

# GLOBAL ECONOMIC INTEGRATION AND THE POLITICAL ECONOMY OF EDUCATION PROVISION

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## Abstract

How does globalization shape politicians' incentives to provide education in emerging economies? Existing research focuses on how global competitive pressures shape politicians' willingness and ability to supply education. I instead focus on how economic integration brings new skill-biased employment opportunities, increasing citizen demand for education. I argue that globalization incentivizes local politicians to rapidly expand access to education that prepares people for export-oriented employment. However, in contexts of slow-moving bureaucracy and clientistic exchange, politicians may direct their efforts towards the expansion of *private* – rather than public – schooling. I leverage a unique external shock, the Indian IT and software boom, to explore globalization's consequences for education provision. Using fine-grained data on the creation of primary and secondary schools, I find that localities exposed to the IT boom saw stronger growth in English-medium schooling, a requisite skill for these employment opportunities. However, this effect is entirely attributable to increased private English-medium schooling. The growth in private schools is concentrated in the run-up to local elections, suggesting a potential electoral logic. My argument and findings have implications for whether and how people in emerging economies can access globalization's economic benefits.

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# Introduction

How does global economic integration shape politicians' incentives to provide education in emerging economies? Understanding how openness shapes education provision is essential to identifying its consequences for social welfare and inequality (Antràs et al. 2017). The competitive pressures imposed by globalization can change a government's willingness and ability to supply education. Integration can constrain government budgets, limiting spending on social welfare priorities like education (Kaufman and Segura-Ubiergo 2001; Bastiaens and Rudra 2018). But investment in education could also be a strategy to help countries compete in world markets (Rudra and Haggard 2005). These countervailing forces contribute to inconclusive analyses of the relationship between globalization and education provision.

One less-explored consequence of global economic integration is that it can increase citizen *demand* for education. Globally oriented production introduces new technologies and production practices that require skilled labor as a complementary input (Ansell 2008). This creation of skill-biased employment opportunities generates a wage premium for skills demanded by globally oriented firms (Burstein and Vogel 2017). In other words, globalization can increase the returns to (specific forms of) human capital, increasing citizen demand for educational opportunities to take advantage of higher wages (Shastry 2012; Li 2020). The fact that globalization might increase citizen demand for education raises the possibility that politicians in exposed areas face localized electoral incentives to supply education.

I investigate how globalization-induced demand for human capital changes the provision of education unevenly within an emerging economy. Rather than aggregate spending, I analyze *mode* (public vs. private) as well as *content* (globalization-specific skills) of provision, two underexplored facets of education policy. I argue that in areas exposed to openness, local politicians face political incentives to rapidly expand access to education that is perceived as high-quality and prepares students for global employment opportunities. But in contexts of limited state resources, inefficient bureaucracy, and clientistic exchange, politi-

cians may eschew the expansion of *public* schooling and use their influence and (in the case of incumbents) control over state resources to increase provision through the *private* sector. Politicians can facilitate private schools by offering land grants, subsidizing construction materials, assisting with regulatory clearances, or even opening schools themselves. Because private education can expand more rapidly and is often perceived to be higher-quality, it can prove attractive to politicians who want to claim credit for making global opportunities accessible to constituents.

In short, global economic integration incentivizes politicians to invest resources in the establishment of private schools geared toward globally attractive skills. The welfare consequences of a shift to private education are unclear. Citizens may have greater access to higher-quality education that prepares them for lucrative employment opportunities, with limited evidence suggesting that private schools produce better educational outcomes (Ashley et al. 2014). However, private schooling redistributes the cost of education from the state to individuals, and this cost may limit access, meaning that marginalized groups would not be able to reap the benefits of integration (Zuilkowski et al. 2018). The shift to private schooling may also limit political accountability for education provision and have negative externalities for public schooling.

I explore these dynamics in India, an increasingly integrated emerging economy. I zoom in on a distinctive shock: the turn-of-the-century information technology (IT) and software boom (hereafter “IT boom”). Due to a range of external factors – namely the dot com boom and the Year 2000 (Y2K) problem – India experienced rapid employment growth in the high-skilled, English-language IT/software industry.<sup>1</sup> The entry of these employment opportunities created a large wage premium for English competency, as well as engineering

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<sup>1</sup>While these factors are external in nature, India did engage in several reforms (including trade liberalization) to incentivize growth in IT and software in the 1990s. These policies were enacted at the central government level and applied uniformly across India. I discuss this in greater detail later.

skills. However, the benefits of this shock were distributed highly unequally, with some areas seeing large returns and others seeing virtually no increased wage premium.

I leverage subnational heterogeneity in exposure to the Indian IT boom to identify the effects of global economic integration on local education provision. As I discuss later, India has a large private education system that operates alongside public providers. Highly detailed, school-level data allow me to analyze whether exposure to the IT boom is associated with changes in the mode and content of new education provision. Using a difference-in-differences design, I find that areas exposed to the boom saw growth in the creation of schools with English-medium education. However, the entirety of this growth can be attributed to the opening of new private, non-government-aided schools. Importantly, the growth in new private schools in exposed areas is concentrated in the run-up to local elections, providing support for an electoral logic to increasing supply of private education. Overall, these findings suggest that globalization-induced education demand in India led to growing English-medium, hybridized service delivery.

This article makes a few contributions. First, it shifts attention from the external constraints imposed by globalization toward how integration can increase citizen demand for human capital. Previous accounts note this dynamic (e.g., Ansell 2008, 2010) but do not fully draw out its consequences for emerging economies. In doing so, I grapple more concretely with how globalization heterogeneously shapes the domestic political incentives of politicians to provide education. I also move beyond analyzing cross-national, aggregated education spending and explore subnational variation in the mode and content of education provision in response to globalization. Changes in the mode and content of education have significant welfare consequences, and so understanding how globalization influences them is critical to identifying its broader socioeconomic impacts.

## Globalization and Education: A Race to the Bottom?

How globalization shapes education provision is a long-standing theoretical and empirical question. Perhaps the most familiar account is that globalization causes a “race to the bottom” which depresses social spending. Liberalization in trade and investment pushes countries into a global competition for production and capital. To compete on world markets, countries must minimize costs of doing business for local firms and multinational corporations. As a result, governments are pressured to lower taxes on firms, reducing capacity to spend on social welfare priorities like education (Kaufman and Segura-Ubiergo 2001; Rudra 2002). Relatedly, declining revenue from easy-to-collect taxes on imports and exports – a consequence of liberalization – can make it difficult for emerging economies to find alternative sources of revenue (Bastiaens and Rudra 2018). In short, politicians are less able to supply education as a result of openness.

However, the pressures of globalization might also increase social spending – including education – through two mechanisms. First, citizens may demand more spending to compensate for increased economic volatility that exposure to world markets introduces (Rodrik 1998). While there is some evidence for this dynamic in advanced economies, it does not seem to be the case for emerging economies (Rudra 2008). Second, human capital development could be a complementary strategy to openness if competing on world markets requires a healthy and skilled workforce. Spending on priorities that improve a country’s human capital stock, including education and health, could help countries compete on world markets and take advantage of the benefits of openness (Rudra and Haggard 2005; López-Cariboni and Cao 2019). The result could be both upward and downward pressures on education spending as a result of globalization.

Other accounts more directly engage with how integration shapes the domestic political incentives of politicians to provide education. For example, liberalization may change the incentives of interest groups to support or oppose the expansion of education. Under autarky,

the highly educated oppose expansion because a growing supply of educated people can bid down the wages of highly skilled people. By contrast, in an open economy in which workers can “export” their skills, expansion of education is more palatable to the already-educated, allowing governments to increase education spending more easily (Ansell 2008, 2010).

I note some limitations in existing studies of globalization and the political economy of education provision. First, extant research primarily leverages cross-national time-series data on aggregate education spending to test these propositions. In most contexts, choices about the provision of education are made by subnational political actors, including state and local politicians. This is important because subnationally, exposure to openness can vary widely in emerging economies. Some areas with large concentrations of globally oriented production are heavily exposed to the pressures of openness, while other areas may see no meaningful economic change as a result of liberalization. This means that politicians may face heterogeneous political incentives to provide education as a result of integration, with which existing cross-national accounts do not grapple.

Second, existing literature predominantly focuses on the macro-level constraints imposed by globalization on politicians. How globalization may change citizen demand for education in emerging economies is relatively less investigated, a point to which I return in the section that follows. Finally, existing perspectives focus on education expenditure as the primary outcome. Yet spending is just one choice politicians make regarding the provision of education. Global economic integration could potentially influence other facets of education policy, including both who provides education (e.g., the public or private sector) and the content of educational opportunities. I return to these points in the section that follows.

## Globalization-Induced Education Demand

One under-explored impact of globalization is that it can increase citizen *demand* for education.<sup>2</sup> When globally oriented production enters, it often introduces new technologies and production processes that are more advanced than what indigenous firms possess. These technologies and practices require higher-skilled labor as a complementary input. For example, complex machinery or application of information technologies requires skilled labor (Acemoglu 2003). However, skilled labor is typically scarce in emerging economies. Those who hold skills that are attractive to globally oriented firms enjoy a significant wage premium (Shastry 2012; Burstein and Vogel 2017). Importantly, the wage premium for skilled labor is heavily concentrated in subnational areas that are directly exposed to global economic integration as a result of their industrial composition and infrastructure quality.

Because globalization increases the wage premium for skilled workers, the returns to holding skills that are attractive to globally oriented firms grows as a result of global economic integration. I argue that this increases citizen demand for education that allows people to pursue high-wage employment opportunities. This may manifest in increased demand for certain kinds of primary/secondary schooling by parents anticipating opportunities for their children. It also likely manifests in increased demand for post-secondary training. Indeed, a range of research in economics demonstrates a human capital response to globalization (Shastry 2012; Oster and Steinberg 2013; Liu 2019; Li 2020; Ghose 2021).

I argue that this globalization-induced demand for new educational opportunities changes the political incentives of local politicians. In emerging economies, the provision of education is often limited. Universal primary enrollment is often not yet achieved, and existing educational institutions may not have capacity or requisite resources to absorb globalization-induced demand. Local politicians who have some control over education policy see increased

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<sup>2</sup>Ansell (2008, 2010) does suggest that globalization increases *business* demand for a skilled workforce, but does not explore the direct effect on citizen demand for education.

demand for education as a political opportunity for credit claiming. Working to provide educational resources that match globalization-induced human capital demand can provide an electoral advantage. Providing new, visible access to globally relevant educational opportunities can allow politicians to credibly claim they are enabling local citizens to capture the benefits of economic integration. One clear way of visibly expanding access to education is by opening new schools that match globalization-induced citizen demand for skills.<sup>3</sup>

However, politicians face constraints that limit their ability to rapidly expand public education opportunities. First, state and local governments often have limited resources to spend on education. Rapidly expanding those resources to respond to globalization-induced education demand is likely difficult. This might especially be the case if global economic integration, through a range of mechanisms, constrains government spending in developing country contexts (Bastiaens and Rudra 2018). Additionally, governments in emerging economies often have slow-moving bureaucratic structures that can slow the expansion of public goods like education. Inefficient bureaucracies, combined with public sector corruption, could inhibit politicians from growing educational opportunities quickly enough to reap electoral gains. Finally, in electoral systems characterized by clientelistic exchange, delivering particularistic goods to specific constituencies may be incompatible with expanding public educational opportunities. I argue that each of these dynamics significantly limits public education expansion as an electoral strategy that politicians can quickly deploy to claim credit for globalization's economic benefits.

How do politicians respond? I argue that rather than expand public schooling, politicians facilitate growth in *private* education provision, both directly and indirectly, to demonstrate their competence and ability to deliver globalization's benefits to constituents. While private schooling may traditionally be perceived as not involving political actors, there are a range of

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<sup>3</sup>It is unclear whether new educational opportunities need to be of high quality for politicians to enjoy electoral benefits. New opportunities provided by politicians may in fact be of low quality, but still may provide electoral gains due to perceived new provision of schooling.

ways that politicians can facilitate the expansion of private education provision (Read 2022). For example, politicians can pursue regulatory reforms that make opening privately operated schools easier in their constituencies. They may use their political influence to subsidize private schooling, such as by allowing private operators to locate on public lands or use public buildings. Politicians may use their connections with local civil society organizations and other private actors to open private schools. They may even use their private resources to open their own school, consistent with clientelistic provision of public goods.<sup>4</sup>

In short, I argue that global economic integration can incentivize politicians to provide greater educational resources that specifically match the demand of globally oriented employment opportunities. However, the political necessity to rapidly expand educational opportunities is likely to result in increased private, rather than public, provision. In the sections that follow, I investigate this possibility empirically using India’s globalization-induced boom in high-skilled employment opportunities in the IT sector.

## **Setting: The Indian Information Technology Boom**

To test the political implications of human capital responses to globalization, I leverage an external shock that increased the returns to human capital in India: the turn-of-the-century IT and software boom. Due to a range of global factors like the Year 2000 (Y2K) problem, the dot-com boom, and the development of international telecommunications technologies, India saw rapid and unprecedented growth in its IT sector (Ghose 2021). Nearly all of this growth was export-oriented (i.e. the provision of IT services and computer software for companies outside of India, primarily in the US and Europe). Indian IT services exports accelerated rapidly in the late 2000s. From 2000 to 2016, the value of Indian IT-enabled services (ITES) exports grew from \$3 billion to more than \$100 billion (Dhar and Joseph 2019). This boom was composed of both indigenous export-oriented firms and the entry of

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<sup>4</sup>In discussion that follows, I unpack specific actions that politicians take in India to facilitate the expansion of private schools.

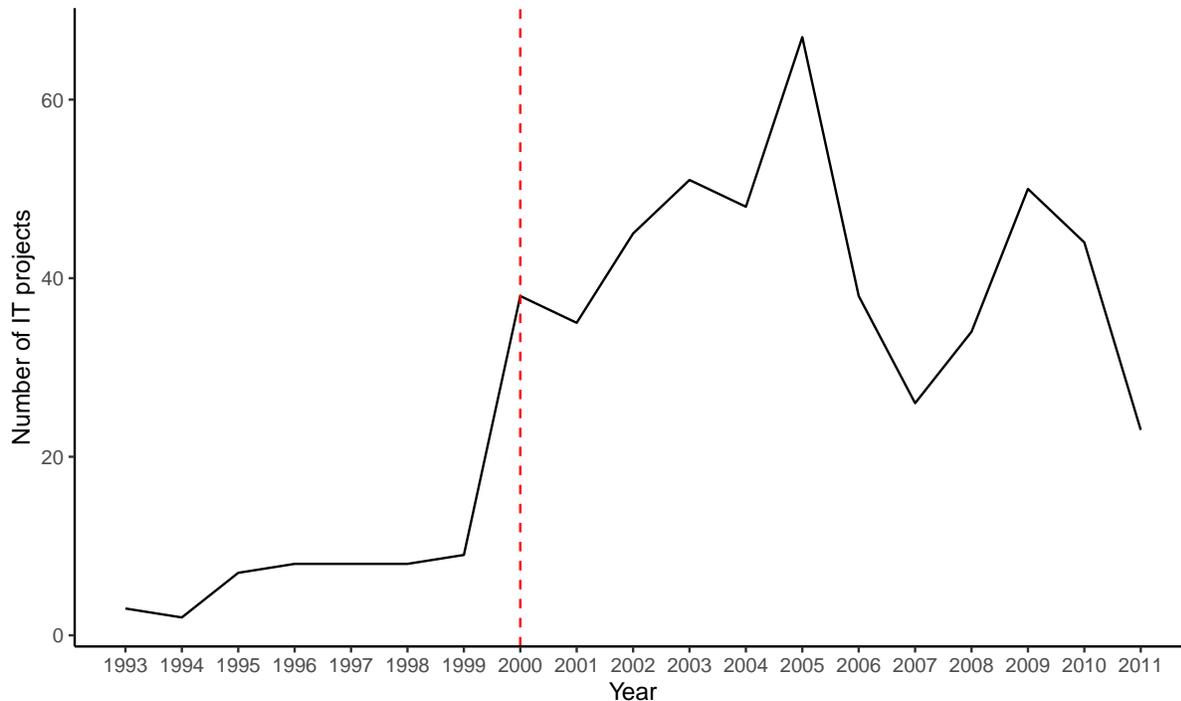


Figure 1: ITES and software investments, 1993–2011. Source: CapEx.

multinational technology companies (MNCs), though foreign investment arrived relatively later (Khanna and Morales 2017).

This boom is regarded as beginning in the late 1990s, but the most significant industry growth occurred between 2000 and 2010. Figure 1 illustrates the count of new investment projects in ITES and computer software between 1993 and 2011. The figure illustrates that this sector experienced massive growth starting in 2000. The boom peaked around 2004 and 2005, but new investment remained high until 2011. This influx of new investment in the IT sector was not evenly spread, however; nearly all new investment flowed to a small handful of states. I harness this subnational variation in the analysis that follows, comparing educational outcomes in exposed and non-exposed areas over time.

Research from economics suggests that the Indian IT boom significantly influenced Indians’ educational choices. Notably, the growth incentivized people to acquire specific forms of human capital that made them competitive for skill-biased employment opportunities. Specifically, Indians were incentivized to learn English (a prerequisite for working in the IT

sector), as well as acquire proficiency in subjects related to IT services (Shastry 2012; Oster and Steinberg 2013; Ghose 2021). However, existing research does not explore whether the IT boom influenced the supply of new educational resources by public or private actors. This is the question I take up in what follows.

In some ways, the Indian IT boom is a distinctive economic event, involving a unique set of circumstances (country size, specificity of the IT/software industry, language dynamics, and the presence of a robust private education sector). This raises concerns that it is not directly comparable to other contexts and experiences with global economic integration. Despite these distinctive features, I contend that the Indian IT boom is a particular example of the broader phenomenon of globalization introducing skill-biased employment opportunities – and one that is empirically useful for uncovering the consequences of that phenomenon. While the specific circumstances may be unique, I argue that there are still broader lessons about how globalization generally shapes the political incentives of local politicians to provide education. Additionally, India is not unique in its hybridized delivery of education, with a wide range of countries in Latin America, South Asia, and Southeast Asia also having relatively widespread private schooling (Akmal et al. 2019).

There may also be concerns that the Indian IT boom was not a strictly exogenous event, but was instead influenced by intentional Indian policy choices designed to foster investment in this industry. Certainly, the Indian central government adopted policies in the 1980s and 1990s – including tariff reductions and the creation of IT-specific special economic zones – to foster investment in the IT and software industry. However, my contention is that the demand for IT and software services from the global economy is orthogonal to subnational politicians' incentives and education provision, which is largely a state and local responsibility in India. In the empirical analyses that follow, I use event study designs to probe for the existence of anticipatory effects on education provision and find little evidence to this effect.

## Education in India

To ground my empirical analysis, I first provide some background on India’s complex primary and secondary education system. India has a range of public and private providers and wide heterogeneity in quality of provision. The Indian Constitution guarantees free universal primary education, though in reality central and state governments have struggled to achieve this goal (Kaushal 2012). Public schools are financed and governed concurrently by central and state governments (Chattopadhyay and Roy 2017). Programs like the National Policy on Education (1986), District Primary Education Programme (1994), Sarva Shiksha Abhiyan (2002), and Right to Education Act (2009) were designed to increase education funding and quality (Davies 2018). However, India still struggles to spend enough to educate its population: total public education spending as a percentage of GDP continues to lag behind other emerging economies like Brazil, Malaysia, and South Africa (World Bank 2022). Additionally, schooling quality is highly heterogeneous across states, reflective of varying levels of investment across space.

In addition to government provision, India has seen rapid growth in private schooling. Two types of private schools exist in India: aided and unaided. Aided schools bear resemblance to charter schools, with government financing and regulation but private governance. By contrast, unaided schools receive no direct funding from government sources and are managed privately; they are not accountable to government standards (Kingdon 2020). However, unaided schools can gain “recognition” by the government for meeting some basic standards of provision. This article focuses exclusively on the growth of private unaided schools.

Most unaided schools are financed by low student fees. Private schools are not subject to public teacher salary regulations, meaning labor costs are much lower, enabling low-fee provision (Muralidharan and Kremer 2007). This is not to say that private schooling is not exclusionary – children from poor families are less likely to attend private schools – but private schooling is a realistic option for many families (Härmä 2011). Qualitative and survey evidence suggests that parents perceive private schools to be better than public schools and

are willing to spend significant portions of their income on private schooling. There is some modest evidence that private schools do outperform public schools, but this effect is difficult to identify due to potential selection effects (Desai et al. 2009).

Since the early 1990s, private education provision has grown extremely rapidly but unevenly across space. Some estimates suggest that at least a third of Indian children are educated in private primary and secondary schools (Kingdon 2020). While private schooling is primarily an urban phenomenon, these schools are now quickly spreading to rural areas, enabled by low teacher pay (Chattopadhyay and Roy 2017). While all schools in India are legally required to operate as a non-profit enterprise, it is an open secret that many produce revenue for the school operator. School management can engage in legally dubious accounting exercises that allow them to extract profit (Ghosh 2010; Kingdon 2020).

Local politicians play an influential role in the promotion and expansion of private education. Though private unaided schools do not receive direct government support, politicians have a range of indirect tools at their disposal. Perhaps most notably, they can subsidize private schools by allowing them to locate on public land at no cost (Juneja 2014). Politicians may arrange further indirect subsidies via tax concessions and abatements and cheaply provided building materials (Tilak 2004). Beyond this, politicians can use their political influence to expedite the approval process of local private schools and more broadly create a regulatory environment that is friendly to private providers (Ambast et al. 2017).

Finally and most directly, some politicians open private schools themselves. India's elections are characterized by clientelist relationships between politicians and constituents, and directly providing education through private channels is a viable electoral strategy (Read 2022). Either via their own wealth or through local civil society organizations, politicians can facilitate the creation of new private schools. Politician-owned schools have been the source of political controversy in some areas, with some politicians calling for a survey of how many schools are managed by elected officials (e.g., NDTV 2016). More broadly, privately providing public goods like education is a signal of competence and ability to deliver resources

in a clientistic electoral system with thick bureaucratic red tape (Hicken 2011).

## Data on Education Provision

I leverage an under-utilized, rich dataset on the provision of primary, secondary, and upper secondary education in India: the District Information System for Education (DISE). This dataset is maintained by the Indian central government and is designed to capture detailed information on the universe of recognized schools – both public and private. Schools annually receive a survey that they must fill out, which includes a wide range of information. These data allow me to construct many variables relevant to my argument, including: school location, year of establishment, whether the school is public or private, and medium (language) of instruction. I use the 2010-2011 round of the DISE data for the analysis that follows, which includes 1.3 million schools. These data represent the most accurate and complete enumeration of Indian schools. DISE is treated as official data by Indian governments and is used to allocate fiscal resources.

Using these data, I construct a panel dataset where the unit of analysis is a district-year.<sup>5</sup> I include all mainland districts. Because the data provide the year in which the school is established, I am able to create a panel in which I can measure, at the district level, the share (and count) of *newly established* schools in a given year that are private or public, as well as the share of schools that offer English-medium education.<sup>6</sup> I analyze the share of newly established schools that offer English-medium education as a measure of politician response to the IT boom. This variable allows me to observe the number of English-medium schools relative to the entirety of new education provision in a given district-year.

I focus on growth in English-medium schooling for a few reasons. First, English competency is the key prerequisite skill for ITES and computer software employment in India. Be-

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<sup>5</sup>Districts in India are roughly equivalent to American counties in that they nest within states, but are much larger in population on average.

<sup>6</sup>Inspection of the data indicates that whether a school is public or private, as well as whether it offers English-medium education, rarely (if ever) changes over time.

cause English is the global language of business, especially in services trade, export-oriented IT and software firms hire almost exclusively English speakers. This means that in order to train locals for ITES and software opportunities, politicians must boost English-medium education (Shastry 2012). Second, English-medium education requires only employing a teacher who can teach in English, whereas other potentially relevant training (for instance, more complex STEM skills) require new physical inputs (like computers or other equipment) that are likely more difficult for politicians to rapidly scale in response to demand. Finally, and more practically, availability of English-medium education is the most reliably observable characteristic of Indian schools that is directly relevant to the IT boom.

Beyond school characteristics that can be attached to the year in which the school was established, from the period 2005-2017, I can track a range of other time-varying features of schools. This includes school enrollment by grade, gender, and Scheduled Caste/Tribe status. I can also track school building conditions (i.e., whether the school is in good repair) and resources (i.e., school development grants received, textbooks received, number of teachers). While this version of the paper does not make use of this information, I discuss potential future directions using this data in the conclusion.

## **Empirical Strategy**

For preliminary analysis, I use a difference-in-differences research design to estimate the effect of exposure to India’s export-oriented IT boom on education provision in Indian districts between 1991 and 2010. My research design relies on the fact that the Indian IT sector is highly concentrated in a small number of subnational areas. Five states in India accounted for more than 85 percent of post-boom investment in ITES and computer software: Andhra Pradesh, Delhi, Karnataka, Maharashtra, and Tamil Nadu. I classify districts in these five states as “treated” and all other districts as “control.” Figure 2 illustrates the number of IT/software investment projects over time in treated and control districts. The figure shows that the post-2000 boom is heavily concentrated in treated states.

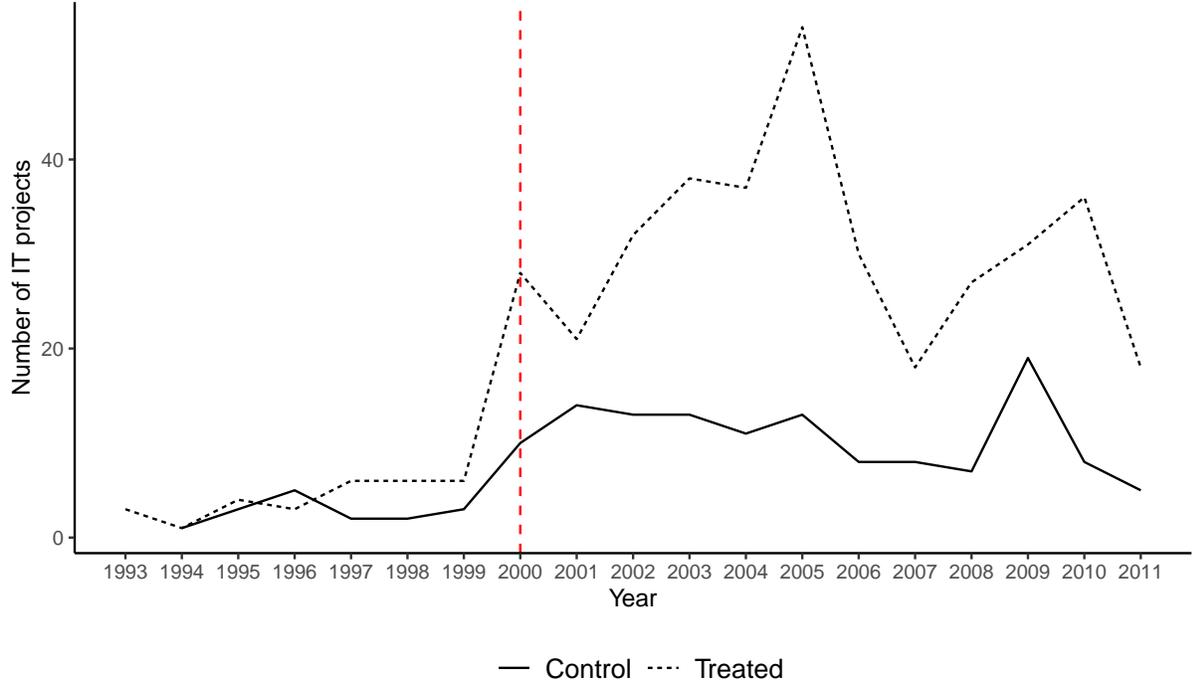


Figure 2: ITES and software investments in treated and control districts, 1993–2011. Source: CapEx.

I estimate the following difference-in-differences model:

$$ShareEnglish_{it} = \alpha_0 + \alpha_1 Treated_i * Post_t + \theta_i + \kappa_t + \theta_i * Year + \epsilon_{it} \quad (1)$$

where  $ShareEnglish_{it}$  represents the share of newly established schools with English-medium instruction in district  $i$  at time  $t$ . I disaggregate this outcome into the share of new English-medium schools that are public vs. private.  $Treated_i$  is an indicator variable equal to one if district  $i$  is located in a treated state and zero otherwise.  $Post_t$  is an indicator variable equal to one for years 2000 and later.  $\theta_i$  and  $\kappa_t$  are district and year fixed effects respectively. Finally,  $\theta_i * Year$  represents a set of district-specific linear time trends. I estimate this model using OLS and cluster standard errors by district. In additional models, I include district control variables observed at the 1991 and 2001 Indian Censuses interacted with year indicators (Scheduled Caste rate, literacy rate, and gender ratio).

Table 1: IT Boom and Establishment of English-Medium Schools

	<i>Dependent variable: Share</i>					
	English (1)	English (2)	Public English (3)	Public English (4)	Private English (5)	Private English (6)
$Treated_i * Post_t$	0.073*** (0.016)	0.054*** (0.016)	0.000 (0.007)	0.008 (0.009)	0.092*** (0.016)	0.075*** (0.017)
District FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
District trends	✓	✓	✓	✓	✓	✓
District controls	X	✓	X	✓	X	✓
Number of districts	579	548	579	548	579	548
Observations	11,164	10,587	11,164	10,587	11,164	10,587

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01. All models estimated using OLS.  $Treated_i=1$  for districts in Andhra Pradesh, Delhi, Karnataka, Maharashtra, and Tamil Nadu.  $Post_t=1$  for years 2000-2010. Controls: SC rate, literacy rate, and gender ratio interacted with year indicators. Robust standard errors clustered by district in parentheses.

## Results

I present my baseline results in Table 1. In Column (1), I estimate the effect of exposure to the IT boom on the share of newly established schools that offer English-medium education. In areas exposed to this boom, the share of new schools that are English-medium increases significantly in the post-2000 period, by about seven percentage points annually on average. In Column (2), I add several salient demographic control variables and find similar results. This suggests that exposure to economic integration leads to increased provision of education designed to prepare people for global employment opportunities.

I estimate an event study model to check for the existence of differential pre-trends and illustrate the dynamic effect of the IT boom on English-language schooling. I present the results in Figure 3, showing the yearly treatment indicator coefficients across the sample period with 95 percent confidence intervals; I omit 1999 as the reference period.<sup>7</sup> The

<sup>7</sup>Because this model includes district-specific trends, I must also exclude an additional period;

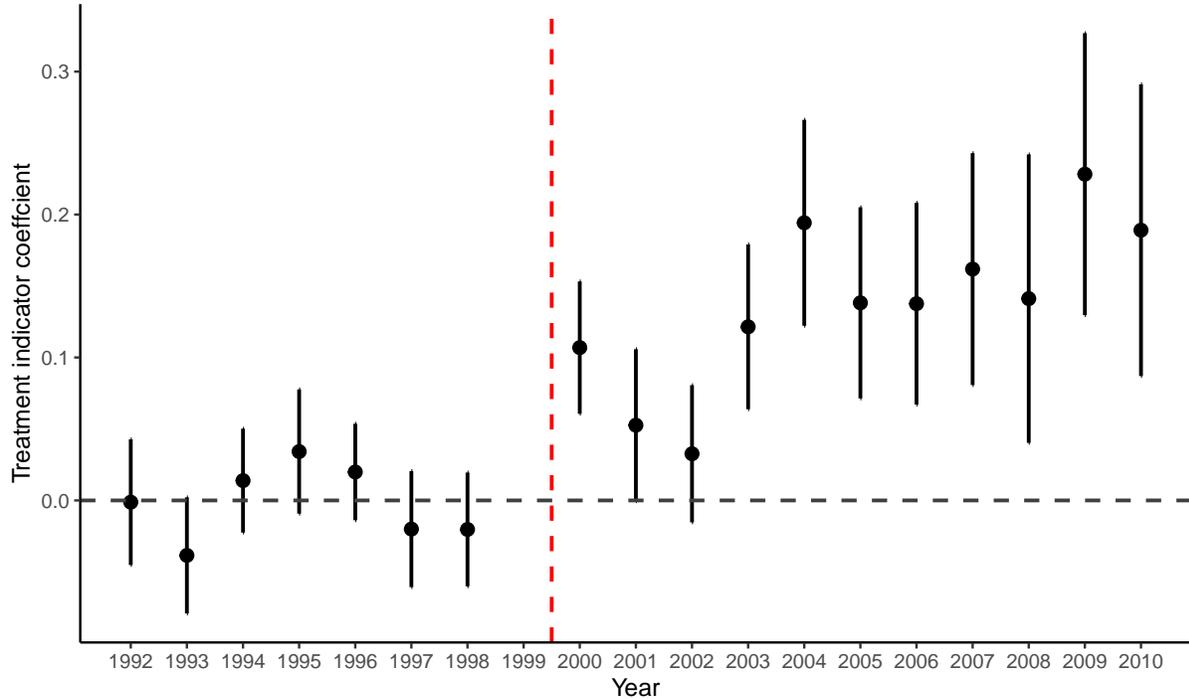


Figure 3: Year-by-year treatment model for share of English-medium schools.

increase in the share of newly established schools that teach English rises markedly starting in 2000 and persists through 2010. All post-boom coefficients are positive and statistically significant at  $p < .05$  except for 2001 ( $p=0.052$ ) and 2002 ( $p=0.183$ ). None of the pre-boom coefficients are statistically significant. Overall, these results suggest that the IT boom incentivized the creation of relatively more English-medium schools, a key skill to access global employment opportunities.

I disaggregate school creation by mode of provision – public versus private. While English-medium schools are a growing proportion of new school establishment in exposed areas, this effect is entirely driven by the growth of private English-medium schools. In Models (3) and (4), estimates suggest that the IT boom caused no new relative growth in public English schools. Strikingly, Models (5) and (6) show that the share of newly established schools that are private and teach English increases markedly: in exposed areas, these kinds of schools make up an additional nine percent of newly established schools annually.

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1991 is therefore excluded.

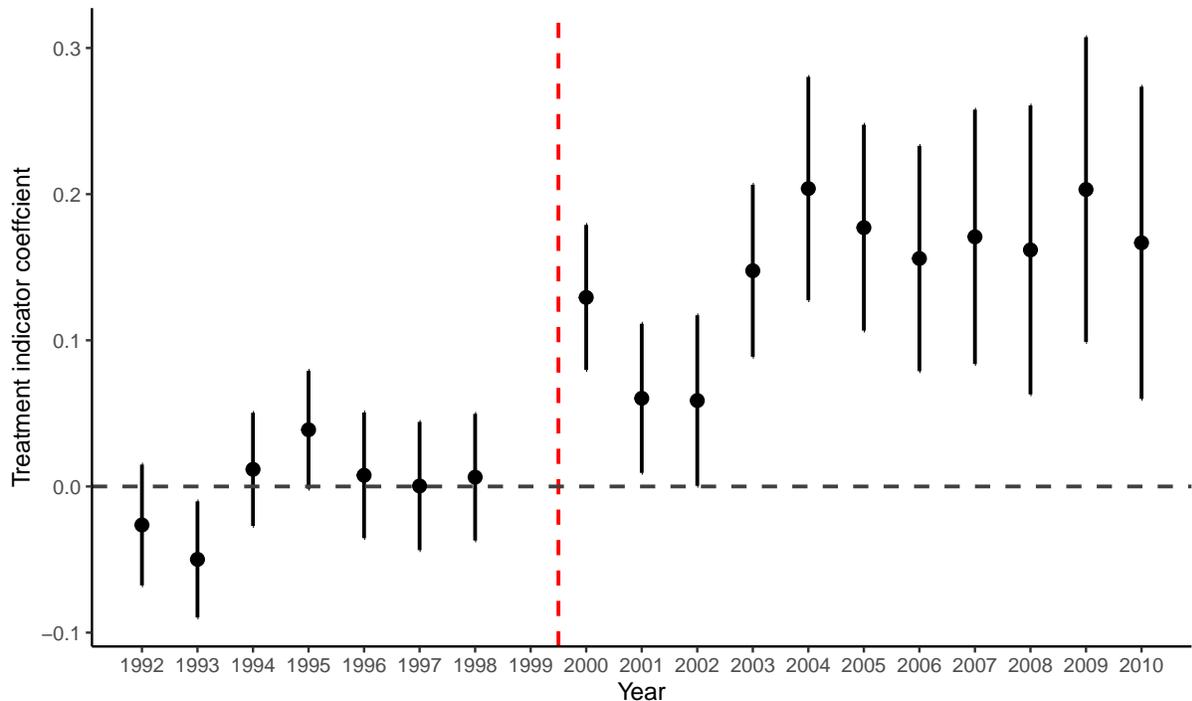


Figure 4: Year-by-year treatment model for share of English-medium private schools.

I again estimate an event study model to check for the existence of differential pre-trends and illustrate the dynamic effect of the IT boom on private English-language schooling. I present the results in Figure 4, showing the yearly treatment indicator coefficients across the sample period with 95 percent confidence intervals. The increase in the share of newly established schools that teach English and are private rises markedly starting in 2000 and persists through 2010; all post-boom coefficients are statistically significant at  $p < .05$ . One coefficient in the pre-boom period (1993) is statistically significant, but *negative*, suggesting that if anything exposed districts experienced relatively fewer openings of private English-medium schools during that year.

These results suggest that growth in English-medium schooling can be entirely accounted for by rising private schooling. This result is somewhat counterintuitive, given expectations that democracies should *reduce* private education provision in response to global economic integration (e.g., Ansell 2010). In the world’s largest democracy, the opposite seems to have occurred, as relatively more private schools open in response to global economic integration.

Table 2: IT Boom and Establishment of English-Medium Schools in Electoral Cycles

	<i>Dependent variable: Share</i>					
	English (1)	English (2)	Public English (3)	Public English (4)	Private English (5)	Private English (6)
$Treated_i * Post_t * Election_{it+1}$	0.019 (0.018)	0.016 (0.019)	-0.028*** (0.011)	-0.023** (0.011)	0.051*** (0.017)	0.042** (0.018)
$Treated_i * Post_t$	0.069*** (0.017)	0.049*** (0.017)	0.009 (0.007)	0.015* (0.009)	0.078*** (0.017)	0.063*** (0.018)
District FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
District trends	✓	✓	✓	✓	✓	✓
District controls	X	✓	X	✓	X	✓
Number of districts	575	547	575	547	575	547
Observations	11,119	10,574	11,119	10,574	11,119	10,574

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01. All models estimated using OLS.  $Treated_i=1$  for districts in Andhra Pradesh, Delhi, Karnataka, Maharashtra, and Tamil Nadu.  $Post_t=1$  for years 2000-2010. Controls: SC rate, literacy rate, and gender ratio interacted with year indicators. Robust standard errors clustered by district in parentheses.

My suggestion is that growth in private schooling is the result of short-term electoral pressures imposed on politicians by citizens who increasingly demand English-medium education.

### Private School Provision in Electoral Cycles

My argument suggests that the growth in private schools that provide English-medium education follows an electoral logic: local politicians see rapidly providing English-medium schools as a way to claim credit for IT/software investments in their area, helping them secure re-election. One observable implication of this logic is that the observed effect should be concentrated in the run-up to state elections. To this end, I create an indicator variable,  $Election_{it+1}$ , which is equal to one if district  $i$ 's state is holding legislative elections in the coming year and zero otherwise. I then estimate a triple difference model, interacting this indicator with my measure of exposure to the IT boom.

I display these analogous results in Table 2. Models (1) and (2) do not provide evidence to suggest that the establishment of English-medium schools follows an electoral cycle. However, this estimate masks significant heterogeneity across public and private schools. Models (3) and (4) show that the creation of new public English schools declines in the run-up to an election. Meanwhile, the share of established schools that are English-medium and private increases markedly in exposed areas (an additional 4 to 5 percent of new school establishments) in the year prior to a state election. These results suggest that the globalization-induced establishment of private English-medium schools follows electoral cycles.

## Conclusion

Whether and how global economic integration shapes the provision of education in emerging economies is a persistent open question with important policy implications. I argue that globalization can change local politicians' incentives to provide educational opportunities designed for global employment opportunities. However, in settings where rapidly expanding public education is difficult due to budget constraints and bureaucratic inefficiency, politicians may instead indirectly increase education via the private sector. My results provide some evidence consistent with this hypothesis. Areas exposed to a skill-biased external shock in India saw increased growth in private, English-medium schooling, and this effect was particularly strong in the run-up to local elections.

What are the potential consequences of a globalization-induced shift to private schooling? Advocates of privately provided education might suggest this trend is beneficial. There is some limited evidence that low-fee private schools in developing countries produce better learning outcomes for students, even after attempting to account for potential selection effects (Desai et al. 2009; Ashley et al. 2014). Moreover, private schooling in India and other developing countries can be cost-effective relative to government provision. If private schools can more efficiently provide skills that prepare students for global opportunities, then their rapid expansion may allow more people to access the economic benefits of globalization.

However, private schooling shifts the cost of education to families, which could negatively impact welfare. Money spent on education may reduce spending on other necessary and discretionary expenses, and may constrain other investments. Perhaps most seriously, the costs of attending private school could exclude the most economically marginalized groups, who cannot afford even low fees. My data suggest that private schools do not cater to India's most marginalized groups. Public schools' enrollment on average are composed of 34.5 percent Scheduled Caste/Tribe (SC/ST) students, but for private schools this number is just 18 percent.<sup>8</sup> Research often suggests that members of marginalized groups stand to benefit most from economic liberalization (Gaikwad and Suryanarayan 2021). But if marginalized groups cannot access private education, they may also be denied the economic benefits that globalization brings. India is rapidly expanding government voucher programs to open access to private schools to marginalized communities with some positive results (Muralidharan and Sundararaman 2015); my results might suggest that such policies may be necessary to ensure access to globally oriented opportunities. Alternatively, enabling the more rapid expansion of public schooling in response to globalization-induced demand might also address these concerns.

There are a number of potential directions for extension of this paper. First, the current empirical setup assigns treatment using an indicator variable defined at the state level, which may be a crude way of measuring exposure to the IT boom. In the future, I hope to use more fine-grained measures. For instance, previous research shows that exogenous variation in local linguistic distance to English is a strong predictor of post-boom IT/software investment (Shastry 2012). I hope to use these district-level measures to proxy for heterogeneous exposure to the IT boom. Additionally, in the post-IT boom period, the DISE data offer much more detailed information on education provision at the school level. This information

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<sup>8</sup>As of the 2011 Indian Census, SCs and STs comprise roughly 25 percent of the population, meaning that SCs/STs are over-represented in public schools (and under-represented in private schools).

includes primary enrollment by gender and socioeconomic status, school condition, textbook and computer resources, and number of teachers. Leveraging this information would require an alternative empirical strategy as the data all fall after the start of the IT boom. However, doing so would allow for a more disaggregated analysis of a greater range of educational provision outcomes.

I note two other potential extensions. My paper suggests that there is an electoral logic to the growth of private schooling in areas exposed to skill-biased global employment opportunities. In this vein, I hope to analyze a) whether the estimated effect is concentrated in areas represented by incumbents, and b) whether politicians whose areas see growth in English-medium private schooling benefit electorally. I have collected highly disaggregated electoral data for state elections and hope to employ it in the future. Finally, I hope to expand the analysis to technical and university training.

## References

- Acemoglu, D. (2003). Patterns of Skill Premia. *The Review of Economic Studies*, 70(2):199–230.
- Akmal, M., Crawford, L., and Hares, S. (2019). Low-Cost Private Schools: What Have We Learned in the Five Years Since the DFID Rigorous Review.
- Ambast, S., Gaur, A., and Sangai, A. (2017). Regulation of Private Schools in India. Technical report, Vidhi Centre for Legal Policy.
- Ansell, B. W. (2008). Traders, Teachers, and Tyrants: Democracy, Globalization, and Public Investment in Education. *International Organization*, 62(2):289–322.
- Ansell, B. W. (2010). *From the Ballot to the Blackboard: The Redistributive Political Economy of Education*. Cambridge University Press, Cambridge.
- Antràs, P., de Gortari, A., and Itskhoki, O. (2017). Globalization, Inequality and Welfare. *Journal of International Economics*, 108:387–412.
- Ashley, L. D., McLoughlin, C., Aslam, M., Engel, J., Wales, J., Rawal, S., Batley, R., Kingdon, G., Nicolai, S., and Rose, P. (2014). The Role and Impact of Private Schools in Developing Countries: A Rigorous Review of the Evidence. Education Rigorous Literature Review, United Kingdom Department for International Development.
- Bastiaens, I. and Rudra, N. (2018). *Democracies in Peril: Taxation and Redistribution in Globalizing Economies*. Cambridge University Press, Cambridge.
- Burstein, A. and Vogel, J. (2017). International Trade, Technology, and the Skill Premium. *Journal of Political Economy*, 125(5):1356–1412.
- Chattopadhyay, T. and Roy, M. (2017). Low-Fee Private Schools in India: The Emerging Fault Lines. Working Paper 233, National Center for the Study of Privatization in Education Teachers College, Columbia University.
- Davies, E. (2018). From Universalization to Privatization: Drift in Indian Education Policy. Unpublished manuscript.

- Desai, S., Dubey, A., Vanneman, R., and Banerji, R. (2009). Private Schooling in India: A New Educational Landscape. In *India Policy Forum 2008-09*, volume 5, pages 1–58.
- Dhar, B. and Joseph, R. K. (2019). India’s Information Technology Industry: A Tale of Two Halves. In Liu, K.-C. and Racherla, U. S., editors, *Innovation, Economic Development, and Intellectual Property in India and China: Comparing Six Economic Sectors*, ARCIALA Series on Intellectual Assets and Law in Asia, pages 93–117. Springer, Singapore.
- Gaikwad, N. and Suryanarayan, P. (2021). Attitudes Toward Globalization in Ranked Ethnic Societies. Unpublished manuscript.
- Ghose, D. (2021). Trade, Internal Migration, and Human Capital: Who Gains from India’s IT Boom? Working Paper, World Bank, Washington, DC.
- Ghosh, A. (2010). How Entrepreneurs Are Profiting from Business of Schools. *The Economic Times*.
- Hicken, A. (2011). Clientelism. *Annual Review of Political Science*, 14(1):289–310.
- Härmä, J. (2011). Low Cost Private Schooling in India: Is it Pro Poor and Equitable? *International Journal of Educational Development*, 31(4):350–356.
- Juneja, N. (2014). India’s New Mandate against Economic Apartheid in Schools. *Journal of International Cooperation in Education*, 16(2):55–70.
- Kaufman, R. R. and Segura-Ubiergo, A. (2001). Globalization, Domestic Politics, and Social Spending in Latin America: A Time-Series Cross-Section Analysis, 1973–97. *World Politics*, 53(4):553–587.
- Kaushal, M. (2012). Implementation of Right to Education in India: Issues and Concerns. *Journal of Management & Public Policy*, 4(1):42–48.
- Khanna, G. and Morales, N. (2017). The IT Boom and Other Unintended Consequences of Chasing the American Dream. Working Paper 460, Center for Global Development.
- Kingdon, G. G. (2020). The Private Schooling Phenomenon in India: A Review. *The Journal of Development Studies*, 56(10).
- Li, L. (2020). Skill-Biased Imports, Human Capital Accumulation, and the Allocation of

- Talent. CRC TR Discussion Paper 224, University of Bonn and University of Mannheim, Germany.
- Liu, M. Y. (2019). How Does Globalization Affect Educational Attainment? Evidence from China. Unpublished manuscript.
- López-Cariboni, S. and Cao, X. (2019). When do Authoritarian Rulers Educate: Trade Competition and Human Capital Investment in Non-Democracies. *The Review of International Organizations*, 14(3):367–405.
- Muralidharan, K. and Kremer, M. (2007). Public and Private Schools in Rural India. Unpublished manuscript.
- Muralidharan, K. and Sundararaman, V. (2015). The Aggregate Effect of School Choice: Evidence from a Two-Stage Experiment in India. *The Quarterly Journal of Economics*, 130(3):1011–1066.
- NDTV (2016). Private Schools Owned By Politicians Must be Surveyed: Manish Sisodia. *NDTV*.
- Oster, E. and Steinberg, B. M. (2013). Do IT Service Centers Promote School Enrollment? Evidence from India. *Journal of Development Economics*, 104:123–135.
- Read, B. (2022). The Electoral Logic of Education Hybridization: Evidence from India. Unpublished manuscript.
- Rodrik, D. (1998). Why Do More Open Economies Have Bigger Governments? *Journal of Political Economy*, 106(5):997–1032.
- Rudra, N. (2002). Globalization and the Decline of the Welfare State in Less-Developed Countries. *International Organization*, 56(2):411–445.
- Rudra, N. (2008). *Globalization and the Race to the Bottom in Developing Countries: Who Really Gets Hurt?* Cambridge University Press, Cambridge.
- Rudra, N. and Haggard, S. (2005). Globalization, Democracy, and Effective Welfare Spending in the Developing World. *Comparative Political Studies*, 38(9):1015–1049.
- Shastri, G. K. (2012). Human Capital Response to Globalization Education and Information

- Technology in India. *Journal of Human Resources*, 47(2):287–330.
- Tilak, J. B. G. (2004). Public Subsidies in Education in India. *Economic and Political Weekly*, 39(4):343–359.
- World Bank (2022). World Development Indicators. Dataset.
- Zuilkowski, S. S., Piper, B., Ong’ele, S., and Kiminza, O. (2018). Parents, Quality, and School Choice: Why Parents in Nairobi Choose Low-Cost Private Schools over Public Schools in Kenya’s Free Primary Education Era. *Oxford Review of Education*, 44(2).