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Elementary education in India versus China

Guidelines for NEP implementation

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Abstract: This paper documents the state of elementary education in India and China since the 1960s, key lessons for India from China’s shift in focus from ‘quantity’ to ‘quality’, and evidence-based guidelines for effective implementation of India’s New Education Policy 2020 (NEP 2020). The divergent policy focus has led to differential trajectories for elementary education in the two emerging economies, with China being decades ahead in improving literacy rates. China’s adoption of the New Curriculum Reform 20 years before India’s NEP 2020 has put China on the path to achieving equitable development of ‘quality’ compulsory schooling. India’s NEP 2020 has components that have the potential to improve quality, equity, and efficiency of the education system. This paper makes the following recommendations for effective implementation of some of the NEP 2020 components: (1) an additional worker should be recruited at every preschool centre; (2) more resources should be allocated towards implementation, evaluation, and needed recalibration of the management of school clusters; (3) teacher recruitment, training, and rewards should be revamped; (4) standardized tests should be protected from data corruption, fudging, or grade inflation; and (5) a national-level road map and regular evaluations have to be introduced to ensure participation of socio-economically disadvantaged groups in education.

Key words: education, schooling, quality, India, China

JEL classification: I21, I24, I28, I38

Note: As the research is part of one of the authors’ PhD thesis, the authors hold copyright to facilitate publication.

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1 Introduction

This paper, with its focus on elementary education, has multiple objectives. It sheds some light on the state of elementary education in India and China over time. It discusses the policy reforms—and their impacts—adopted by India and China. It explores the key lessons from China, which had shifted its focus from ‘quantity’ to ‘quality’ about 20 years before India’s New Education Policy 2020 (NEP 2020) came into effect. It also highlights some noteworthy components of NEP 2020, along with evidence-based guidelines for its effective implementation.

In the early 1950s India and China had a similar approach to education policies, but they began to diverge starting from the 1960s. China focused more on reducing illiteracy levels while India spent those years focused on science and technology at the higher-education level. As a result, China was decades ahead of India in improving literacy rates and achieving universal primary school enrolment.

China’s early push for primary school enrolment also meant more of its future citizens would achieve secondary education. Until the past decade, the Chinese population on average had close to two additional years of schooling compared to the Indian population. It is noteworthy that the strides made by China in education in the early years of the plan were achieved at a significantly lower cost in comparison to India. At present, the two countries are at similar levels in terms of access to elementary schools and the structure of elementary schooling is similar in the two countries.

Improving school enrolment became a first-order objective for India when it could no longer bear the cost of mass illiteracy. This led to rapid school construction, expansion of the Mid-Day Meal (MDM) scheme, building gender-specific toilets, and improvements to existing school infrastructure. Rapid road construction complemented the activities of the education policies and India was able to increase school enrolment and reduce the gender gap in enrolment. The downside of focusing solely on ‘quantity’ was that quality, equity, and efficiency measures of schooling in India suffered. In particular, India today faces the issue of an increased number of small schools (fewer than 30 children enrolled), increased prevalence of multi-grade teaching (multiple grades sitting in the same classroom), increased local isolation of children belonging to different social strata, poor learning outcomes, and closing down of alternatives to low-quality public schools.

On the other hand, the biggest criticism of the Chinese education system was its exam-oriented approach, which had rote memorization and recitation as its standard teaching methods. However, the New Curriculum Reform in China, which started almost 20 years before India’s NEP, aimed to transform the educational philosophy, aim, content, method, and evaluation system at all educational levels. China adopted education reforms aimed at improving the quality of compulsory education, geographic equity, and preschool education.

In order to close the rural–urban quality gap in education, China provided incentives to teach in rural schools. China also changed the admission criteria to colleges, which had been based purely on standardized tests, to a combination of standardized tests, comprehensive evaluation, and assorted admission criteria. Several infrastructure improvement initiatives were adopted by the Chinese government, specifically in rural areas. Digital technological advancements were utilized to improve access to quality education and to improve rural teachers’ professional development. China also laid out a road map and timeline for achieving equitable development of compulsory education by 2020, and required province-level inspections to track the progress towards the same.

This paper concludes with some highlights of India’s NEP 2020, along with evidence-based guidelines for its effective implementation. The NEP is India’s attempt to shift its educational policy focus towards improving quality. It has components with the potential to improve the quality, equity, and efficiency of the education system. Early childhood care and education are being made a priority, with the aim to

ensure that all students entering grade 1 are school-ready. This is also expected to close the income gap in access to preschool education. A potential suggestion is to make sure there is an extra worker at the preschool centres whose only responsibility is to impart preschool education.

School consolidation, and thereby channelling more resources to fewer schools, is advocated by the NEP. However, the onus of management of the newly formed school clusters is on the respective states, which could potentially lead to wide variation in the quality of school clusters across states. A suggestion is to have more resources allocated towards implementation, rigorous evaluation, and the necessary recalibration of the management of school clusters. The NEP proposes to revamp teacher recruitment, training, and rewards which, if implemented well, is expected to improve learning outcomes. It plans to introduce standardized tests across states and grades to measure learning outcomes. It has to be ensured that these tests do not succumb to data corruption, fudging, or grade inflation. The NEP encourages the participation of several socio-economically disadvantaged groups in education, but there is a need for a national-level road map as well as regular evaluation of its progress to ensure this equity objective is achieved.

The rest of this paper is organized as follows. Section 2 outlines the historical background and current structure of the schooling systems in India and China. Section 3 discusses the successes and unintended consequences of India's education policies. Section 4 discusses China's education reforms as an attempt to shift its focus from 'quantity' to 'quality'. Section 5 highlights some components of India's NEP 2020 and evidence-based guidelines for their effective implementation. Section 6 concludes.

2 Historical background and structure of schooling

India and China have much in common about their individual journeys in education policies. They are the two largest developing countries and are faced with similar challenges. Together, they account for about 36 per cent of the world population. Although they look different on several measures related to education quality in current times, both countries had a similar approach in the early 1950s. They focused on higher education and, in particular, on science and technology. However, their policies started to differ starting from the 1960s.

2.1 Illiteracy

Mass illiteracy is an issue that China overcame earlier than India. Mass illiteracy has large negative consequences on economic growth and also influences other outcomes such as health, crime, and welfare (Cree et al. 2012). China was able to effectively address the problem of mass illiteracy through the egalitarian outlook of communism, which itself was the result of the Great Cultural Revolution. While India's literacy rate increased from 28 per cent in 1961 to 41 per cent in 1981, China's literacy rate increased almost twice that, going from 43 per cent to 68 per cent (Dreze and Loh 1995). This was mostly a result of India's focus on reinforcing science and technology at the higher-education level at the cost of addressing mass illiteracy (Ghosh 2000). The problem of illiteracy in India was further exacerbated among certain groups of people because of unequal access to education across different social classes. As an illustration, literacy rates in Scheduled Castes and Scheduled Tribes (the two lowest social classes) are almost half those of the rest of the castes (Dreze and Loh 1995).¹

Recent years have witnessed India's increased attempts to reduce illiteracy rates, having realized the benefits of getting its 500 million people literate. As of 2018, 74 per cent of India's population aged

¹ The caste system continues to play a role even away from India, affecting who gets hired in the US tech industry (Seattle Times 2020).

15 and above were literate. This compares to 97 per cent in China for the same age group in the same year. The gap in literacy rates between India and China is much lower, at 8 percentage points, among the youth population aged 15–24. However, it is worth noting that China has been close to the 100 per cent mark since the early 1990s and India improved from a 62 per cent literacy rate in 1990 to 92 per cent in 2018. The difference in gains made in youth literacy rates boils down to India being late to the game of primary education policies.

2.2 Elementary education

In the 1970s, after the Cultural Revolution, China began to have increased focus on elementary education and implemented a compulsory nine-year education policy. As expected, this dramatically increased the number of children enrolled in school. China’s gross primary enrolment reached 100 percent in 1985, and has stayed that way since. The gross enrolment rate is the ratio of the total number of children enrolled to the number of children within the age group of the appropriate schooling level. When a country implements a compulsory schooling law it is expected that gross enrolment will sharply increase then slowly settle at 100 as more students outside the age group are brought back to school initially, and that will reduce to zero over time. The left panel in Figure 1 presents gross enrolment rates as a percentage at the primary level for India and China from 1985 to 2019. It can be inferred from this figure that China’s peak gross enrolment growth was 128 percentage points in 1989, whereas India had its peak of 113 percentage points much later, in 2017. This highlights the difference in primary school policies between India and China.

Figure 1: Gross primary and secondary enrolment rates



Note: this figure presents the gross school enrolment rates as a percentage at the primary and secondary levels. At the primary level, China was doing better than India but India has caught up in recent years; both countries currently have a 100 per cent gross enrolment rate. At the secondary level, India and China had similar gross enrolment rates, but over time the gap has widened, with China doing much better than India.

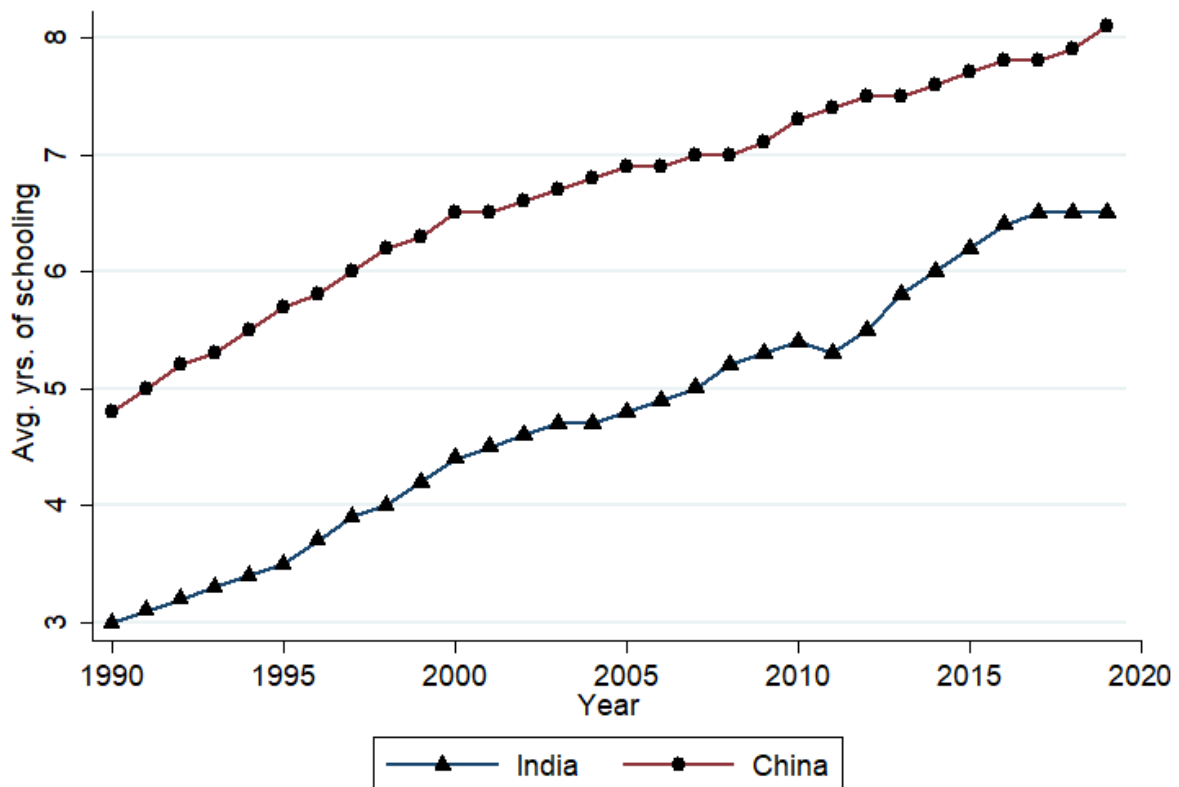
Source: authors’ compilation based on data from the UNESCO Institute for Statistics.

It was not until the 1960s that India prioritized primary education through a new National Policy on Education by focusing on increasing access to primary schools. The delayed focus on primary education

has implications for secondary education enrolment since those enrolling in primary school will need to decide whether or not to enrol in secondary school. The right panel in Figure 1 presents the gross school enrolment rates as a percentage at the secondary level for India and China from 1985 to 2010. This figure shows that China’s early push for primary enrolment in fact led to an increase in secondary enrolment post-1990s, while the upward trajectory for India only starts in early 2000s.

The combined effect of increases in primary and secondary enrolment will be reflected in the average years of schooling. Figure 2 presents the average years of schooling of people aged 25 and older for India and China from 1990 to 2019. The Chinese population on average had close to two additional years of schooling compared to the Indian population. This stayed so for a long time, until the past decade when the gap between the two countries began to narrow.

Figure 2: Average years of schooling



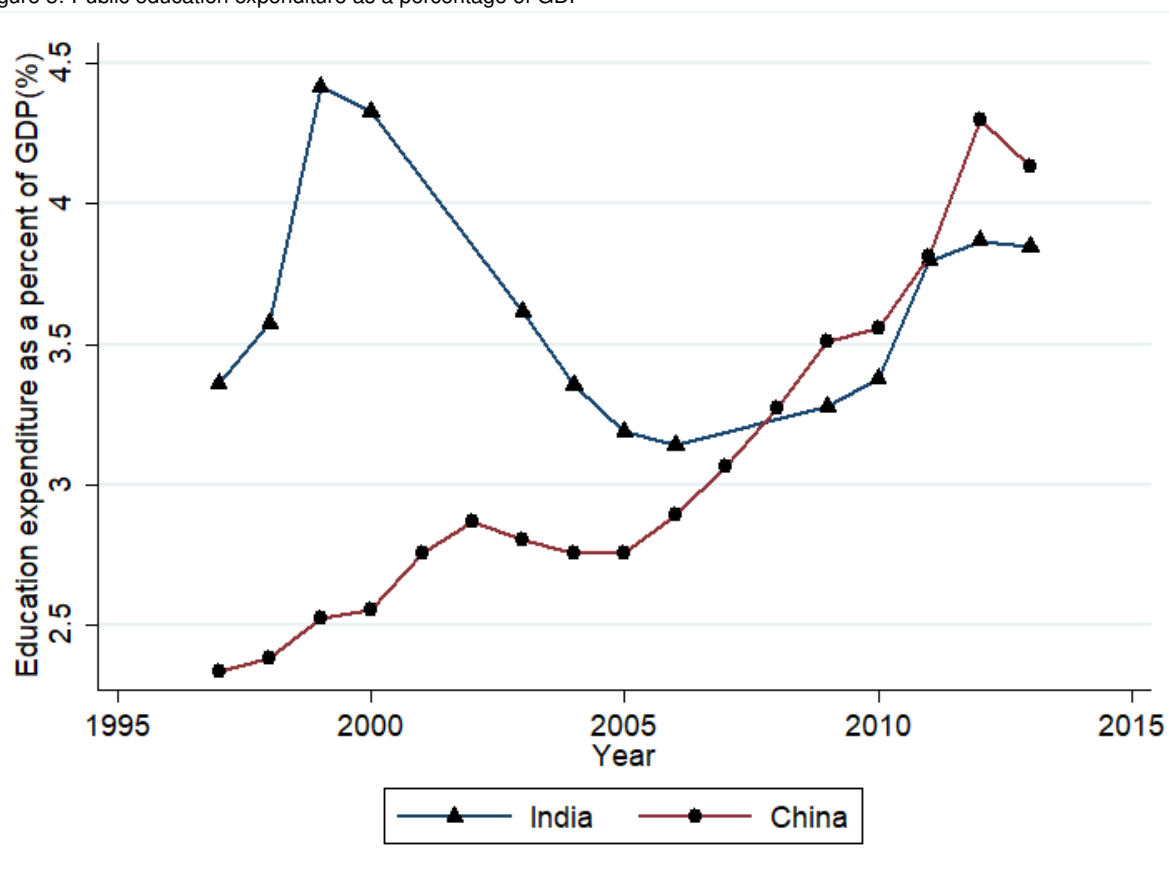
Note: this figure presents the average years of schooling received by people aged 25 and older in India and China from 1990 to 2019. Average years of schooling remained higher in China than in India by around two years, but this gap has been narrowing in recent years.

Source: authors’ compilation based on data from the UNDP Human Development Reports (<http://hdr.undp.org/en/indicators/103006>).

All the gains made by China in education in the early years were achieved at a significantly smaller budget in comparison to those in India. Figure 3 presents the percentage share of GDP spent on education in India and China from 1997 to 2013. As shown in this figure, China’s expenditure on education as a percentage of its GDP was much lower than that of India in the early years. It was only later, in the mid-2000s, that the education spending as a percentage of own GDP converged in India and China as a result of India lowering its spending share and China increasing its own.

In both countries, the landscape of education policies has evolved over time. The foundation of education policies is the structure of elementary schooling as it paves the way for children to enrol and stay in school before having to make the decision of whether or not to pursue higher education.

Figure 3: Public education expenditure as a percentage of GDP



Note: this figure presents the percentage share of GDP spent on education in India and China from 1997 to 2013. India used to spend a larger percentage of its GDP on education in the early years. India decreased this share and China increased the same, resulting in a convergence in recent years.

Source: authors' compilation based on data from the UNESCO Institute for Statistics (<http://data.uis.unesco.org>) for India and the National Bureau of Statistics of China (<https://data.stats.gov.cn/english/>) for China.

2.3 India's school structure

Similar to China, India's school education spans grades 1–12. School education in India is classified into primary (grades 1–5), upper primary (grades 6–8), lower secondary (grades 9–10), and higher secondary (grades 11–12). After the eighth grade, students who prefer early employment can enrol in one-year vocational training offered by Industrial Training Institutes (ITIs). The tertiary education structure is more heterogeneous in India and varies by the choice of major. Most bachelor's degrees are three-year programmes, while bachelor's degrees in some majors such as engineering or agriculture are four-year programmes and those in medicine are five-year programmes. Master's degrees are two-year programmes and doctoral degrees are two- or three-year programmes.

2.4 China's school structure

School education in China is classified into primary (grades 1–6 or grades 1–5 in rare cases) and secondary, which is further classified into junior level (grades 7–9) and senior level (grades 10–12). There are vocational high schools, which offer skill-based education for students who prefer early employment, complementing the general senior secondary schools. Tertiary education include colleges and universities that mostly offer a four-year bachelor's degree, and junior colleges that offer three-year associate's degrees. Graduate education is divided into a two-year master's and a three-year doctoral level degree.

3 Success and unintended consequences of the policies in India

Although India and China now look similar on certain metrics, such as enrolment numbers and education spending, they still differ in terms of quality, equity, and efficiency, which have been much of the focus of economics of education research in the last two decades.² This section discusses the policies that helped level quality, equity, and efficiency in Indian elementary education with the same aspects of the Chinese education system, and also those that hampered the progress of these three desirable elements.

3.1 What has worked?

Access

The two countries are now equal in terms of access to schools. Lack of access to schools has been the biggest catalyst of India's mass illiteracy. Recent years have seen rapid construction of schools catering to all grades, resulting in most households now having a primary, upper primary, and secondary school within a few kilometres (Varghese 2021). Rapid road construction, which has become a priority in developing countries, also has contributed to expanding school access in India (Adukia et al. 2020).

Feeding programme

Following a 2001 Supreme Court mandate, India implemented the MDM Scheme across all its states to incentivize school enrolment and to improve nutritional intake among school-going children. India's MDM Scheme is one of the world's largest free-meals programmes; it caters to more than 100 million children. The school feeding programme improved attendance and enrolment rates, especially among girls, which is crucial given the severe gender disparities that exist in Indian school attainment (Afridi 2011).

Toilet construction

The Right to Education Act (RTE) implemented in 2009 emphasized providing adequate infrastructure, such as gender-specific toilets, to public schools in order to encourage enrolment and also to prevent children from dropping out.³ Building toilets increased enrolment and building gender-specific toilets particularly increased the enrolment of pubescent-age girls (Adukia 2017). Toilet construction has contributed to discouraging children from dropping out while transitioning from primary to middle school and also in closing the gender gap in school enrolment.

Overall school infrastructure

The RTE sets norms for pupil–teacher ratios, teacher qualifications, and school infrastructure, such as the number of classrooms, availability of drinking water, electricity, libraries, boundary walls, playgrounds, etc. Public schools thus have seen substantial improvements in input-based measures (Muralidharan et al. 2019; Shah and Steinberg 2019) in recent years. Simultaneously, several low-cost or low-fee private schools that did not meet the RTE infrastructure norms either shut down (CCS 2019) or affiliated themselves with recognized schools (Ohara 2013) to avoid shutting down. The overall school infrastructure of both public and private schools improved in recent times.

² See Glewwe and Kremer (2006) and Glewwe and Muralidharan (2016) for a review of the last two decades of education research in developing countries.

³ For more details, see KPMG (2016).

The policies that led India to draw level with China were explicitly designed to improve school enrolment. Improving school enrolment was rightly the first-order objective for India, which is burdened with mass illiteracy of a greater magnitude and has been for a longer time than China. Given that the educational policies until now were aimed at improving school infrastructure and enrolment, the government's success in the educational sector is being evaluated by measuring school inputs (classrooms, pupil–teacher ratios, number of teachers, toilets, playgrounds, drinking water, etc.) rather than outputs (learning outcomes, such as whether a fourth-grade child can read and write at the correct level). Little attention is paid towards improving the content or quality of teaching inside the classroom. Educational policies in India need a timely shift in focus towards improving quality. If the relevance of quality improvement is ignored, even the prior policies that were aimed at improving school enrolment will turn into a financial burden to the central and state governments in India.

3.2 What has not worked?

Small schools

The RTE led to the rapid construction of schools to meet the new distance norms, and this brought millions of children to schools across India. As the gross enrolment levels started to settle and private schools started to attract more households, public schools started to empty.

Between 2010 and 2016, the number of children enrolled in public schools reduced by 13,117,470, whereas the number of children enrolled in private schools increased by 17,518,031 (Kingdon 2020). The rapid emptying of the public schools has led to a massive problem of small schools for the Indian states to deal with. For instance, about 300,000 schools out of a total of one million schools in 2010 had an enrolment of fewer than 50 children in 2010. By 2015 the number of schools with fewer than 50 students increased to about 400,000 out of one million schools (Kingdon 2020). Given how states within India differ from each other, there is substantial variation across states in terms of the speed of emptying of public schools. Apart from the negative consequences of small schools, they are themselves a problem as they lead to a sharp increase in the cost per child.

Multi-grade teaching

Along with small schools being a problem in itself, it has also given rise to a few unanticipated events when combined with other policies. First, combining the problem of small schools with the RTE that stipulates the number of teachers per school based on enrolment leads to multi-grade teaching. The RTE mandates the state governments to assign two teachers per school if the enrolment is less than 50 students in order to be able to meet the pupil–teacher ratio norms of 40:1 for the entire country. This has resulted in multi-grade teaching, where children from multiple grades sit in the same classroom and one teacher teaches different grades at different times during a school day.⁴ This leads to a significant decrease in children's actual learning time as they sit idle while teachers teach the other grades. However, states across India are combining the problem of small schools with the problem of not being able to govern a large number of schools to create newer and bigger public schools with the purpose of improving both quality and governance. Several states, including Jharkhand, Madhya Pradesh, Odisha, and Rajasthan, have attempted some form of school consolidation exercise (Bordoloi and Shukla 2019).

Local isolation

In the process of improving access to schools, the states unknowingly are starting to see local isolation as a result of small schools. India is largely segregated by caste and people often reside in areas grouped

⁴ For instance, if there are 30 total students spread equally between grades 1–5, sanctioning one teacher per grade will mean there is one teacher for every six students, which is not a viable option for the states.

by caste (Munshi 2019). Since each village has a neighbourhood school, those belong to lower castes (Scheduled Castes and Scheduled Tribes) are not mixed with other castes until later grades, and areas where lower castes reside are more likely to have small schools. For instance, the districts where the Scheduled Tribes live have the highest share of small schools (fewer than 30 students) and lowest learning levels on the state standardized test in Telangana, a southern state in India (Government of Telangana 2021). Therefore, local isolation could bring back the problem of disproportionate access that existed in higher education in 1970s, but this time to school education. This can be detrimental to students' overall development if other castes look differently at the lower castes while mixed in later grades. Mixing children from various background in early grades could prevent these negative consequences. The extent of this can be seen by studying India's attempt to mix children from lower socio-economic backgrounds with children from better socio-economic backgrounds by ruling that private schools should reserve 25 per cent of first-grade admission to children from lower socio-economic backgrounds.⁵ Rao (2019) exploits this natural experiment and finds that rich students are more prosocial, generous, egalitarian, and less likely to discriminate against poor students when having poor classmates.

Poor learning outcomes

Foundational learning, that is learning in grades 1 and 2, plays a crucial role in a child's future success. The RTE's focus on school input regulations led to the new practice of associating school quality to school inputs, as opposed to actual output, which is student learning outcomes. Those who are left behind by grade 3 in terms of basic reading, writing, and arithmetic are unlikely to catch up as the learning gap widens in later grades (Muralidharan and Zieleniak 2014). Figure 4 shows the trends of the percentage of grade 5 children who can read grade 2 level text and percentage of grade 5 children who can do basic division. In 2018, only 44 per cent of public school children in grade 5 could read grade 2 level text and only 23 per cent of children in grade 5 could solve basic division problems (ASER Centre 2018). These trends highlight the negative consequences of the low school quality and the need to address the learning crisis by focusing exclusively on foundational literacy and numeracy. Above all else, policy-makers need to move away from input-based outcomes to policies that see actual student outcomes as a measure of quality. The actual student outcomes can include the likelihood of dropping out and learning levels.

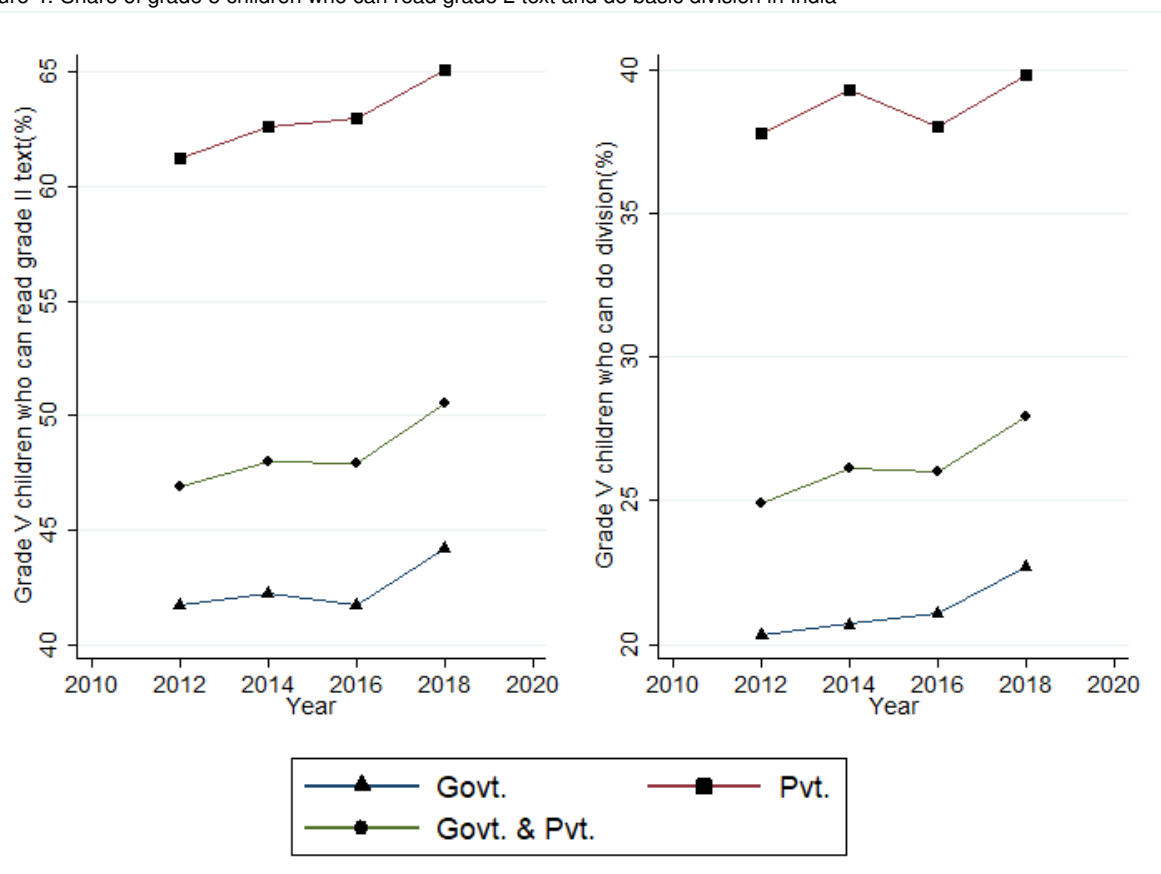
Regulating private schools

Private schools in India that were once reserved for the elite are now being accessed by households from all sections of the income distribution. The growth of low-cost and low-fee private schools helps explain the increase in the share of private schools and enrolment (Tooley 2017). The infrastructure norms stipulated by the RTE combined with the rule that every private school should be approved by the government poses a threat to the low-fee private schools (Chattopadhyay and Roy 2017). However, low-fee private schools operate on a smaller budget compared to public schools, while delivering slightly better test scores (Muralidharan and Sundararaman 2015; Tooley 2016). Therefore, there is a need for a different approach to regulating private schools.⁶

⁵ It is worth noting that mandating private schools to reserve 25 per cent of the admission capacity to children from lower socio-economic backgrounds contributes to the emptying of public schools. The government compensates private schools by paying them the state's equivalent of per-pupil expenditure in public schools. With more children joining private schools, the per-pupil expenditure in public schools rises sharply and so does the government's expenditure under the 25 per cent rule.

⁶ There is also a worry that the rise in the demand for shadow education is correlated with the rise in the number of low-fee private schools (Chatterjee et al. 2020; Chattopadhyay and Roy 2017).

Figure 4: Share of grade 5 children who can read grade 2 text and do basic division in India



Note: the left panel of this figure presents the share of grade 5 children in India who can read grade 2 text. The right panel of the figure presents the share of grade 5 children in India who can do basic division. Only half of the children in grade 5 can read grade 2 text and slightly more than one-quarter of the grade 5 children can do basic division. There is a disparity between government-run and private schools.

Source: authors' compilation based on data from ASER Centre (2018).

4 China's attempt to move from quantity to quality

Centralized government exams were the stepping stones to official status and power in China for years, and formal education was aimed at preparing children to succeed in these exams. This exam-oriented education, popularly known as 'yingshi jiaoyu' in Chinese, had rote memorization and recitation as its standard teaching methods, focusing merely on past and future examination questions. The excessive examination pressure and workload loomed over children, who hardly had time to enjoy their childhood, and many of whom suffered from lack of self-esteem, poor social skills, and reduced adaptability, as well as psychological problems.

Parents, teachers, and education experts criticized the exam-oriented education system and triggered reforms to shift its focus to quality. In 1999, an action plan for a new education system, popularly known as 'suzhi jiaoyu' in Chinese, was developed as a reaction to these criticisms. The new system's main goal was to increase national strength, and it was expected to create a workforce with skills that were critical to sustaining the modernization of China (Dello-Iacovo 2009).

These education reforms in China have emphasized improving quality of compulsory education, geographic equity, and preschool education, while eliminating illiteracy and universalizing nine-year com-

pulsory education. This section discusses those policies, which helped the Chinese education system to shift its focus from quantity to quality.

Curriculum

The New Curriculum Reform in China started in 2001, almost 20 years before India's NEP. These reforms covered the entire education system, namely the educational philosophy, aim, content, method, and evaluation system in all educational phases (OECD 2016). Teaching materials and methodologies were reformed to get rid of the rote learning and recitation teaching methods. The reformed system reduced student workloads and school hours. Twelve weeks of holidays were mandated for school children. Examination content was revised and the importance of examinations was reduced. There were simultaneous attempts to convince parents and society that this broader view of education was essential for healthy development of young people. Within four years of the reforms starting, all schools in the country were under the new curricula (Hongbiao 2013). China has also been witnessing an increase in children attending preschools in recent years.

Incentives

The rural–urban gap in the quality of education was a major concern for the Chinese government, and the solution they found was based on economic incentives. A special fund was set up by the central government from 2006, known as the Special Teaching Post Plan for Rural Schools, which aimed at enhancing rural teaching personnel. Graduates from universities are recruited to work in rural areas for three years, mostly in regions with minority or educationally disadvantaged populations. These teachers take a qualification exam on completion of their first three years, passing which allows them to keep the tenure track teaching position. Rural teachers were also incentivized with better remuneration and benefits along with different promotion standards to increase teachers' enthusiasm for working in rural areas. Rural teachers are also provided with opportunities to take up continued learning or in-service training at county or higher-level teacher training institutions. Teachers in large and medium cities are also required to work for short periods in rural schools at regular intervals. The number of teachers in China has been increasing, thereby improving the teacher–pupil ratio, which stood at 1:17 in 2014 versus 1:24 in 1997 (Guo et al. 2019).

College admissions

College admissions in China were determined by performance in the National College Entrance Examination, known as 'gaokao' in Chinese, which were heavily influenced by standardized tests. There was an increased realization that the vision of the new curriculum reforms would not be fully achieved without transforming the gaokao-based assessments (Yan 2015). In 2014, the State Council reformed the gaokao system to shift its focus away from purely standardized tests to a combination of standardized tests, comprehensive evaluation, and assorted admissions criteria.

Infrastructure

The Chinese government implemented several initiatives to improve school infrastructure, specifically in rural areas. The Rural Primary and Secondary Schools Dilapidated Building Renovation Project, the Rural Primary and Secondary Boarding Schools Project, and the Comprehensive Improvement of the Basic School Conditions for Schools at Poor and Underdeveloped Areas are some of the programmes initiated to focus on rural school infrastructure. This has contributed to improving geographic equity by reducing the rural–urban divide in schooling. Beyond expanding physical infrastructure of existing schools, many schools at the primary level are being combined to create larger schools.

Digital learning

The Chinese government has taken advantage of recent technological advancements and increased internet access to reduce geographic inequities in schooling across different regions of China. Long-distance education programmes for rural and secondary schools and a project for expanding access to digital teaching resources at all teaching sites have been established. These initiatives have improved access to quality education and to teachers' professional development opportunities in rural areas (Yang et al. 2018).

Inspection

The Ministry of Education signed an agreement known as the Compulsory Education Development Memorandum in 2011, which clearly illustrated the road map and timeline for achieving equitable development of compulsory education by 2020. As per this agreement, a special inspection would be conducted to evaluate how well each province has performed in achieving equitable development of compulsory education, and a certificate would be issued if the province passed the National Equitable Development of Compulsory Education Evaluation.

5 NEP: India's attempt to improve school quality

As the majority of the children of school-going age are enrolled in schools, the biggest policy challenge of the modern world is to think about ways to continue to keep the children in school and to ensure that they are learning while in a classroom. The NEP 2020 attempts to directly address the issue of small schools, multi-grade teaching, local isolation, and poor learning outcomes discussed in Section 3 (Government of India 2020). This section explores some of the noteworthy reforms proposed in the NEP 2020 and summarizes the evidence available for those reforms from either the Indian states or other parts of the developing world. In particular, it highlights the components of the NEP that have the potential to improve the quality, equity, and efficiency of education provision.

5.1 Early childhood care and education

The need for change in school quality starts from the first phase of a child's schooling. The first phase lasts until they reach grade 1. The focus until then is to make children school-ready through early childhood care. The NEP recognizes the importance of early childhood care and education (ECCE) and has made it a mission to ensure that all students entering grade 1 are school-ready by 2030. The majority of children that go on to attend public schools starting from grade 1 rely on 'Anganwadi' centres for preschooling. However, the Anganwadi centres are used for multiple purposes by the state.

A single Anganwadi worker, along with providing preschool education, is also responsible for health, nutrition, and several administrative tasks, such as maintaining numerous registers. Therefore, for the NEP's ECCE mission to be successful, they need to enable Anganwadi workers to spend more time on preschool education. One cost-effective way to achieve this would be to provide extra workers to the Anganwadi centres. In a recent study, Ganimian et al. (2021) conducted a large-scale randomized experiment to evaluate the impact of providing an extra worker who focuses on preschool education only. Children in Anganwadis that received the extra worker experienced a significant improvement in math and language test scores, and had lower rates of stunting and severe malnutrition when compared to those for whom the status quo was maintained.

Since Anganwadis disproportionately cater to the poor, improving the provision of ECCE will also reduce the gap between the quality of care that rich households are able to provide to their children by

enrolling them in private preschools and the children that rely on Anganwadis. Therefore, the ECCE mission has the potential to address both quality and equity in preschool education. The recurring theme in this section will be that the success of the NEP's objectives will crucially depend on the sustained attention paid to implementation.⁷

The NEP has also given the highest priority to achieving universal foundational literacy and numeracy among students enrolled till grade 3 by 2025, for the reasons discussed in Section 3. While the onus of reaching this goal rests on the states, the central government will play a key role by reforming the curriculum.

5.2 Resourcing and governance

There are two primary concerns for the government when adopting the approach of constructing schools based on distance norms to improve access. First, the governments run the risk of spreading their resources too thin if the spending on resources does not increase proportionately. Second, it is difficult to maintain high-quality governance in terms of inspections by education officials when they are responsible for large numbers of schools.⁸

The NEP proposes to improve the efficiency of resources and make governance more effective by creating school complexes/clusters. The NEP hopes to achieve this through school consolidation without affecting the access to schools. The model schools programme, launched in 2009, provides evidence for whether creating bigger schools for efficient resourcing and effective governance would lead to an improvement in learning outcomes. The programme established public schools in educationally backwards blocks that have a superior infrastructure, high accountability, English as the default medium of instruction, contract teachers, and students who are selected through an entrance exam. Kumar (2020) finds that attending a model school in Karnataka, a southern state, leads to a significant improvement in learning outcomes and increases the likelihood of joining pre-university (grades 11 and 12) following high school.

The onus of implementing school clusters rests on the states, and there is substantial variation between states in how policies are implemented. For instance, about half of the states did not have functional model schools in all of the educational backwards blocks until 2016, although the policy was given the go-ahead in 2009. This points to the longstanding problem of well-designed policies being implemented poorly in India (Dasgupta and Kapur 2020). The NEP guides the states to manage school complexes by asking the management committees to come up with school complex development plans. In a large-scale randomized trial, Muralidharan and Singh (2020) evaluate the effects of a school improvement plan by attempting to improve management quality in the state of Madhya Pradesh. The programme did not have any impact on either school functioning or learning outcomes. However, it has been scaled up to cover 600,000 schools and remains ineffective post-scaling. Therefore, while the NEP is a sound document that covers insights from research, it fails to provide a clear implementation plan. In order for the states to reach the goals set in the NEP, much more attention needs to be given to implementation, rigorous evaluation, and re-calibration if needed.

5.3 Teacher effectiveness

The biggest line in the education budget is teacher salaries, and teacher well-being plays a crucial role in student learning. With small schools being assigned one or two teachers, it leaves them without a peer group, which is important both for personal well-being and professional development. Due to

⁷ Refer to Muralidharan and Singh (2021) for a discussion on the implementation challenges for India's NEP.

⁸ Refer to Kremer et al. (2005) and Chaudhury et al. (2006) for evidence on the prevalence of teacher absenteeism in India.

the importance of teachers in improving school quality, the NEP looks into improving all aspects of a teacher's career. In particular, the NEP highlights the need for a revamp of teachers' careers by proposing changes to the processes through which they will be recruited, trained, upskilled, and rewarded. This is a significant deviation from the status quo, wherein teacher salary is simply based on years of experience. Again, depending on the implementation quality of the individual components, it has the potential to improve teacher efforts and motivation. Efforts to improve teacher effectiveness and efforts to improve school resources have the potential to improve learning outcomes through complementarity (Mbiti et al. 2019).

5.4 Measuring learning

Progress in school quality is measured through progress in learning outcomes. In order to make learning outcomes comparable both across time and across states, students have to be tested at regular intervals and the testing material has to be standardized. The NEP proposes to test all students while in grades 3 (basic literacy, numeracy, and other foundational skills), 5, and 8. A common roadblock that developing countries face when taking on such a task is data corruption, fudging, and grade inflation. Singh (2020) directly compares students' reported responses from an official state standardized test in Madhya Pradesh to their responses on an independently proctored and graded retest. The levels of student achievement as measured by the standardized test that covered approximately seven million students annually are severely inflated due to cheating. Therefore, even prior to standardizing testing, enough care should be taken to measure learning outcomes in a way that they accurately reflect students' actual learning levels. In the same study, Singh (2020) finds that the use of tablets to assess students removes any distortions in test scores.

5.5 Equity

The NEP discusses the importance of encouraging the participation of several socio-economically disadvantaged groups (SEDGs). They emphasize the groups by gender, caste, geographical identities, disabilities, and socio-economic conditions. The school clusters concept previously discussed has the potential to make education more equitable. While the NEP sets a few objectives for the SEDGs to achieve, it lacks guidelines on *how* those objectives are to be achieved by the states. India is a multi-culture and multi-language country, and the 'one size fits all' approach to policy-making does not always yield the expected results. However, leaving it to the states leads to a massive distortion in the quality of policies and their enforcement. The Telangana Social Welfare Residential Educational Institutions Society (TSWREIS) network of schools is an example of high-quality implementation.

TSWREIS schools provide free education to children belong to Scheduled Castes, Scheduled Tribes, and Other Backward Classes from grades 5 through 12. The schools have become the benchmark for aspects such as teacher training, curriculum reform, getting parental committees to be more involved, and motivating students (Kant et al. 2020). Having a national framework or a model and spending a significant amount on proper enforcement can make national-level policies such as building model schools, residential schools, and social welfare schools yield similar results across all states. This is one way to truly reach the objective of 'learning for all', the title of the NEP's section 6 that addresses the students belonging to marginalized sections of the population.

6 Conclusion

This paper discusses the state of elementary education in India and China historically, the policy reforms that were adopted over time, the impacts of these reforms, takeaway messages from China, which had shifted its focus from quantity to quality around 20 years before India's NEP, and some guidelines for

NEP implementation in India. The chapter focuses only on elementary education, and not on higher education.

India and China had similar approaches to education in the early 1950s, but diverged in the following decades. China addressed the problem of mass illiteracy more effectively and at a faster pace than India. China implemented compulsory education in the 1970s, versus India which passed the RTE ensuring compulsory education much later, in 2009. Gross enrolment rates in primary and secondary schools peaked in China decades before they did in India. A Chinese person on average had two more years of schooling than an Indian until recent years. All these relative achievements of China in the early years were attained on an efficient scale, with China spending a lower share of its GDP on education than India.

Most of the metrics on ‘quantity’, such as school enrolment and education spending, of India and China have converged in recent years. Rapid school construction, road construction, the MDM Scheme, gender-specific toilet construction, and overall improvement in school infrastructure have contributed to increasing school enrolment levels, reducing gender gaps in enrolment, and reducing dropout rates in India.

India’s race to increase school access and infrastructure at the cost of efforts to improve teaching quality has led to a widening gap between India and China on quality, equity, and efficiency measures. Rapid school construction resulted in an increase in the number of small schools, thereby increasing the schooling cost per child, increasing the prevalence of multi-grade teaching, and increasing isolation of children from less privileged social classes. School-going children exhibit poor learning outcomes in both public and private schools.

The Chinese education system shifted towards improving school quality at the beginning of the 2000s. The New Curriculum Reform, started in 2001 and efficiently implemented across all of China within four years, replaced rote learning and recitation teaching methods. There was an increase in children attending preschools. College entrance examinations, which were previously based on standardized tests and which had a huge influence on schooling, were reformed to incorporate a combination of standardized tests, comprehensive evaluation, and assorted admissions criteria. University graduates were incentivized to take up the teaching profession, particularly in rural areas. This has resulted in a desirable teacher–pupil ratio of 1:17 in China and in reduced geographic inequities in teaching personnel. Several infrastructure-building projects were undertaken with the aim of making equal school infrastructure across all regions of China. Digital learning initiatives were adopted on a large scale, which has improved access to quality education and to teachers’ professional development opportunities in rural areas. Provinces were made more accountable for their progress towards equitable development of compulsory education by conducting special inspections and issuing certificates to provinces based on their performance.

India’s NEP 2020 proposes some noteworthy reforms that have the potential to improve the quality, equity, and efficiency of Indian elementary education. There is increased attention to equitable and quality preschool education and to making children ready for school by the time they enrol in grade 1.

The NEP proposes to improve the effectiveness of school governance by creating school clusters. This is a desirable step towards achieving increased learning outcomes based on prior evidence. However, these school clusters are expected to be managed as per school complex development plans developed by school management committees, which has been proven to have no impact on school functioning or learning outcomes.

The NEP also proposes changes to processes through which teachers will be recruited, trained, upskilled, and rewarded; if these are implemented well they will improve teachers’ efforts and motivation, and as a result also children’s learning outcomes. The NEP proposes to use standardized test to measure learning

outcomes of children in grades 3, 5, and 8. Steps have to be taken to make sure these test results are not manipulated due to data corruption, fudging, or grade inflation.

The NEP aims at encouraging school participation of several SEDGs. The authorities should issue a national framework, based on prior success stories such as the TSWREIS, to ensure educational equity to all groups of children, and should also spend a significant amount on enforcement of the same.

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