through electoral colleges and introduced secret ballots and direct elections for all electoral posts (except senate seats). Then, between 1889 and 1890, the Republican movement overthrew the monarchy and introduced direct elections for president and governors. The income requirement to vote was eliminated and replaced with a stricter literacy requirement.²⁵ After 1889, states with a larger number of voters as a percentage of the population saw higher education expenditures. This suggests a positive relationship between political voice and education, one where elites spent more on education to increase the number of voters, rather than greater political participation directly leading to larger investments in public schooling.

In other contexts, Engerman, Mariscal and Sokoloff (2009) and Lindert (2004) have argued that the causality goes from franchise expansion to expenditures on education. In Brazil, however, competition in presidential elections created incentives for state politicians and parties to increase expenditures on education as a way to increase the number of literate white male voters, either through adult education in the short run, or through public primary education for children over the long run (Martinez Fritscher et al., 2010). The incentives to do this emerged because the federal executive and the ruling coalition in Congress during the Republic were under the control of the Republican parties of the states of São Paulo and Minas Gerais. Elites

²⁵ After 1889, voters had to write their names and birthdates to get a voter registry card.

and their political allies in these and other states used their capacity to mobilize voters in presidential elections as a bargaining chip with this dominant coalition in the federal government. In exchange, they received transfers, less political or military intervention, and support during elections against opposition parties in their respective states.²⁶ Since Congress scrutinized elections and electoral disputes, it was easy for the ruling coalition to disqualify unwanted opposition in state elections (Porto, 2002).²⁷

The importance of elite electoral control via educational policies is evident when we look closer at state-level differences. For example, the state of Pará had twice the export tax revenues per capita as São Paulo, yet it spent less than half of what São Paulo spent on education per school age population. The pressure São Paulo elites felt to mobilize a larger electorate to maintain their influence at the federal level led state politicians to increase education spending as a way to increase the number of voters.²⁸ In contrast, the small political elite in Pará represented the interests of rubber exporters, who were not politicians with national aspirations. There was

²⁶ On the evolution of electoral politics and this “politics of governors” system in the late 19th and early 20th centuries, see Love (1980). He goes on to note that this quasi-patronage system extended to lower levels of government.

²⁷ The demand for skilled labor by industrialists or immigrant demand for schools may have also increased pressures for education in particular locations (i.e., São Paulo), but these pressures were not that important in Brazil as a whole, because industrialization did not occur with technology that was especially complementary with skilled labor (Goldin and Katz, 1998). Moreover, the bulk of immigrants that went to Brazil between 1889 and 1930 came from Italy, Spain, and Portugal (with Germans only in fourth place), countries that Lindert (2004) associates with low expenditures on education. De Carvalho Filho and Colistete (2010) find evidence that the presence of more foreign-born farm workers was associated with greater municipal spending on education in São Paulo at the turn of the century, but econometric work at the state level shows no correlation between immigration and education expenditures (Martinez-Fritscher et al.2010).

²⁸ In contrast, local political bosses (*coronéis*) in the state of São Paulo did not need to increase the number of voters as a way to win local elections. The Republican Party of São Paulo won sweeping victories in all local elections during the Republican period. Yet, the Republican Party of São Paulo needed to show its capacity to mobilize voters in national elections as a way to convince the Republican Party of Minas Gerais to keep them in the ruling coalition (their coalition broke twice during the Republican period). See Love (1980).

no significant threat from local opposition or federal authorities to cause the state's governors to increase education spending to mobilize voters for elections.²⁹

The majority of investment in education between 1889 and 1930 came from state governments, and this is where we see the variation in elite interests and behavior having the largest impact. While many decisions over building and staffing schools were delegated to community and municipal education officials, municipality-financed schools only held 25 percent of total enrollment in the country at the turn of the century, and most policymaking remained under the authority of the state government. States were able to provide the bulk of public school finances because the majority of them collected significant revenues from taxes on exports; while municipalities collected more limited property and land transfer taxes. Although elites avoided sending their children to public schools, enrollment in private schools was only 20 percent of total primary enrollment, and, over time, municipal and private schools lost enrollments to state schools. That did not mean that state schools were equally available to all Brazilians. Census data shows that the cohort of students who attended elementary schools in Brazil between 1900 and 1920 were mostly white Brazilians, even though a third of the population was composed of blacks and mixed race citizens (Martinez-Fritscher et al., 2010).

The case of the state of Pernambuco also illustrates how variation in elite behavior influenced educational policies. In overwhelmingly rural Pernambuco, the traditional landed elites dominated politics. Most of the local political elites that portrayed themselves as “Republican,” were in fact the same families, which controlled state and local politics during the Imperial period. Rural political bosses, *coronéis*, mobilized voters using a combination of violence and patronage. This elite behavior existed in other states, including São Paulo, but

²⁹ For further accounts of elite conflict and dominance across states in Brazil see De Souza (1984). Like Love (1980) and others, we emphasize the central policymaking role of the state governors. We estimated electoral participation rates using the voting data reported in the *Diario do Congresso*.

elsewhere, political pressure from local voters, national political competition, and greater commercial opportunities provided different incentives that led to better education outcomes. Elites in Pernambuco, in contrast, controlled power with patronage, did not face intense political competition, and were not exposed to a major commercial boom because its main export, sugar, faced stagnant prices from the late 19th century onwards. Thus, the government in this state had one of the lowest expenditures on education and did not see any major improvement in literacy rates during the period 1889-1930.³⁰

In the Brazilian case, the significant regional variation in expenditures and enrollment was related to state-level differences in export tax revenues and the political incentives of elites. These factors often determined whether and how the dominant elite in a state (or municipality) captured the local electoral system and influenced (and financed) educational policy. Even though Brazil had a lower GDP per capita than Russia in 1910, public expenditures per pupil exceeded those in Russia, perhaps because local elites were less constrained by higher levels of government and perceived greater rewards in directing expenditures toward education. Moreover, the provision of education in Brazil shares certain parallels to China where again local elites successfully expanded public education to meet their economic needs for skilled labor.

4.2 Russia

Between serf emancipation in 1861 and the onset of World War I, the share of the school-age population enrolled in formally recognized primary institutions in European Russia rose from less than 5 percent to roughly 20 percent (Nafziger, “Political,” 2011). To some extent, this came at the expense of informal and unregulated schools, especially among ethnic and religious minorities. Literacy rates did slowly increase, but by World War I, just slightly more than 40

³⁰ This account is based on Levine’s (1978) political history of Pernambuco during the Republican period.

percent of the population older than 9 years old could read.³¹ This record placed Russia near the bottom in Europe, with schooling outcomes that looked much more like those in BRIC than in the West.

As in the other BRIC, the primary explanation for the low provision of basic schooling is that Tsarist Russia was poor, and both private and public funding for education were limited as a result. Per capita income levels in the countryside or among the urban working classes were quite low (Table 1).³² Until the last decades of the period, the central government, primarily through the Ministry of Education (the MNP) and the state-sponsored Orthodox leadership (the Holy Synod), provided only limited funding for primary schooling.

In 1861, neither central nor local state authorities in Russia expended much public attention or money on education. Private schools and tutors catered to the landed and urban elites, while only a small number of villages and towns (and even fewer serf owners) supported primary schools out of their own resources. In 1864, the state established an administrative structure for oversight of the Empire's schools under the MNP, but this reform did not entail the release of any new resources from the center, nor did it extend to the thousands of schools under the supervision of the Holy Synod.³³

Over the ensuing fifty years, conflict emerged between the MNP, the Holy Synod, and local actors over control of primary education, as decentralized policymaking was never fully

³¹ On pre-1917 literacy, see Mironov (1991). Over 50 percent of the population older than 9 years old was recorded as literate in the 1926 census (Perrie and Davies, 1991).

³² Tables 2 and 3 show that the richer Baltic, Capital, Central Industrial, and "New" Russian provinces exhibited higher expenditures per school-age child and greater enrollment rates. Despite possibly high returns to education in agriculture, a greater share of the population in agricultural employment was associated with lower investments in schooling (Nafziger, "Political," 2011). On per capita income levels over our time period, see Gregory (1982).

³³ The 1864 Reform granted the right to open primary schools to state ministries, to the Holy Synod, to private citizens, and to towns and rural communities. Formally, these different entities were supposed to submit school proposals for approval by newly created district school councils. Prior to 1861, the Ministry of State Domains did make some efforts to encourage basic education among the state peasantry, but these attempts were ill-funded and resulted in relatively few schools.

endorsed by the central authorities. The MNP slowly expanded control over curriculum and teaching personnel until the early 1880s, when reactionary policies led to a shift towards church control of schooling during the last years of Alexander III's reign (1881-1894).³⁴ But under Nicholas II, the MNP responded to the growing public awareness of Russia's poor educational record by expanding its school inspection system and increasing its involvement in local educational affairs. With the Educational Statute of 1908, the MNP formally took over the management of all primary schools in the Empire. This late shift towards centralization was accompanied by an increase in state funding to subsidize local efforts at building and maintaining schools. This brought total central government spending on primary education from less than 0.6 percent of the state's budget in 1902 to just over 2.2 percent in 1913 (Hans, 1964; and Nafziger, "Financing," 2011). Although significant in comparison to the other BRIC countries, this was a small increase when compared to the United Kingdom, for example, where central government spending on human capital investments accounted for 16.1 percent of total expenditures in 1910-12 (Davis and Huttenback, 1986).³⁵

While local education policies were subject to interference from above, the funding of Russian primary schools was decentralized to local communities and sub-provincial governments prior to the 1890s. For many "public" schools, a village or town assessed its own citizens to fund the construction or rental of a building and to pay someone to provide instruction. Such arrangements may have suffered from significant collective action problems, including intra-

³⁴ Throughout the post-reform period, religious instruction remained a core component in the curriculum of almost every primary school. Schools in the Holy Synod's system generally had instruction provided by the local priest and were financed by local (community) contributions. It was during Alexander III's reign that the parochial system took over many of the remaining informal peasant literacy schools (*shkoly gramotnye*). On the evolution of institutional control over schooling, see Eklof (1986), Nafziger ("Political," 2011), Sinel (1972), and Sorenson (1992).

³⁵ In Davis and Huttenback (1986), education is the dominant category of human capital expenditures, which also include spending on medicine, charity, relief, and immigration. and on occasion religion. It is unclear whether the numbers for UK include the National Insurance Act of 1911, which may bias their expenditures upwards. Even so, human capital expenditures accounted for 11.6 percent of the budget in the earlier period between 1905-09 and were consistently larger than the Russian average in the 19th and early 20th century.

community conflicts between groups (ethnic, religious, wealth, generational, etc.) that held different preferences over schooling. In towns and cities, local elites continued to send their children to private academies rather than the public school (e.g. Lieven, 1989). In the countryside, the largest property owners – the landed gentry, merchants, and rich townsmen – were not liable for local assessments by exclusively peasant institutions.³⁶ In the absence of more formal local fiscal mechanisms for enforcing contributions from larger property owners, funding for rural primary education would have remained limited.

For a large part of European Russia, a newly created, all-class institution of local self-government known as the *zemstvo* functioned as just such a mechanism. A reform of 1864 established district and provincial-level *zemstvo* in 34 of the 50 provinces of European Russia, a region that included most of the Russian heartland. Members of *zemstvo* assemblies were elected by different groups of property owners: private rural property owners (mostly from the landed nobility), owners of urban property, and peasant communes. These new bodies were granted the power to levy property taxes on *all* local land holdings and fixed capital. Moreover, the *zemstvo* was explicitly called on to engage in programs encouraging local economic development, a calling that quickly came to include education.

Although intended to include representation from all social classes, the *zemstva* electoral system was biased in favor of the local non-peasant elites. Peasants were allocated few seats relative to their population shares, and the elections that did occur frequently attracted little interest or simply reinforced the existing structure of political power. Therefore, the policies

³⁶ Township-level units of peasant self-government (*volosti*) also contributed to primary school funding in some areas, although their contributions were less than direct expenditures by village communities. While initiative for the school often came from the village itself, township authorities frequently stepped in to fund the initial outlays out of their own tax collections. According to data on local government expenditures in 1905, rural societies (administrative versions of the traditional peasant commune) in European Russia spent about two times as much as township governments did on education: 4 million vs. 2 million rubles. See Russia. Statisticheskoe, *Mirskie*, 1909.

enacted by a given *zemstvo* were frequently dictated by the composition of the private propertied elite that formed the assembly majority (Nafziger, “Did,” 2011). The resulting heterogeneity of this form of local “elite democracy,” coupled with the absence of the *zemstvo* in 16 provinces of European Russia, helps explain the variation in expenditures on education evident in Table 3.³⁷

Where the institution existed, *zemstvo* funds came to supplant financing from rural communities. Between 1880 and 1894, the share of total expenditures on rural primary schools (in European Russia) undertaken by village communities – either directly or through the local Orthodox parish – fell from 36 to 18 percent.³⁸ In provinces that did not possess *zemstvo*, village (and township) and town governments held almost all responsibility for school funding. In these provinces, not only was spending on primary education per capita less (about 10 percent lower in 1911), but enrollments and the growth in the number of formal schools per 1000 people were also lower. This variation is reflected in Tables 2 and 3, where the non-*zemstvo* right-bank Ukraine and Byelorussian provinces exhibited lower spending and lower enrollments.³⁹

Therefore, the decentralized “democracy” of the *zemstvo* seemed to have supported greater investments in public education. Those districts where the *zemstvo* assemblies included relatively more representatives from peasant communities exhibited greater spending on primary schools that catered to the rural majority. But this correlation was strongest in those districts that also possessed a greater number of nobles with small-sized holdings. In contrast to the traditional

³⁷ Other factors – religion, economic structure, etc. – contributed to this variation beyond income differences and the *zemstva* (Nafziger, “Political,” 2011). The interaction between communal villages, township authorities, and district and provincial administrators varied substantially across European Russia, even within the non-*zemstvo* region. In the Baltics, all rural education finance came from township governments.

³⁸ As early as 1879, over 40 percent of funds allocated to rural primary education in European Russia came from *zemstvo* budgets. By 1894, this share had reached 54 percent. These and other numbers on rural primary school expenditures are taken from *ibid.* By 1905, provincial and district *zemstvo* were spending approximately 25 million rubles on education, or about 4 times the expenditures of all townships and rural societies together (Russia, Statisticheskoe, *Dokhody*, 1909). Expenditures on primary education occasionally took the form of loans to communities; but, more often, spending involved grants and the direct hiring of teachers as *zemstvo* employees.

³⁹ In 1911, enrollment rates (out of the school age population) were 3.5 percent higher (32.9 versus 29.4) in *zemstvo* provinces. Between 1860 and 1911, the annualized rate of growth in the number of formal schools was 6.5 percent in non-*zemstvo* and 7.5 percent in *zemstvo* provinces. See Nafziger, “Political,” 2011.

large landed gentry, these nobles were more likely to be involved in commercial activities and hold civil service positions obtained through merit.⁴⁰ They formed the basis for a movement that historians have labeled “*zemstvo* liberalism,” which tended to support broader schooling for the masses. The imperfect democracy embedded in the *zemstvo* meant that the composition of the local property-owning elite was critical in determining the level of decentralized school provision (Nafziger, “Did,” 2011).

Similar to British India, the heterogeneity of the Russian population limited the development of public schooling. This was especially true in peripheral areas where the *zemstvo* did not exist. Peasants in these areas maintained informal or confessional schools that relied exclusively on community contributions and were often of poor quality.⁴¹ In contrast, the consolidation of local fiscal authority in the *zemstvo* enabled some catch-up growth in rural schooling by overcoming collective action problems and allowing a broader tax base to be tapped. This was more likely to take place where the composition of the nobility involved in the *zemstvo* was favorable to mass education and willing to help foot the bill (even though most of these nobles utilized private education for their own children).⁴² We focus here on the distinction

⁴⁰ Although he was from a slightly earlier period, the character of Konstantin Levin in Leo Tolstoy’s *Anna Karenina* provides an example of such a liberal noble estate owner. We thank a referee for reminding us of this comparison.

⁴¹ This was especially true among Jewish and Muslim communities, which preferred to maintain informal schools rather than give up any authority over education. By 1894, there were still 16779 informal literacy schools, 5949 Jewish kheders, and 11589 Islamic madrasas in the Empire. Comparing the 1894 and 1911 data for peripheral provinces in European Russia suggests that despite aggressive efforts by the MNP, many informal religious schools remained outside the formal administration system in 1911. Inequality or other forms of heterogeneity among the peasantry likely compounded local collective action problems when it came to the local financing of a school. However, the fact that many peasant communities did support informal or village-funded schools suggests that there was considerable demand for basic education, perhaps independent of its economic return (see Eklof, 1986)..

⁴² Most *zemstvo* funding for education went towards rural primary schools that catered almost exclusively to the peasantry – local nobility and other social classes sent few of their children to such village schools. For more on the internal debates within the *zemstvo* over schooling, see Nafziger (“Did,” 2011; and “Political,” 2011) and Eklof (1986). The actual decisions to build school, hire staff, or change curriculum generally resided with the local school district committees, which often included representatives of the *zemstvo* and relied on *zemstvo* funding for their initiatives. These and other bodies involved in education policies were all subject to intervention by powerful local elites and outside bureaucrats. Of course, even where the peasantry held more power in the *zemstvo* or other local institutions, their representatives may not have given voice to their (median) interests.

between the traditional nobility and a growing group of more liberal ‘middling’ gentry, but ethnicity, religion, profession, and other characteristics also divided the local elite. These divisions varied regionally and over time, especially as economic development reduced the competitive viability of agriculture in less productive areas, and trade and industrial growth generated newly wealthy elites elsewhere (Becker, 1985; and Hamburg, 1984).

Decentralization, variation in local democracy, and characteristics of the elite help explain the within-country differences in Russian public primary schooling by the early 20th century. Other factors – such as the religious composition of the population, the level of commercial development, and the institutional legacy of serfdom – contributed to this variation, and these factors had parallels in the experiences of India and China. However, we view the relative success of Russia among the BRIC countries as the outcome of slightly higher per capita income and the increased financial involvement of the central government after the mid-1890s. Intriguingly, the timing of the acceleration of central government spending – especially with the Education Act of 1908 – suggests that the advent of a limited form of national elections (for the Duma) after the revolution of 1905 may have had positive consequences for schooling.⁴³

Similar to all the BRIC, but especially the Brazilian case, Russian political reforms led to more resources being invested in public schooling, specifically through the decentralization of fiscal resources (via the *zemstvo*) in those areas where local elites found it in their interest to support education. But unlike the Brazilian case (or India and China, for that matter), the increased fiscal and policy involvement of the central government appears to have catalyzed a shift towards widespread schooling. However, despite these gains, primary education in Russia

⁴³ Duma voting rights were limited by property ownership and social estate, but the parliaments that met in the last decade of the Tsarist regime included peasant and non-elites representatives and possessed some central budget oversight. The broader political participation at the national level after 1905 may have partially overcome or compensated for local elite resistance to schooling in particular regions, a shift that fits the frameworks of Lindert (2004) and Gallego (2010).

compared unfavorably with other parts of Europe by World War I. The achievement of near-universal primary schooling in Russia only occurred in the 1930s under a decidedly non-democratic Soviet regime that left little autonomy to local governments (Fitzpatrick, 1979).⁴⁴

4.3 India

By the early 20th century, India had made limited progress in increasing mass primary education. Crude literacy rates were under 10 percent and less than 1 in 10 children of ages 5 to 14 was enrolled in any primary school. Only China had a lower enrollment rate, but even China had higher spending per school age population. A relatively low level of GDP per capita certainly constrained the amount of public and private funds available for education, but low income alone cannot explain the low spending. Public educational spending in areas under direct colonial control (British India, which accounted for almost two thirds of the Indian subcontinent) was among the lowest in the world, lower than countries at similar levels of development and even lower than neighboring Indian ‘Princely States’ under indirect colonial control (Davis and Huttenback, 1986). The following discussion focuses on the constraints in British India.⁴⁵

British officials were cognizant of the inadequate provision of schooling. Official reports often bemoaned the low levels of spending, but the goal of extending mass education was never seriously promoted (Nurullah and Naik, 1951; Chaudhary, 2009). As a dependent colony, any potential benefits of educating a large share of the population were outweighed by both the monetary costs (additional taxes to fund public education) and the non-monetary costs (the

⁴⁴ School enrollments actually decreased in the chaotic early 1920s before recovering by the end of the decade (Holmes, 1989). Soviet authorities then passed compulsory schooling laws, which led to near universal primary enrollment by the mid-1930s.

⁴⁵ The Princely States were local kingdoms of varying size ruled by individual kings that maintained their autonomy in local affairs while deferring to colonial authority in matters of defense and foreign policy. Although many of the same forces were likely at work, we focus on British India because it was a single administrative unit with the same institutional organization. In comparison, there is significant heterogeneity among the numerous Princely States in both the set up of educational systems and educational outcomes although recent work suggests educational outcomes on average were higher in the Princely States compared to British India (Iyer, 2010).

potentially destabilizing effects of a more educated populace). On account of the meager public funds, the colonial government actively encouraged private schooling and made some limited efforts to increase schooling among groups with traditionally low levels of education such as Muslims, the lower castes and tribal groups.⁴⁶

Beginning in the early 1880s, the provision of primary education was decentralized to rural and urban local boards, although they received important grants from provincial governments. The boards managed some schools in addition to providing grants to private aided schools. In general, there was significant heterogeneity across provinces in school systems, grant rules and subsidy amounts. Even though public revenues funded local boards, upper caste Indian elites were disproportionately represented on the local boards and in principle could influence public allocation decisions.⁴⁷ However, the boards had no power of taxation. They received a fixed pot of money partially based on the land taxes collected in their district and, they allocated the money between primary education, local infrastructure and medical services. Unlike in Brazil and Russia (at least prior to the 1900s), central and provincial authorities dictated the levels of local public expenditure in India.

Within this institutional framework, colonial policies influenced regional public spending patterns, often exacerbating pre-existing economic differences between provinces. Both enrollment and literacy rates were twice as high in the coastal provinces of Bengal, Bombay and

⁴⁶ For example, larger public grants were made available to schools in “backward districts,” scholarships were introduced to encourage schooling among these groups, and training schools for teachers were established.

⁴⁷ The rules on the exact composition of district boards varied from province to province. A British colonial officer, often the district magistrate was the board chairman in most provinces. He was assisted by nominated and elected Indian members. Despite the presence of non-official members, historians have argued that official control over these bodies was strong and the elective principle was not widely implemented (Cross, 1922). Nominated members were almost always important landlords, while traders and lawyers accounted for many of the elected members (Cross, 1922; Gopal, 1953; Tinker, 1968). In subsequent decades especially in the 1920s, minority group leaders for Muslims and lower castes were also among the nominated members. Thus, the acts of local self-government were not enacted with the view of introducing democratic self-government with equal representation of all groups. While we focus on rural districts here, self-government and revenue reforms brought similar debates over education to the fore in municipalities over our period (e.g. Bayly, 1971).

Madras (7.1 percent literacy in 1911) compared to the interior provinces of Central Provinces and United Provinces (3.5 percent in 1911). The coastal provinces had big urban centers with larger bureaucracies such as Bombay and Calcutta that offered more opportunities for educated workers. This likely increased the private demand for education. Nonetheless there were regional differences even among the coastal provinces. From 1881 to 1931, Bombay led the way in public education expenditures and developed a large network of public schools. But, public spending in Bengal, Bihar and Orissa lagged relatively behind both Bombay and Madras.

Much of the difference in public expenditures was due to heterogeneity of land tax revenues. Bombay and Madras had higher land revenues on average, and hence, they had more public money available to spend on education (and other local services) when compared to Bengal, where land revenues were lower on account of the Permanent Settlement. The Settlement was a contract between the English East India Company and the landlords of Bengal and Bihar whereby the revenue demand on land (land tax) was fixed in cash for perpetuity in 1793. In comparison, Temporary Settlement areas such as Bombay and Madras were assessed land taxes at higher rates that were periodically adjusted to account for changes in price levels and productivity. Thus, public education spending varied with the land tax regime and, along with private spending on education, jointly influenced the development of mass schooling.⁴⁸ Roughly, land revenues explain approximately 32 percent of the district-level variation in total spending on education (Chaudhary, 2010). Thus, colonial policies influenced national spending per capita, as well as the regional variation in public spending on primary education.⁴⁹

⁴⁸ Private revenue sources accounted for a larger share of total spending (40 percent) in Bengal than in Bombay (20 percent). On the sources of the numbers provided here, see Chaudhary (2009 and 2010).

⁴⁹ Of course, private school fees and the high opportunity costs of lost child labor were key factors in reducing enrollments in many parts of India. As in the other case studies, our focus on the political economy of publically provided education at the district level is meant as a complement rather than a substitute for these underlying micro-level factors that likely helped determined school provision and take-up.

While colonial rule probably constrained the development of primary education and created strong interregional disparities in spending, this does not necessarily imply that India would have enjoyed better outcomes as an independent state. Indian elites, the chief beneficiaries of English education under the colonial system, were often complicit in blocking the extension of primary education to the rural masses. For example, in the province of Bengal, the elites actively opposed George Campbell's (Bengal's Lieutenant Governor) policy of providing more public support for mass education in the 1870s: "The Bengali Hindu *bhadraloks*, a newly emerging social group mostly consisting of persons belonging to higher Hindu castes, after imbibing the best fruits of western education were trying desperately in the second half of the nineteenth century to assume the social leadership of the Bengalis. This social group, ambitious and ruthless, wanted to keep the masses ignorant in order to maintain their leadership over them" (Mandal, 1975).⁵⁰ Although colonial rule created such new elites, there was considerable overlap between the traditional land owning elites and the new western educated elites. In fact, researchers have argued that the colonial educational system may have increased inter-caste inequality (Srinivas, 1996).⁵¹

Such resistance frequently occurred at the district level, either through actions of local boards, or through direct lobbying of colonial officials responsible for education policy. For example, Mr. C. T. H. Johnson, a district officer in Madras province, told the committee working on The Report of the Royal Commission upon Decentralization in India in 1908 that, "The Local Boards represent the monied, educated and land-owning classes; they are not really in favor of

⁵⁰ See Mukhopadhyay (1984) for more details on how elites in Bengal successfully petitioned colonial officials to restrict the extension of mass primary schooling.

⁵¹ Srinivas argues that the new opportunities from western education "had the twin effect of increasing the cultural and ideological divide between the high and the low castes, as well as making the new opportunities doubly desirable. In the first place, they were well paid and prestigious, and in the second, only the high castes had access to them" (1996, p. 78).

increased primary education, because it makes labor more difficult to handle; they are not in favor of a reduction of lower secondary education because they like to have the lower secondary schools to which men of their type send their children.” While the initial emphasis on English medium secondary education was due to colonial policies, many upper caste Indians actively embraced English instruction and became the chief promoters of secondary education.⁵²

The influence of elites is also visible in the provision of private aided schools receiving public subsidies. Despite public subsidies, the Government had limited control over these schools because private individuals pooled the necessary resources, set up the school, applied for a grant, and managed the school. Chaudhary (2009) finds that characteristics of the local elite strongly influenced the provision of the different types of primary schools. Brahmans and other educated upper castes successfully directed private and, to a smaller extent, public resources toward establishing secondary schools for their children. Districts with a larger share of Brahmans, the traditional elite caste of Hindus, had more public and private secondary schools plus a smaller ratio of primary to secondary schools. However, upper castes were unable to completely co-opt the public policy-making process because districts with larger proportions of lower castes and Muslims also had more public secondary schools.⁵³

Colonial and elite-dictated policies occurred amidst hierarchical divisions among Hindu castes that further constrained the provision of mass primary education. Districts with high levels of caste and religious diversity had fewer private aided and unaided primary schools as well as a smaller ratio of primary to secondary private schools. The presence of many religions with

⁵² See Nurullah and Naik, 1951 and Basu, 1974. For example, according to Basu (1974), the number of English secondary schools and arts colleges more than doubled from 1881/82 to 1921/22 from 2,133 to 4,904, while the number of pupils more than quintupled from 149,233 to 823,416 (p. 105). Most of this increase was in private aided (private schools that received some funds from public revenues) and unaided schools.

⁵³ This was a misguided outcome of colonial policy, which set up these schools (as opposed to primary schools) in educationally backward districts hoping they would increase literacy in these districts.

heterogeneous preferences over public and private education compounded the situation. For example, Muslims in heavily Muslim dominant districts had worse literacy outcomes because the Muslim religious schools were less effective at the margin at promoting literacy compared to secular colonial schools (Chaudhary and Rubin, 2011).

While colonial rule did not create the divisions in Indian society, colonial policies did not ameliorate the situation. Overall, public spending was low and susceptible to elite capture at the local level. Lower castes and the aboriginal tribes were rarely represented on the councils. Hence, they had limited political voice to influence local education policy. In contrast, landed and educated elites – defined by caste, wealth, and profession – did hold positions on district councils and utilized these to influence local spending.⁵⁴ Colonial attempts to secure greater representation for marginalized groups and improve educational outcomes for the non-elites were generally insubstantial and weakly implemented.⁵⁵

India's experience both parallels and contrasts with the other BRIC countries. Similar to China, there were big differences in spending and enrollments between the coastal and interior provinces linked to commercial development and new types of economic activity. However, the size of the colonial bureaucracy and potential for educated employment were perhaps more important in accounting for these differences than income and economic development—urbanization rates in the coastal and interior provinces were similar, and the pattern of spending

⁵⁴ For example, Brahmans and other upper castes comprised over 80 percent of lawyers and almost 75 percent of landowners in Bengal, and these were the two most common occupations of district council members.

⁵⁵ Ghurye (1961) discusses this issue. For example, as early as 1856, a court case was filed in the district of Dharwar of Bombay where a lower caste boy was denied admission to the government school. In 1858 the courts released the following press-note “Although the Governor-in-Council does not contemplate the introduction of low caste pupils into schools, the expenses of which are shared with Government by local contributors and patrons who object to such a measure, he reserves to himself the full right to refusing the support of Government to any partially aided school in which the benefits of education are withheld from any class of persons on account of caste or race, and further resolved that all schools maintained at the sole cost of Government shall be open to all classes of its subjects without distinction.” This stated policy was not seriously implemented. Schools that relied on government aid continued to receive grants regardless of their policy towards lower castes (Nurullah & Naik, 1951). It was not until 1923 that a government resolution was passed stipulating that government grants would be unavailable to any schools that denied admission to the lower castes.

on education is not fully explained by differences in income levels (Chaudhary, 2009 and 2010). But unlike China, Indian elites were more anti-schooling because they were unlikely to economically benefit from an extension of mass primary education. Like Brazil and Russia, the extent of political participation in India did influence public spending, but since political representation was generally limited to land and caste based elites public spending was targeted to secondary education and away from mass primary education. Nonetheless, colonial policies and the associated fiscal system based on centrally dictated land taxes were important drivers of inter-regional differences. This system paralleled Brazil's constitutionally mandated decentralization of export taxes to provincial governments. Like in Tsarist Russia, the decentralization of primary education to local district councils in British India made the distribution of public funds a function of the preferences and ethnic, religious, and socioeconomic composition of the elites who sat on these councils.

4.4 China

With the lowest per capita income among the BRIC countries, it is not surprising that China possessed the lowest enrollment rates and one of the lowest levels of expenditures on education per school-aged child among our sample countries (Table 1). However, certain areas (the lower Yangzi; coastal regions – see Ma, 2008; and Mitchener and Yan, 2010) did experience some hints of industrial development and higher economic growth in the late 19th and early 20th centuries, which contributed to heterogeneity in educational outcomes in the late-Qing and Republican periods (Tables 2 and 3). But we argue that differences in schooling across China were also a product of policies enacted by heterogeneous local elites, who acquired considerable power in the face of Qing decline and the weak central governments of the Republican era.

China experienced a structural break in education in 1905. Prior to that, the primary education system was based upon Confucian classics and aimed at success in the Imperial Civil Service Exam (ICSE).⁵⁶ The rewards to high achievement on this exam generated considerable demand for privately provided traditional schooling (*sishu*) throughout the country. Such schools were frequently financed by contributions from wealthy households, lineages, or local voluntary associations such as guilds. As a result, these schools catered to the children of local elites, and county quotas on the number of passing exam grades capped the returns to such human capital investment.⁵⁷ In the wake of the Taiping rebellion of the 1850s and 1860s, the Qing dynasty expanded these quotas and encouraged the development of additional classical academies (Woodside and Elman, 1994; and Keenan, 1994). There was some growth in the number of “community” or charitable schools catering to the non-elite, but these were generally funded by contributions of local elites from lineage or clan wealth. Overall, not only was there essentially no publically financed mass schooling in the late Qing, but the particular structure of the exam system, although avowedly meritocratic, limited entry into the bureaucratic elite.⁵⁸ While as many as 40 percent of males attended *sishu* for at least a few years by the end of the 19th century, many students achieved only limited literacy and gained few applied skills (Borthwick, 1983; and Yuchtman, 2010).

⁵⁶ The ICSE was the main avenue to wealth and power in late imperial China. In the words of Ping-ti Ho’s, the exam was “the ladder to success” (1955), while a Chinese proverb called it “the gate that fishes jump through and become dragons.”

⁵⁷ In the traditional education system, the initial stages of training and preparing a son for the civil service was the private responsibility of families seeking to attain or maintain elite status as “official” families. Clans and families had, whenever possible, mobilized their financial and cultural resources to provide young boys with the tools of classical literacy. The government, central or local, maintained a hands-off approach towards funding mass primary education.

⁵⁸ Under the Qing, provincial civil servants and county magistrates were rotated frequently, which made them somewhat distinct from traditional local elite, often defined as those achieving the lowest exam rank of *sheng-yuan*. On the exam system and the perpetuation of an elite class across Qing China, see Elman (1991).

Growing economic openness and industrialization in the late nineteenth century generated rising demand for modern education, particularly in science, technology, and other applied topics (Yan, 2008; and Yuchtman, 2010). Although attempts to build modern schools started in some coastal cities as early as the 1860s, the abolishment of the ICSE in 1905 marked the beginning of a nationwide remodeling of the education system and the structure of government support of basic schooling.⁵⁹ A Ministry of Education was established in 1905, and Offices of Provincial Education were founded in many provinces (along with similar county level institutions known as “Education Exhorting Offices” – see Abe, 1987; and Bailey, 1990). After 1905, the Ministry of Education called on community, county, and provincial officials to enact compulsory and modern primary schooling, but central and provincial authorities allocated very limited funds towards this goal.⁶⁰

Instead, new modern primary schools were typically financed by a combination of county tax receipts, the reallocation of endowments from traditional schools, and private contributions by local elites (Thøgersen, 2005; and Vander Ven, 2005).⁶¹ The devolution of fiscal authority that occurred after the Taiping Rebellion (and was formalized in local government reforms of the 1900s) left most tax revenues to provincial and county-level authorities.⁶² Private

⁵⁹ These “New Policies” (*xinzheng*) were enacted locally by the existing elite, often with substantial conflict (Prazniak, 1980).

⁶⁰ An influential proposal for education reform – Zhang Zhidong’s *Exhortation to Study* (1898) – called for a national three-tiered system of modernized schools located in provincial, prefecture, and county capitals, along with a network of basic primary schools in towns and villages. This system was to incorporate existing traditional academies and other types of schools (Ayers, 1971; and Baily, 1990). The village primary schools were to be funded by local resources, while the other two tiers were to have access to funds from central or provincial treasuries (on Shandong province, see Buck, 1974).

⁶¹ According to data gathered by Thøgersen (2005), less than one percent of public primary school funding in three counties in Shandong province in 1908 came from extra-county government sources. For similar numbers from Zhejiang province in 1907-1909, see Rankin (1986)

⁶² Some of this was unwilling, as local authorities refused to remit taxes back to the (weakening) center. Measures in 1908-1909 created elected institutions of self-government at the national, provincial, and county levels. Voting rights were determined by property ownership, and, as a result, each body was dominated by landed and commercial elites. These decrees paralleled growing movements for more local self-government in a number of provinces (e.g. Zhang, 2000; on Henan). In the 1900s, the central government also encouraged the establishment of various civil

contributions by lineages, specific endowments, or associations of local elites continued to be important sources of school finance, especially in less developed, more isolated areas.⁶³ Whether funded from public, private, or a mix of sources, the initiative to build new schools in the last decades of the Qing era generally resided with local elites who either possessed the necessary wealth or held positions of authority in public or quasi-public institutions.

These decentralizing administrative and fiscal reforms of the late Qing did generate some growth in the provision of primary schooling. By 1909, roughly 51,700 modern primary schools catered to over 1.5 million students, and by 1912, over 86,000 schools enrolled roughly 2.8 million students (Abe, 1987; and *First Education Yearbook of China*, 1934).⁶⁴ These developments in primary education, however, did not put China in a favorable position when compared to other BRICs. China still had the worst education indicators when the Qing Empire fell in 1911. Moreover, there was considerable provincial variation in the pace of new school formation and in the share of education funding dedicated to primary education.⁶⁵ This carried over into the Republican period.

society institutions which were intended to be led by local elites under the oversight of the bureaucracy. These included chambers of commerce, professional bodies, agricultural associations, and educational associations, the latter of which was meant to support local and provincial education promotion offices. Efforts to re-centralize fiscal revenues and government authority met strong resistance in the 1910s and 1920s.

⁶³ Rankin (1986) and Chen (2007) discuss the growing importance of formal and informal elite institutions for the provision of local public services in the late Qing and early Republican periods. In the treaty ports (which were mostly located along the coast), rising entrepreneurs were one of the major patrons financing primary education. According to the *First Education Yearbook of China*, the total amount of education donations from private parties amounted to 11,414,253 Yuan in the first twenty years of the Republic, and the leading two provinces in private donation were Jiangsu and Zhejiang, where modern industry and commerce were most prevalent.

⁶⁴ This movement towards school building and education modernization overshadowed the few thousand schools (with no more than 100,000 students) founded by Christian missionaries in the late 19th and early 20th centuries that Bai and Kung (2011) focus on.

⁶⁵ Between 1907 and 1909, the number of official lower primary schools in Shandong province increased by a factor of nine, from 3,200 to over 31,500, while in Guangxi and inland Xinjiang, the number actually declined. While some provinces dedicated a considerable share of total education funding from the provincial treasury to primary schools (e.g. Guangdong or Liaoning) in 1909, others favored more advanced or specialized education (e.g. Gansu or Shanxi). See Baily (1990, pps. 44-45; from official Board of Education statistics).

While the structure of local school finance remained relatively constant after China became a republic in 1912, decentralization and local capture by elites continued to influence the provision of mass schooling. All funding for primary education in the Republican period came from provincial and, especially, district or local sources.⁶⁶ Much of the administrative system of the late Qing period continued as before, including the new Ministry of Education and various provincial and county-level bodies.⁶⁷ But political instability grew as the death of President and self-proclaimed emperor Yuan Shikai in 1916 initiated a period of internal conflict, when local and regional elites fought to expand their holdings and take control of the central government. During the “warlord” period (1916-1927), and under the Nationalist regime (1927-1937), the administrative and fiscal structures remained intact, but military expenditures frequently siphoned resources away from local public services such as schooling. The geography of military conflict and heterogeneity in local-central government relations contributed to the variation in the supply of basic education across Republican China (Wong, 2000; and Zhang, 2000).

Throughout the Republican period, traditional and new types of elites controlled local institutions responsible for education (Chauncey, 1992). Government and other local institutions rarely offered political opportunities to the masses, and there were few, if any, democratic

⁶⁶ In the 1910s and 1920s, education accounted for less than 3 percent of the Republic’s central budget, out of which primary education was 64.3 percent, secondary education 21.4 percent and tertiary education 14.3 percent (calculated from *The First Education Yearbook of China*, 1934; also see Bailey, 1990; and Buck, 1974).

⁶⁷ The education promotion bureaus, elite education associations, and provincial-level education administrations initially set up in the late Qing continued to operate during much of the Republican period. The division of responsibilities between them and various other local government appointees continued to differ from province to province (Baily, 1990). The new Republican government did initiate a new national school system (lasting from 1912 to 1922), but it was essentially identical to the multi-tiered structure set up in the late Qing. The national, provincial, and county-level elected assemblies had elections and, in many cases, began conducting business in 1912 and 1913. They were abolished by Yuan Shikai in 1914, although some continued to meet after his death.

elements in local public policy.⁶⁸ Therefore, decentralization occurred with little democratization and considerable elite capture.

However, the “policy” preferences of the local elites, and the particular institutions through which they were exercised, varied considerably from place to place. In some areas, the more traditional landed elite with ties to the old exam-based system of education often supported private schools, while in others, a newly emerging “modern” elite tended to work within the new local government and non-governmental institutions to encourage publically financed schools. As a result, funding for primary education continued to come from a varied combination of public sources (based on remitted taxes or specific local land or business tax surcharges) and private funds (endowments, individual contributions, lineage or clan funds, etc.).⁶⁹

Both before and after 1911, a variety of local economic, security, and political conditions influenced the nature of elite capture of decentralized policymaking (Esherick and Rankin, eds., 1990; and Schoppa, 1982). Such heterogeneity helps explain much of the variation that we observe in provincial enrollment rates and expenditures on education in 1912 (Tables 2 and 3). Particularly telling are the high expenditure levels and enrollment rates for Jiangsu, Liaoning, and Zhejiang, all of which were coastal provinces with significant commercial development.⁷⁰

⁶⁸ Chang and Nathan (1978) summarize the electoral processes for the National Assembly of 1913. They also provide provincial data on the share of the population with voting rights in the Assembly election. These data are completely uncorrelated with the variation in school expenditures per school-age child (Table 3), suggesting that, unsurprisingly, this national and quasi-representative structure played almost no role in education decisions.

⁶⁹ In some provinces where a new generation of elites were supportive of primary education, education constituted a large part of total government expenditure. A famous example is Liaoning. The leader, Zhang Zuoling, committed to a share of education spending out of government fiscal expenditures of at least 40 percent. This partly explains why Liaoning stood out in terms of the development of primary education in the Republic era. See also the evidence on provincial and county budgets for the 1910s and 1920s provided in Buck (1974 – Shandong), Van de Ven (1996 – Liaoning), and Duara (1987 – Hebei and Shandong).

⁷⁰ On the increasingly commercialized elites of Zhejiang, see Schoppa (1982). According to Culp (1994), who studied elite activities in support of schooling in two counties of Zhejiang province, the level of commercial development and bureaucratic capacity of local state institutions dictated how and whether elites actively supported public education. In the poorer interior county of Lanqi, any support for education came not from local government institutions, but through funds provided by lineages to private (*sili*) schools. In Jiashan county, which was near the coast and much more developed, local economic elite controlled more substantive government budgets and various

The “new” elites in these and other areas were especially interested in developing a skilled workforce, and they saw modern public education as a necessary element of a new China. Elites in the commercially developed areas were more frequently exposed to western ideas regarding politics and education. For example, Yan Xishan, governor of Shanxi, and Tang Jiyao, governor of Yunnan, both had some experience with modern education. The concentration of power in the hands of these and other such westernized “warlords” and local elites made the channeling of resources towards modern primary education more likely in the Republican period (e.g., Barkan, 1990, on Jiangsu).

Provinces with relatively high levels of schooling were less subject to the political and social chaos of the 1910s and 1920s. Some areas of provinces, such as coastal Jiangsu, were under a degree of control by various western powers, which allowed them to avoid civil wars and conflicts. In these and other “quiet” parts of the Republic, a stable political regime allowed local elites to allocate more resources to primary education. Unfortunately, such areas of relative peace and calm were rather rare. Banditry and locally controlled militia, along with civil war and foreign conflict, gripped much of China over the period (McCord, 2009, on Hunan; and Buck, 1974, on Shandong). Therefore, despite local control and efforts by some elites and the (weak) central government to initiate a national public school system, the chaos and poverty of much of Republican China limited the widespread development of publically financed primary education.

In sum, despite the shift towards a more modern system of schooling after 1905, public primary education in China was the least developed of BRIC. In the late Qing and Republican periods, the feedback between low income levels and political instability created conditions where resources were not available to finance schooling, and where the state was too weak to

school committees. This allowed them to fund the expansion of different types of public (*gongli*) schools, which were typically larger and followed a more modern curriculum than did the private schools of Lanqi.

prevent local elites from capturing political structures and educational institutions. There were practically no formal representative bodies with real authority over education, and communities were generally left to their own devices (and resources) when it came to decisions over primary schooling. However, and in contrast to Brazil or Russia, relatively few elites were supportive of expanding modern educational opportunities through greater public funding – only in the most commercially developed and politically stable areas did this process take place. When compared to other BRICs in and around 1911, China’s political situation was the least settled, least “democratic,” and most beholden to provincial and local elites who had little interest in supporting mass education.

5. Conclusion

Our study sheds new light on the comparative experiences of BRIC during the formative years of their primary education systems. Brazil, Russia, India, and China were among the largest and poorest states in the world in the early 20th century, and their low level of development limited investments in mass schooling. Central authorities in each country mostly absolved themselves of the responsibility of providing primary education. As a result, the provision of education was frequently decentralized to lower levels of government, where the absence of accountable and representative democracy allowed local elites to capture political institutions, limit redistributive taxation, and dictate how public resources were allocated. However, variation among elites or in the political and economics conditions they faced (whether across space or over time) generated multiple schooling equilibriums across and within BRIC.

In India and China, the lack of functional democracy and weak central authorities meant elites were able to fully capture the local government institutions responsible for public funding

of education. Colonial restrictions on fiscal resources and caste and religious divisions among local elites limited public spending on primary schooling in India. Indian elites and colonial policies jointly contributed to India having the lowest levels of primary school expenditures per school age population. In China, the devolution of political and fiscal authority in the late-Qing and Republican eras was associated with the collapse of central authority, growing local political involvement by old and new elites, and rising social and military conflict. There was a shift towards modern forms of primary education supported by public funds, but elite-control of school policies and limited local fiscal resources constrained this development. Only more commercially developed areas and places where the traditional elite gave way to one interested in modern education saw any substantive investments in mass public schooling. Such new elites in China were less constrained by central authorities and were often more pro-schooling because of their economic needs, unlike Indian local elites, who were perhaps more anti-public schooling because it presented fewer direct political or economic benefits.

Brazil and Russia – marginally richer and possessing slightly broader forms of elite democracy – saw greater investments in public primary schooling than India and China. In Brazil, fiscal federalism and literacy restrictions on voting after 1891 increased elite support for education in states and municipalities that had high export tax revenues or where the elite required greater voter turnout to maintain political power. Until the 1900s, variation in the support for mass public education in Russia was driven by differences in who controlled political institutions at the local level. The *zemstvo* offered some channels for the expression of broad popular interest in schooling, but elite control of this and other local institutions meant that it was generally those districts with more liberal nobility that invested more in public education. The founding of a national assembly in 1906 with some popular representation coincided with more

funding for basic education from the central government, but it took the Soviet Union's centralized policies to push the country towards universal primary education.

New data and detailed analyses of the political economy of schooling in the early 20th century BRIC countries lend support for the basic framework we laid out in Section 3.

Decentralization in the face of weak or absent democratic mechanisms led to local elite capture of political institutions, compounding the constraints of low income, high opportunity costs, and limited public funds. This meant that relatively little was spent on mass schooling, as the elites tended to utilize private education and saw little need to engage in redistributive policies that might have brought challenges to their political and economic control (as also described for Latin America in Engerman and Sokoloff, 2002). Democratically driven central government policies and investments may have helped overcome low incomes and local constraints (i.e. Gallego, 2010), as was perhaps evident following the (slightly) representative national elections in Tsarist Russia after 1906. But as the Soviet example, or even the cases of Meiji Japan and 19th century Prussia, would suggest, strong but relatively undemocratic initiatives can force backward countries towards universal primary schooling.

We view the limited and heterogeneous expansion of public primary education in BRIC over our period as a series of local stories. Only where the characteristics or preferences of the local elite and their decentralized freedom to influence local policies coincided with the advancement of basic public schooling were initiatives put in place to build schools, hire teachers, and reform curricula.⁷¹ In all four cases, local economic conditions and the "liberalism" of the elite were two such characteristics, but what constituted the elite, and what determined variation in their composition differed between each country. We have argued that in the context

⁷¹ A similar argument is proposed Persson and Zhuravskaya (2011), who note that elite capture may actually substitute for fully accountable local governments when their preferences are aligned with majority interests.

of poor, relatively undemocratic societies such as BRIC, the heterogeneity of the elites and the policies they proposed help explain both the cross-country differences observed in Table 1 and the within-country variation of Tables 2 and 3.

Given the wideness of our comparative lens, we do not attempt to explain all of the variation in schooling outcomes evident in Tables 1-3. Our theoretical framework is intended as a tool to help understand just one set of possible mechanisms behind the unsuccessful cases of educational development that Easterlin's original question targeted and that we explore in our analytical surveys of the experiences of Brazil, Russia, India, and China. In laying out our argument regarding decentralization, imperfect democracy, and elite capture in BRIC, we have left open a number of important issues for future research.

It is evident from the case studies that there was persistent variation in the extent to which primary education was "public," (i.e., financed with some form of tax revenue and open to the majority of the population) or "private" (supported by endowments, student fees, and religious organizations and exclusive in some respect). An important topic that demands more attention is the extent to which private education for elites crowded out spending on public schooling à la De la Croix and Doepke (2009). Furthermore, we have focused on public primary schooling, mostly as a compromise over data availability and the scope of the paper. But the allocation of resources by governments and elites also took place between different levels of education. In terms of the returns to public spending, each of our countries likely overcommitted funds to secondary and tertiary schooling at the expense of primary education. To fully evaluate the costs of such misallocation, comparable data on upper levels of schooling are necessary.

Finally, we have limited our analysis to the decades around 1910. This covers the consolidation of mass public financed education in much of the developed world, but

developments in the BRIC countries took very different trajectories. The Soviet Union quickly moved towards universal schooling after 1920, but India, China, and Brazil continued to provide relatively limited basic education well into the 20th century. Only in the last 30 years have these three countries made substantial inroads in primary education. It is worth considering whether the recent advances of education in these countries – which some scholars have linked to decentralized policymaking – have historical roots, and if regional variation today is similar to what we find a century ago.

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Figure 1: BRIC Primary School Enrollments in Comparative Perspective, c. 1910

Note: The data underlying this Figure are taken from Table 1.

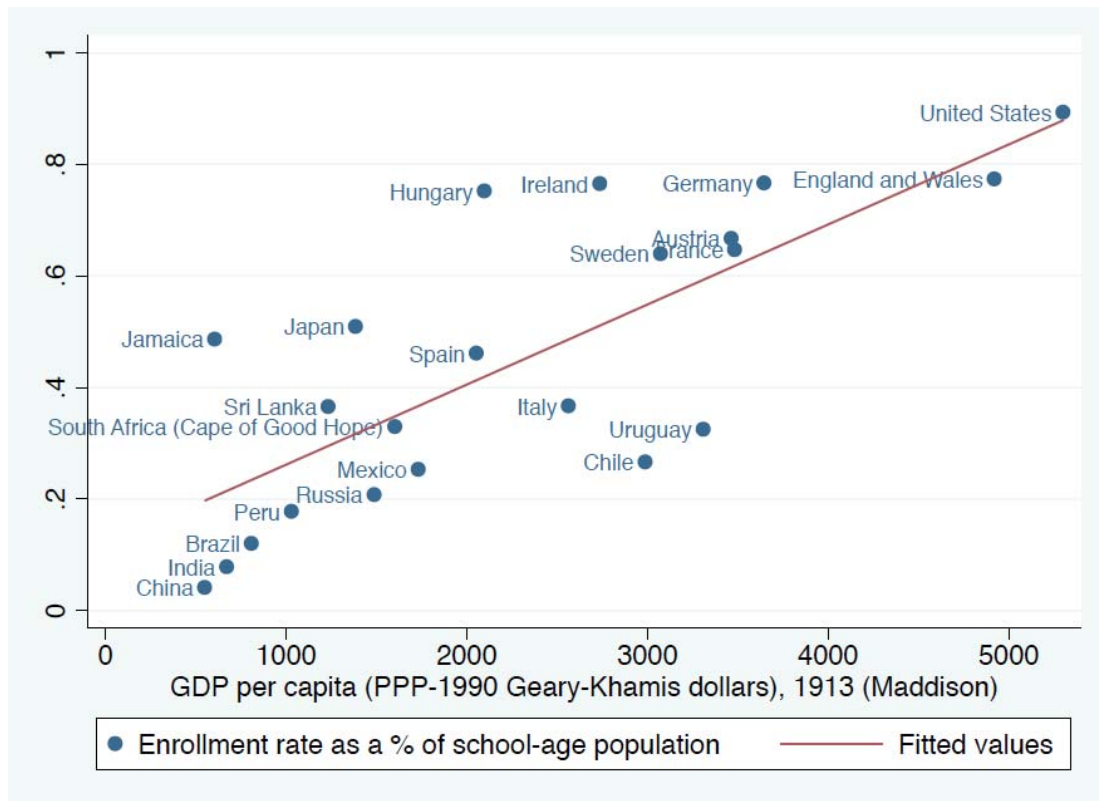


Table 1: Expenditures on elementary education per enrolled student and per school age population, various countries, c. 1910

Country	GDP per capita (PPP-1990 Geary- Khamis dollars), 1913 (Maddison)	Expenditures per school age population (nominal US\$, c. 1910)	Primary school expenditures per school age population as a % of GDP per capita in 1910 Geary- Khamis dollars	Expenditure per enrolled student (Nominal US\$ c. 1910)	School Size (Total enrollment/ Total teachers)	Teachers / 1,000 Children of School Age	Enrollment rate as a % of school age children	Lindert's Public School Enrollment Rate of 5-14 year-olds (1910 or Year) in %
Brazil	811	1.32	1.8%	11.15	31	2.8	12.0	12.3
Russia	1,488	2.80	2.1%	7.07	28	6.0	19.5	13.9 (1900)
India	673	0.10	0.2%	1.25	29	2.7	7.8	6.5
China	552	0.16	0.3%	3.58	n/a	n/a	4.0	4.5 (1920)
BRIC (weighted average)	762	0.6	0.6%	3.6	31	3.7	8.3	n/a
United States	5301	20.9	4.4%	21.8	34	27.9	96.1	89.6
Austria	3465	4.3	1.4%	6.9	44	14.4	62.7	68.0
Hungary	2098	3.9	2.1%	5.5	104	6.8	70.8	52.6
France	3485	6.5	2.1%	7.6	37	23.3	85.5	84.8
German Empire/Prussia	3648	8.7	2.6%	12.2	61	11.6	71.4	72.0
England and Wales (UK for GDP)	4921	14.3	3.2%	17.1	34	24.7	83.6	72.9
Ireland	2736	7.9	3.2%	9.3	50	17.1	84.9	57.4
Italy	2564	1.8	0.8%	4.8	41	9.2	37.7	44.6
Spain	2056	1.2	0.6%	2.5	n/a	n/a	46.3	47.3
Sweden	3073	10.4	3.7%	15.5	41	16.4	66.8	69.9
Japan	1387	1.4	1.1%	2.9	48	10.1	47.9	59.9
South Africa (Cape of Good Hope)	1602	4.6	3.2%	12.8	26	13.9	36.2	21.0
Mexico	1732	1.1	0.7%	5.5	n/a	n/a	20.2	18.6
Chile	2988	3.3	1.2%	11.9	44	6.3	27.9	43.1
Uruguay	3310	1.3	0.4%	4.4	40	7.6	30.3	29.2
Bolivia	n/a	1.1	n/a	5.5	43	4.8	20.6	13.6 (1900)
Peru	1032	0.6	0.6%	2.3	49	4.9	24.4	15.3
Jamaica	608	1.0	1.9%	2.5	n/a	n/a	41.1	44.9
Sri Lanka	1234	0.5	0.4%	1.5	n/a	n/a	32.0	30.2

Note: The expenditure and enrollment data come from United States (1910) and, for BRIC countries, the sources cited in Tables 2 and 3. They relate to various school years between 1904 and 1911. School age population for non-BRIC countries was estimated using data from Mitchell (2003). If the school age population data was unavailable for the specific year for which the expenditure and enrollment data are reported in United States (1910), we calculated the proportion of the school age population for the nearest year reported in Mitchell (2003) and applied it to the population reported in United States (1910). For a few countries where Mitchell (2003) does not report the school age population, we relied on local censuses and government publications. All GDP per capita data comes from Maddison (2006). We convert Maddison's GDP data to nominal US\$, c 1910 using the United States GDP deflator. The enrollment rates from Lindert (2004) are based on census population figures and, occasionally, different geographic units. This explains the sometimes large differences between our rates and his.

Table 2. Variation in Enrollment Rates within BRICs (Primary Enrollment*100 / Children of School Age), c. 1910

Brazil (states)	1914-15	European Russia (regions)	1910-11	British India (provinces)	1911-12	China (provinces)	1912
Alagoas	7.0	Northern Provinces	20.4	Bengal	8.3	Jiangsu	6.5
Amazonas	8.5	Ural Provinces	16.8	Bombay	12.2	Zhejiang	7.1
Bahia	7.9	Central Industrial Region	23.6	Burma	6.1	Anhui	3.1
Ceará	7.3	Central Agricultural Region	19.7	Central Provinces and Berar	7.3	Jiangxi	3.4
Federal District	32.7	Volga/Don Region	18.8	Coorg	13.1	Hubei	5.8
Espírito Santo	10.8	Left-Bank Ukraine	18.1	Eastern Bengal and Assam	8.9	Hunan	5.3
Góias	7.8	Right-Bank Ukraine	15.3	Madras	10.0	Sichuan	4.1
Maranhão	8.6	"New" Russian Provinces	19.3	North-West Frontier Province	2.7	Fujian	2.5
Minas Gerais	11.5	Belorussian Provinces	16.1	Punjab	4.2	Yunan	11.0
Mato Grosso	15.1	Baltic Provinces	33.5	United Provinces	4.4	Guizhou	3.1
Pará	16.6	Capital Provinces	30.4			Guangdong	4.3
Paraíba	6.3					Guangxi	5.6
Pernambuco	8.1					Shaanxi	5.5
Piauí	7.1					Shanxi	10.0
Paraná	13.3					Henan	3.1
Rio de Janeiro	9.7					Hebei	7.5
Rio Grande do Norte	9.4					Shandong	6.6
Rio Grande do Sul	21.3					Gansu	3.8
Santa Catarina	20.0					Xinjiang	0.5
Sergipe	10.6					Liaoning	7.1
São Paulo	13.8					Jilin	2.5
						Heilongjiang	4.7
Brazil	11.9	European Russia	19.5	British India	7.8	China	4.0
Coeff. Of variation	0.5	Coeff. Of variation	0.3	Coeff. Of variation	0.4	Coeff. Of variation	0.5

Sources by country: Brazil: Education Census of 1907 and Population Census of 1900. The population of children in school age is estimated using the population pyramids of the 1900 census. Russia: Enrollment rates comes from Pokrovskii, V.I., ed. Odnodnevnaia perepis' nachal'nykh shkol Rossiiskoi Imperii proizvedennaia 18 Ianvaria 1911 goda. 16 vols. St. Petersburg, Russia: Russia, Ministerstvo narodnago prosveshcheniia, 1916. Population totals come from Russia. Tsentral'nyi statisticheskii komitet, Ministerstvo vnutrennykh del. Statisticheskii ezhegodnik Rossii 1911 g. St. Petersburg, Russia, 1912. India: Quinquennial Review of Education- 1907-1912, Supplemental Tables. These tables include population, but no age distribution of the population. We used the 1911 Census of India for the school age population from 5 to 15. Since the Quinquennial Reviews include a small number of Princely States in their data for Bombay, CP, Burma and different boundaries for Bengal on account of the 1905 partition of the province, we multiplied the population for these regions as reported in the Quinquennial Reviews with the proportion of the school age population from the Census for the British provinces of these regions. We also used the average all-India proportion of 25% for 5 to 15 year olds to calculate the school-age population for Coorg. China: The First Educational Statistics Yearbook and population figures from the Census of 1910.

Table 3. Variation in Expenditures on Elementary Education within BRICs (US\$ per Children of School Age), c. 1910

Brazil	1914-15	Regions (European Russia)	1910-11	British India	1911-12	China	1912
Alagoas	0.42	Northern Provinces	3.20	Bengal	0.07	Jiangsu	0.57
Amazonas	1.70	Ural Provinces	2.40	Bombay	0.28	Zhejiang	0.52
Bahia	0.21	Central Industrial Region	3.22	Burma	0.07	Anhui	0.29
Ceará	0.64	Central Agricultural Region	2.27	Central Provinces and Berar	0.10	Jiangxi	0.27
Distrito Federal	.	Volga/Don Region	2.32	Coorg	0.22	Hubei	0.22
Espírito Santo	1.18	Left-Bank Ukraine	2.24	Eastern Bengal and Assam	0.07	Hunan	0.32
Góias	0.10	Right-Bank Ukraine	1.59	Madras	0.13	Sichuan	0.17
Maranhão	0.29	"New" Russian Provinces	3.26	North-West Frontier Province	0.04	Fujian	0.24
Minas Gerais	1.08	Belorussian Provinces	1.46	Punjab	0.07	Yunan	0.45
Mato Grosso	2.49	Baltic Provinces	5.02	United Provinces	0.05	Guizhou	0.19
Pará	1.04	Capital Provinces	9.61			Guangdong	0.48
Paraíba	0.53					Guangxi	0.40
Pernambuco	0.55					Shaanxi	0.26
Piauí	0.19					Shanxi	0.39
Paraná	1.82					Henan	0.13
Rio de Janeiro	1.25					Hebei	0.47
Rio Grande do Norte	0.58					Shandong	0.48
Rio Grande do Sul	1.62					Gansu	0.10
Santa Catarina	0.93					Xinjiang	0.15
Sergipe	1.05					Liaoning	1.12
São Paulo	4.32					Jilin	0.49
						Heilongjiang	1.00
Brazil	1.32	Total, European Russia	2.80	British India	0.10	China	0.16
Coeff. of Variation	0.89	Coeff. of Variation	0.69	Coeff. of Variation	0.72	Coeff. of Variation	0.65

Notes and sources: Local currencies were first deflated to 1910/11 using local price indices and then converted to US\$ using 1910 exchange rates.

Sources by country: Brazil: Expenditures per children estimated using the average total expenditures on education by state for 1914-1915 divided over our estimates of population in school age. We estimate population in school age using a linear interpolation between the data we have from the census of 1890 and 1920 (Brazil, 1940). Data for expenditures comes from Brazil (1926) and from Wileman (1909). Data for Brazil assumes that half of the federal budget was spent on elementary education in the Federal District. Russia: All schooling info, including expenditures, comes from Pokrovskii, V.I., ed. Odnodnevnaia perepis' nachal'nykh shkol Rossiiskoi Imperii proizvedennaia 18 Ianvaria 1911 goda. 16 vols. St. Petersburg, Russia: Russia, Ministerstvo narodnago prosveshcheniia, 1916. Population totals come from Russia. Tsentral'nyi statisticheskii komitet, Ministerstvo vnutrennykh del. Statisticheskii ezhegodnik Rossii 1911 g. St. Petersburg, Russia, 1912. India: Expenditures on primary education and population are from Progress of Education in India, 1907-1912, Vol. II-Appendices and Tables, Supplemental Tables, 1 and 22. China: "History of China's Population", the 6th volumn, by Ge Jianxiang; The First Education Yearbook. The school age population for each country is constructed from the same sources as table 2.