RISE

RESEARCH ON IMPROVING SYSTEMS OF EDUCATION

WORKING PAPER
June 2016

Escaping a Low-Level Equilibrium of Educational Quality

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RISE-WP-16/008
June 2016

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Funded by:
UKaid from the British people
Australian Aid

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Draft 2

This paper is intended to inform the work of the Intellectual Leadership Team of the UK Department for International Development's (DFID) Research on Improving Systems of Education (RISE) programme. It draws on data and analysis from the Young Lives project to compare four education systems at various stages of development with respect to the transition from meeting the challenge of providing for 'mass access' to that of providing for 'mass learning'. Success in making this transition, that is, escaping a low-level equilibrium of educational quality in the longer term and once resources are no longer severely constrained by access expansion, is crucial if the benefits of the extension of the right to basic education are to be realised in less developed nations. The paper examines learning outcomes in Peru, Vietnam, Ethiopia and India in the light of indicative frameworks for analysing progress with respect to 'education quality' at the systems-level. It intends to contribute to broader aims of RISE in terms of the emerging field of education systems analysis, making use of the insights from Young Lives.

1.0 Introduction

The extension of the educational franchise in developing countries, at least in the limited sense of enrolment in basic schooling, is among the most significant development successes of recent decades. The right to education in this narrow sense, formerly a privilege of elites, now reaches a majority of children even in the poorest nations. In most, it extends almost universally, following large-scale growth in educational provision and reduction of demand-side barriers, most obviously costs of schooling. Nonetheless, despite a sea-change in access, the extent to which education systems and states 'deliver' with respect to ensuring meaningful learning and opportunity for all varies considerably, and, according to UNESCO (2013), low levels of learning in developing countries amount to a 'global learning crisis'. Specifically, an estimated 250 million primary school-age children globally are not learning the basics of reading, writing and numeracy, despite having enrolled in school (UNESCO 2012). More generally, while levels of competency in developing countries established on international assessment exercises are typically very low by comparison with the OECD (Organisation for Economic Co-operation and Development) (see Pritchett 2013:39), there is, at the same time, wide variation between countries which cannot be explained in terms of income levels. For example, despite Peru's per capita income being three times greater than Vietnam's[1], mean reading skills in 2012, as measured by PISA (Programme for International Student Assessment), were equivalent to the performance of students at the 5th percentile of the distribution in Vietnam (OECD 2014:382).

[1] GNI per capita (World Bank 2014)

[2] Andhra Pradesh was bifurcated into two states – Telangana and Residuary Andhra Pradesh or Seemandhra in

Although educational access forms an important part of the social contract across developing countries; and compulsory schooling laws have been introduced widely, committing children to up to twelve years of schooling; it is less clear at present that many education systems will deliver on the benefits of education without reforms focused directly on improving learning outcomes. The potential benefits of improving these outcomes scarcely need enumerating; including not least gains in productivity and competitiveness, economic growth, poverty alleviation and a range of social and health benefits. Realisation of many of the benefits of education, however, is contingent upon schooling that results in the development of productive cognitive and non-cognitive skills. These skills have been shown to matter notably more for productivity and earnings, as well as a range of wider benefits, than years of schooling alone (see, for example, Hanushek and Woessman 2008; Heckman et al. 2006). Cognitive skills, which may be measured in terms of learning outcomes on particular curricular domains, are among the crucial 'final' outcomes of schooling to which intermediate outcomes, in the form of enrolment and progression, *should* contribute. But the extent to which these indicators serve as proxies of learning depends substantially on the quality of schooling received; specifically the 'productivity' or effectiveness of schooling in terms of its delivery of learning gains across pupils' schooling careers.

While educational quality depends in part upon levels of resources and 'inputs' to schools, it is also clear that inputs serve as a poor proxy for quality with respect to the delivery of learning gains (Hanushek 2003). Despite large improvements in intermediate outcomes and in resourcing, learning outcomes in some countries have responded slowly, or have even declined (see ASER 2015 for India). Further, although extensive information is typically available on intermediate outcomes, including enrolment, retention, progression and completion; as well as on tangible educational inputs, for example through national EMIS (Education Management Information Systems), at present few developing countries gather large-scale data on learning outcomes (see LMTF 2013:16) or indeed set specific standards for what these should be at particular stages of education.

This paper draws on data and analyses from the Young Lives comparative longitudinal study of childhood poverty in Ethiopia, India (the state of Andhra Pradesh[2]), Peru and Vietnam and on nationally representative data sources for the four countries included in the study. It examines the extent to which these four countries have overcome the challenges of massification of access and have made the transition to massification of learning. While the four study countries are at very different stages of economic and educational development, all four have benefitted from robust economic growth in recent years, and all except Ethiopia have benefitted from demographic transition to relatively low population growth and a smaller youth population in proportionate terms. Further, all but Ethiopia have reached near-universal levels of access to basic education and, in principle, are able to increase levels of educational inputs per pupil. The paper compares the progress of access, resourcing levels and learning outcomes across the four countries to address the question of the extent to which these countries may face a 'quantity-quality trade-off' in basic education and to which they have either avoided or succumbed to a 'low-level equilibrium' of learning outcomes.

2.0 The Young Lives Study

The Young Lives study has collected longitudinal data on two birth cohorts of children since 2002, including through both household and school surveys. The 'older cohort' of children were born in

[2] Andhra Pradesh was bifurcated into two states – Telangana and Residuary Andhra Pradesh or Seemandhra in 2014. The Young Lives study contains sites in both of the successor states and data reported here relate to the former united AP.

1994-5 and the 'younger cohort' in 2000-01 and both cohorts participated in household surveys in 2002 (Round 1), 2006-7 (Round 2), 2009 (Round 3) and 2013 (Round 4). The surveys collect detailed information on children's backgrounds, their school histories and learning attainment. Sampling is based on a sentinel-site design, comprising 20 sites in each country, selected purposively to represent socio-economic, demographic and geographic diversity. At the site-level, samples are statistically representative, with children in each cohort having been selected randomly following an enumeration exercise. The samples comprise 50 older and 100 younger children in each site, totalling 3,000 in all in each country. While the India sample is limited to the (former united) state of Andhra Pradesh (hereafter AP), AP is a 'median' state in human development terms (Human Development Index 0.473 compared to 0.467 for all India in 2011 (GoI 2011)), so that the data may be considered to provide illustrative evidence of broader relevance in the Indian context.

The household surveys include assessments of cognitive skills conducted at the child's household, thereby including children both attending and not attending school. These comprise assessments of basic reading, writing and numeracy, mathematics, reading comprehension and receptive vocabulary. The longitudinal design, which includes some directly comparable assessments, permits the construction of individual 'learning profiles'. School surveys have been conducted since 2010 and include a sample of the schools attended by the younger cohort of children, focusing on school infrastructure, learning materials and resources, teacher characteristics and competencies, and learning levels and progress in the curricular domains of reading comprehension and mathematics. These surveys are designed to be appropriate for the various countries' education systems, policies and curricula and accordingly follow somewhat different designs in each country. Owing to the differences in survey design and sampling strategies between countries, it is not generally informative to compare directly between countries using school-survey data and this paper focuses on the directly comparable household data. Boyden and James (2014) provide an overview of the design and content of the full set of surveys as well as of the qualitative components of the study.

3.0 Educational Effectiveness

Learning outcomes at the end of formal schooling are the culmination of a learning profile or trajectory across the life-course and schooling history of an individual child, so that low levels of final learning outcomes are ultimately the result of shallow learning trajectories. These trajectories are influenced by child-specific factors, inputs and processes at the home and in the community, and by inputs to and processes of schooling. While out-of-school factors such as nutrition and parental education exert important influences on children's ability to learn, it is clear that differences in school quality can and do play a strong role in determining learning outcomes. In India, for example, studies indicate that between half and two-thirds of the variance in pupils' learning outcomes is attributable to differences in school quality (Dundar et al 2014:18), while in Peru the figure is 60% based on analysis of PISA data for 2000 (OECD 2005:29). In addition to within-system differences between schools, there are large differences in learning outcomes and progress between countries, linked both to features of the education system; and to other country-level influences such as social and cultural factors affecting levels of effort and motivation among pupils, expectations of parents and the nature of out-of-school learning opportunities. Such factors are often cited in explanation of high performance in East Asia (see Jerrim 2015).

The effectiveness of education systems themselves depends both on levels of resources and, crucially, on how these resources are used in the pursuit of learning outcomes; the latter being a key determinant of system efficiency. An extensive literature focuses on modelling the 'education production function' to identify the contribution of particular 'inputs', which are the result of educational policies, to pupils' learning development. Although there are substantial differences in

results between studies and contexts in developing countries, positive effects are found with some consistency regarding the contribution of basic infrastructure and furniture, textbooks and learning materials, teachers' subject knowledge, training and attendance, electricity, instructional time and work demands, among other basic indicators (see Fuller and Clarke 1994; Glewwe et al 2011). At the same time, input indicators alone explain only a small fraction of the variation in pupils' learning outcomes. Moreover, the apparent 'failure of input-based schooling policies' (Hanushek 2003) has focused international attention more squarely in recent years on somewhat less tangible educational processes and organisational features, on 'service delivery' and on 'enabling policy environments' as determinants of system effectiveness. Clearly, "no amount of textbooks or teaching materials will improve learning outcomes if teachers are frequently absent or disengaged" (Dundar et al 2014:13) and wider features of education systems such as governance structures and accountability mechanisms affect the productivity of inputs and 'input bundles'. Furthermore, education systems may be differentially effective to the extent that they deliver learning progress better for some groups of pupils than for others. Where inequity of this kind is significant, improvements in average learning outcomes depend upon 'narrowing gaps' and on improving effectiveness specifically for particular groups of low-performing schools and pupils. Indeed, analysis of international assessments suggests that "countries with the highest test scores are those with the least inequality in scores suggest[ing] a virtuous equity-efficiency trade-off in improving educational outcomes" (Freeman et al 2010:12).

3.1 The Quantity-Quality Trade-Off

In periods of rapid expansion in educational provision, education systems typically face a 'trade-off' between 'quantity' and 'quality' (Duraisamy et al 1997) which may result in static or declining average learning outcomes during transition to universal access. Particularly where access growth follows a 'big bang' route linked to a dramatic policy change such as one-off fee-elimination (see Murphy et al 2003 for Uganda), the pace of growth in enrolments places considerable pressure on the system's ability to maintain standards and quality. Two major reasons for this are, firstly, and most obviously, growth in infrastructure, resources and the teaching workforce may not keep pace with enrolments. To the extent that enrolment growth outpaces growth in other inputs, one may expect reductions in average school quality and per-pupil spending, alongside increases in the pupil-teacher ratio, potentially leading to over-crowding (see UNESCO 2007:40; Al-Samarrai 2003). Specific policies to enable expansion, such as the use of 'shift schooling', may lead directly to reductions in inputs such as hours of instruction. Secondly, as access expands, especially to more marginalised populations, increasing numbers of disadvantaged pupils enter the system, reducing the average levels of pupils' background characteristics associated with school-readiness and educational advantage, including parental education and household resources; in turn exerting downward pressure on average learning outcomes. However, depending on the context, there may also be countervailing trends which include economic growth and demographic change which act to increase average levels of pupils' background characteristics associated with learning over time, including reductions in family size, improvements in development indicators and per capita incomes and in adult literacy and child nutrition.

These effects are well illustrated for India (the state of Tamil Nadu) in Duraisamy et al (1997). Using data on enrolments and on the national grade 10 examination pass rates from 1977 to 1992, the study shows that during this period of rapid expansion, when primary and middle school enrolments increased by 35%, resources did not keep pace with growth in coverage and in particular pupil-teacher ratios increased from an average of 36 pupils per teacher to 47. Teacher recruitment other inputs were slow to respond. At the same time, proportionally more disadvantaged pupils,

especially from scheduled castes, entered the system. While in fact examination pass-rates increased, regression results indicate that this was despite deteriorating conditions; which were offset somewhat by significant background improvements, including in parental education and nutrition; so that in the absence of these changes, pass-rates would have fallen.

3.2 A Low-Level Equilibrium of Learning Outcomes

Provided that, following the achievement of universal access (and timely progression), educational inputs recover and that there is no deterioration in system productivity, the temporary trade-off should be overcome, even if in the medium rather than the short term. Further, depending on the pace of economic and demographic change, average pupil background characteristics should begin to improve, either after universal access has been achieved or before. Moreover, in the presence of robust economic growth, provided that educational expenditure as a proportion of GDP is maintained, once universal enrolment is achieved (or before that depending on the extent of growth) per pupil resources should recover and eventually to rise beyond pre-expansion levels. The persistence over the medium to long term of low levels of learning outcomes indicates the presence of a longer-term 'low-level equilibrium' of learning outcomes. In the absence of deteriorating pupil background characteristics and of economic decline, possible explanations include, firstly, inadequate recovery of quality as measured per-pupil inputs linked, for example, to persistently low per pupil spending (inputs) post-expansion as a result of policy choices. Secondly, where an education system is substantially ineffective in producing learning outcomes and/or inefficient in converting inputs into learning outcomes, increasing per-pupil spending (inputs) may have little effect on outcomes, so that very large increases in spending may be required to secure small, if any, improvements in learning.

Finally, the effectiveness of an education system may itself be compromised by expansion in the absence of reform. Education systems originally 'designed' to serve a small and relatively advantaged section of society may be less appropriate for newly enrolled pupils, for example by having 'over-ambitious' curricula and textbooks (see Pritchett and Beatty 2012). 'Social distance' between teachers and pupils, which has been shown to affect learning progress negatively (see Rawal and Kingdon (2010) for India), is likely to be greater with respect to more disadvantaged pupils, and it may be more difficult for disadvantaged parents to hold schools accountable (see Pandey et al (2011) for India). Further, languages of instruction in use may be less appropriate for minority groups among whom enrolments may be rising most rapidly (see Cueto et al (2010) for Peru).

3.3 From Inputs to Outcomes

Analytic frameworks intended to 'go beyond inputs' in identifying features of effective education systems have included attempts conceptualise the importance of essential 'input-bundles', and 'minimum standards' of school quality on basic indicators. For example, USAID's 'fundamental quality and equity levels' (FQEL) initiative employed in Africa during the 1990s (USAID 2000) set out to identify basic minimum benchmarks focused on infrastructure (e.g. roofed classrooms), physical inputs (e.g. learning materials), professional standards (e.g. teacher qualifications) and procedures (e.g. inspection) jointly required for school functionality. More recent approaches have attempted to characterise a broader range of school and system quality dimensions, including less tangible inputs and processes. The 'opportunity to learn' (OtL) framework (USAID 2010) enumerates a number of foundational 'time and effort' indicators such as teacher attendance and pupils' 'time on task' in addition to physical inputs, focusing more directly on the efficient use of available resources. It also

identifies a set of more sophisticated 'opportunities to learn' required after the foundational stage of development, which includes *inter alia* 'learner-centred pedagogy' and 'instructional technology'.

The World Bank's 'Service Delivery Indicators' (SDI) initiative focuses on a fairly narrow range of basic input and process indicators appropriate for countries at relatively low levels of educational development, but, through application in dedicated surveys, is able to measure implementation directly in practice at school-level. The service delivery framework comprises three delivery components - provider ability ('what providers know') provider effort ('what providers do') and availability of resources ('what providers have to work with'), providing a set of indicators of resource availability and staff ability and effort which contribute to a functioning school (see World Bank 2013a).

Beyond the level of the individual schools, education systems comprise a number of higher-level dimensions which influence educational effectiveness and govern the use of resources across the system, most obviously system-wide policies and their implementation. The World Bank's 'System's Approach for Better Education Results' (SABER) attempts to classify and characterise these, emphasising that

> "[W]hat matter[s] is not just the quantity and quality of resources, but perhaps more importantly a system's ability to transform those resources efficiently into better learning outcomes…Whether a system can do that depends on its capacity to formulate policy, set standards, implement quality assurance, assess student performance, manage human and financial resources, and take advantage of intergovernmental and external partnerships"
>
> (World Bank 2013b: 8)

SABER identifies thirteen key policy areas, including for example 'student assessment' and 'school autonomy and accountability', which are employed in a benchmarking exercise in participating countries, based on a large number of indicators. Within each policy area, the SABER framework serves as a diagnostic tool, establishing levels of current development and informing pathways for potential reform.

In a small-scale study with a related aim, Mourshed et al (2010) examined twenty 'improving' education systems in order to identify the patterns and sequences of reforms and interventions adopted in periods of significant and sustained improvement in outcomes (based on international assessments). This study identified a set of 'intervention clusters' adopted by countries at four stages of development with respect to learning outcomes: (1) 'poor to fair', (2) 'fair to good', (3) 'good to great' and (4) 'great to excellent'. It argues that

> "[E]ach stage is associated with a dominant cluster of interventions…while the context does influence the emphasis and combination of interventions the system chooses from within the cluster, the intervention pattern is strikingly consistent for systems pursuing similar outcomes" (Mourshed et al 2010:18)

In addition to the intervention clusters specific to each stage, a number of 'cross-stage interventions' are identified, which were found to occur at all performance stages; comprising, "revising the curriculum and standards, ensuring appropriate reward and remuneration structures for teachers and principals, building the technical skills of teachers and principals, assessing students, establishing data systems and facilitating improvement through the introduction of policy documents and education laws" (Mourshed et al 2010:20).

Across these approaches, a degree of consistency is found in relation to the inputs, processes and policies identified as important for improving learning outcomes at the level of schools and education systems. Table 1 summarises the indicators from the SDI and OtL frameworks (separating foundational and higher-level OtL) alongside the interventions identified for stage 1 and stages 2 &3 of the Mourshed et al (2010) improvement framework. The SABER policy domains are included for reference. The first three columns enumerate more basic quality indicators, focusing on the elimination of demand-side constraints, minimum standards of infrastructure, materials, and of teacher knowledge and attendance, but also include efficiency indicators with respect to resource use, especially pupils' 'time on task' plus supervision of schools, specific support for low-performing schools and teachers and the setting of 'outcome targets', specifically 'development of reading skills by the second of third grade'. This last indicator is also recommended by the report of the Learning Metrics Task Force (LMTF) (see LMTF 2013:23). The fourth and fifth columns contain indicators related to post-basic stages of improvement, focusing on developing curricula, pedagogy and assessment, teacher skills, school accountability and governance, organisation and management. There is also some direct attention to equity issues in terms of discrimination and language policy. The SABER policy domains relevant to basic education are not themselves indicators but nonetheless address related themes, with the notable addition of 'engaging the private sector'.

Table 1: School Quality Frameworks and Indicators

Improvement stage 1: Poor to Fair	**Service Delivery Indicators (SDI)**	**OtL (Foundational)**	**OtL (Higher-level)**	**Improvement stages 2 & 3 'Fair to Good', 'Good to Great'**	**SABER policy domains**
<u>Getting students in seats:</u> Expanding seats Fulfilling basic needs to raise attendance <u>Getting schools to minimum quality level:</u> Set outcome targets Additional support for low performing schools School infrastructure improvements Provision of books <u>Motivation and scaffolding for low skill teachers:</u>	Minimum teacher knowledge Test scores in English, maths, pedagogy Teacher absence from school Teacher absence from classroom Time spent teaching Students per textbook Equipment availability Infrastructure availability	Instructional time (850-1000h/year) School availability (within 1km, open every hour/day) Teacher and pupil attendance Pupil-teacher ratio (<40:1) Daily use of instructional materials Time on task (effective use of time) Development of reading skills by 2nd or 3rd grade	Aligned, proportionate curricula Continuous professional development Non-discriminatory policies Safety and security Family involvement Teacher qualifications Learner centred instructional practices High expectations School climate Continuous	*<u>Data and accountability</u>* Transparency on performance Inspections *<u>Finance and organisation</u>* Optimise school and teacher volumes Decentralise finance and administration rights Increase funding Funding allocation models Organisational redesign *<u>Pedagogical foundations</u>* Language of instruction	Early childhood development (ECD) EMIS Educational resilience Engaging the private sector Equity and inclusion ICT School autonomy and accountability School finances School health and school feeding Student assessment

Scripted lessons Coaching Instructional time on task School visits by centre Incentives to perform			assessment Instructional technology Higher-order thinking Mother tongue instruction	School models (e.g. tracking) Raise calibre of staff at entry Raise calibre of existing staff School-based decision making	Teachers Tertiary education Workforce development
Sources:					
Mourshed et al (2010)	World Bank (2013a)	USAID (2010)	USAID (2010)	Mourshed et al (2010)	World Bank (2013b)

The following sections present data from Young Lives and available national and international sources; on educational access, learning outcomes, levels of resources and economic and demographic conditions in the four study countries. These are subsequently explored in relation to issues of educational effectiveness, efficiency and equity considered above and in relation to their potential contribution to a quantity-quality trade-off or a longer-term low-level equilibrium of learning outcomes.

4.0 Access and Enrolment

Data from Young Lives' Round 4 survey in 2013 show high levels of enrolment at age 12 (the younger cohort) for all countries, with 95% of the sample enrolled in Ethiopia, 97% in AP, 98% in Vietnam and 99% in Peru. Historical patterns of enrolment over the longer term are illustrated using nationally representative data presented in Figures 1 and 2 below. Enrolment in primary education had already reached almost universal levels in India, Peru and Vietnam by the time of the establishment of the Education for All goals in 1990, while in Ethiopia considerably less than half of all children were enrolled. Figure 1 shows the primary-level gross and net enrolment ratios (NERs and GERs) for the four countries over the period since 1990 for years where comparable data is available[3]. The GER is defined as the fraction of pupils enrolled regardless of age over the primary-school age population and thereby includes 'over-age' pupils who may have enrolled 'late', repeated grades or have dropped-out and returned to school. The NERs, however, include only primary-age pupils in the numerator, reflecting age-appropriate enrolment. In Peru and Vietnam, NERs had already reached close to universal levels by 1990, while GERs remained above 100% until around 2009 in Peru as over-age pupils progressed through the system. In India, NERs remained steady at around 80% until 2002, climbing to almost universal levels by 2007, with a small number of over-age pupils remaining in the system in 2013. The pattern in Ethiopia is somewhat different, being described by very rapid growth in the NER and GER from 1994 to 2007; and smaller increases in the NER thereafter as over-age pupil progressed, with the NER approaching 90% by 2011.

Figure 2 illustrates the trend in gross enrolments at lower secondary level since 1998. In Peru, lower secondary enrolment has been close to universal across the period, while in Vietnam it has remained in the range of 80-90%. In India, enrolments climbed fairly steadily from around 60% at the turn of

[3] Where data for an individual year is missing data for the previous year has been employed.

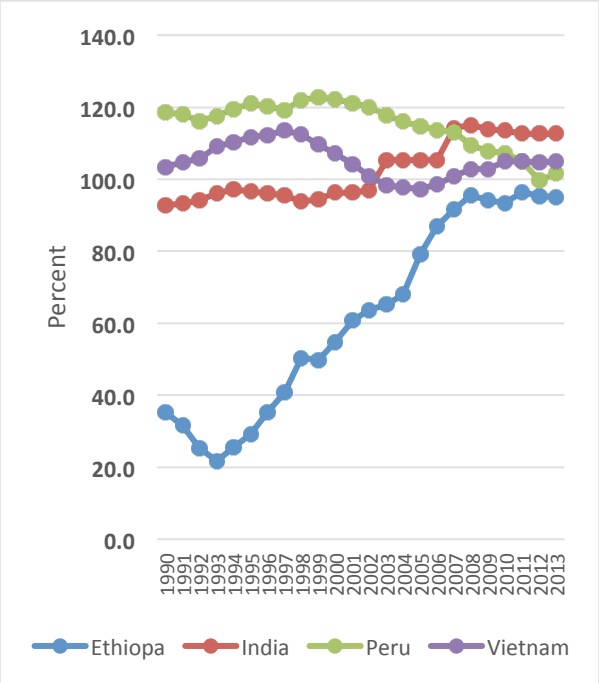
the century to more than 80% by 2011, while in Ethiopia, enrolment reached around 40% by 2006, having climbed from less than 20% in 1998; and has remained relatively stable thereafter.

Completion rates provide a fuller indication of the extent to which education systems have progressed to provide a 'full course' of basic education. In 2011, the primary completion rate was 96% in both Peru and India and 103% in Vietnam[4] (World Bank 2014). At lower secondary the respective rates were 84%, 79% and 78% (World Bank 2014). In Ethiopia[5], the completion rate to grade 5 of primary was 69% and to grade 8 (the last year of primary) 50%, with no figures being available for lower secondary. Accordingly, very few pupils in the three more advantaged countries do not reach the end of primary school while around one fifth do not complete lower secondary, while in Ethiopia failure to complete primary education remains widespread.

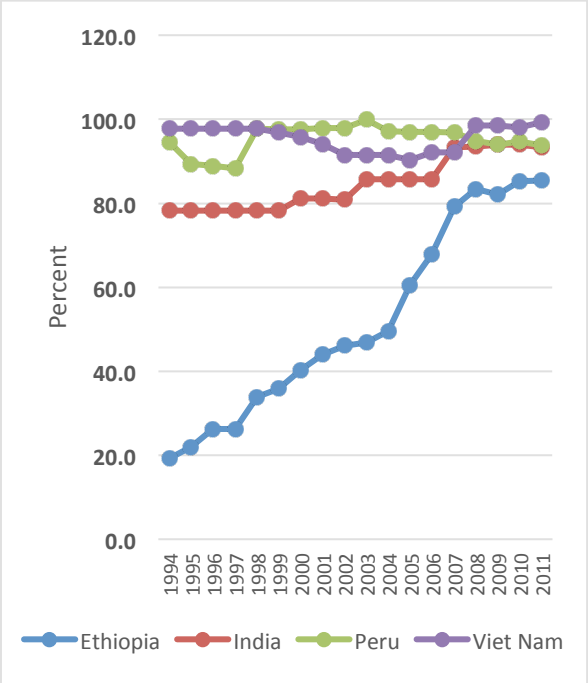
The data indicate that Peru's basic education system is the most mature in terms of access, which is universal at primary, and close to universal at lower secondary and has been so for at least fifteen years. The case of Vietnam is similar, while lower secondary enrolment is slightly lower. Enrolments stabilised in India somewhat later, reaching levels close to those of Peru and Vietnam in 2007 at primary level and 2011 at lower secondary, with limited growth thereafter. In Ethiopia, enrolments at lower secondary level have been stable for almost ten years with only a minority enrolled, while primary enrolments continued to increase slightly in recent years but at a much slower pace than before 2008.

Figure 1: Primary School Enrolment Ratios (%)

Gross Enrolment (1990-2013)



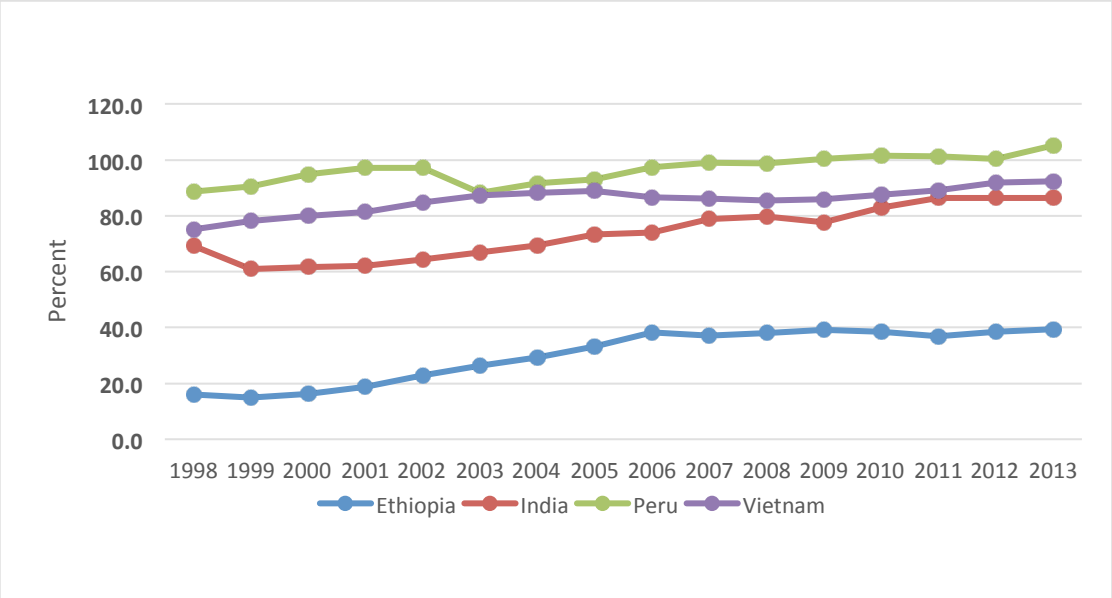
Net Enrolment (1994-2011)



Source: UIS[6]

[4] Completion rates are defined as the enrolment in the last grade of the relevant phase of schooling divided by the population of the expected age of enrolment in that grade.
[5] MOE statistical abstract (2010-11) figures in the absence of data from World Bank (2014)
[6] For Ethiopia, figures from the MOE annual statistical abstracts are used in place of unavailable UIS figures from 2007

Figure 2: Gross Lower Secondary School Enrolment Ratios (%) 1998-2013



Source: UIS[7]

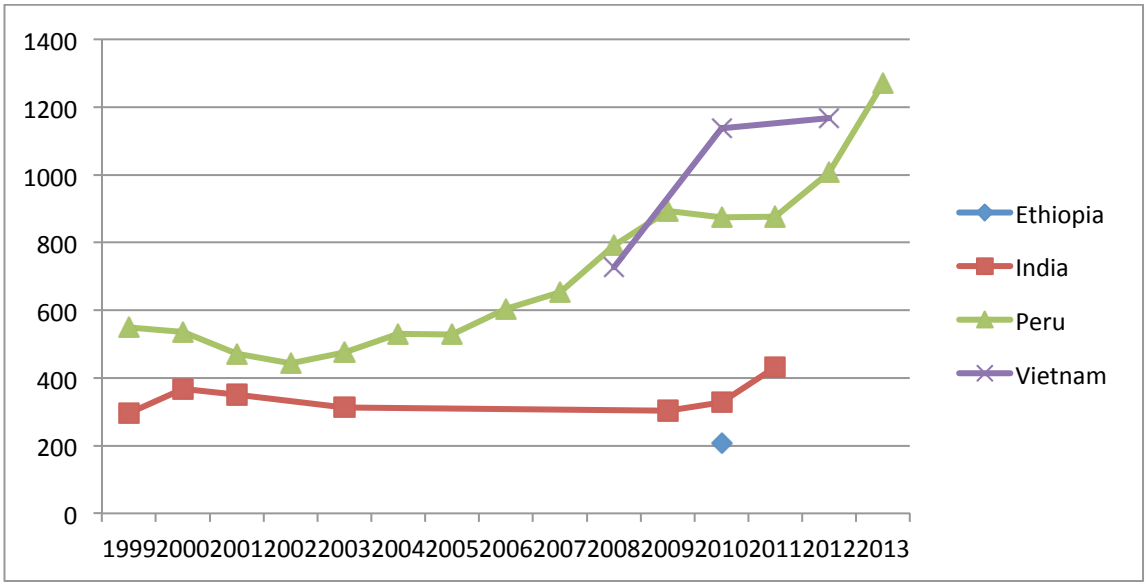
4.1 Educational Resources

Figure 3 compares government spending on primary education[8] per pupil for the four countries over the period since 1999 for years when data is available. Expenditure is expressed in 'purchasing power parity' (PPP) terms at constant prices for comparative purposes. Only one data point is available for Ethiopia, which shows spending per pupil to be the lowest in real terms at around $200. In India, spending was between $200 and $300 but showed no pattern of increase until 2009, the year in which the Right to Education Act (RTE) was introduced. Peru's spending shows a fairly steeply increasing trend since 2002, rising almost three-fold in the period to 2013. While few data are available for Vietnam, spending in recent years is at broadly similar levels to that of Peru, with a fairly sharply increasing trend between 2008 and 2012.

[7] For Ethiopia, figures from the MOE annual statistical abstracts are used in place of unavailable UIS figures from 2007

[8] Government spending per pupil (primary) as a % GDP per capita multiplied by GDP per capita (PPP) at constant 2011 international Dollars.

Figure 3: Government Spending Per Pupil - Primary (PPP) Constant International Dollars (2011)



Source: World Bank (2014)

Table 2 reports indicators for the four countries of economic development, youth population share, rates of economic growth and population growth and levels of adult literacy and of per pupil education expenditure as a proportion of GDP per capita. While all countries experienced rapid growth, the gaps between countries in terms of economic development remained very broadly similar between 1998 and 2013, with Peru's income per capita in purchasing power parity (PPP) terms being more than twice greater than India and Vietnam's and more than eight times greater than Ethiopia's. Peru and Vietnam both had stable enrolments and increasing inputs over the period in the presence of robust economic growth and relatively favourable demographic indicators, particularly low population growth and relatively small youth populations in proportionate terms, enabling increases in inputs per pupil, while Vietnam spends a very much larger proportion of government expenditure on education than Peru. In India, population growth and the proportionate size of the youth population are slightly higher than in Peru, but there has also been a decline in spending on primary education as a proportion of GDP per capita between 1998/99 and 2013 of more than four percentage points. This has not resulted in an overall decline in absolute spending, given robust economic growth. In Ethiopia, the proportionate size of the youth population is large and population growth relatively high; and while government spending is high in proportionate terms, it is low in absolute terms, while no information is available on the spending trend.

Based on the indicative data presented, Vietnam shows no evidence of a 'trade-off' between 'quality and quantity' where quality is indicated by levels of resourcing. In Peru, there is no evidence of a trade-off based on absolute levels of resourcing, but spending is low relative to income, indicating that Peru commits fewer resources to primary education than might be considered feasible or perhaps desirable. Bruns et al (2003: 63) for example, found that 'high performing countries' with regard to educational access spent around 12% of GDP per capita on primary education. In India, while mass primary enrolment was achieved by 2007, resourcing levels stagnated in absolute terms and declined in proportionate terms. This provides some evidence of a *de facto* trade-off at least during the period prior to the RTE. It is difficult to draw conclusions for Ethiopia except to say that resource levels are low in an environment of recently expanding access at primary level in a context

of high proportionate spending which likely constrains improvements in per-pupil resources significantly.

Table 2: Economic and Demographic Indicators 1990-2013

	Ethiopia	India	Peru	Vietnam
Population aged 0-15 (%) 2013	42.68	29.09	28.77	22.7
GDP Growth rate (%) Average 1990-2013	6.27	6.48	4.55	6.83
Population Growth Rate (%) Average 1990-2013	2.94	1.61	1.47	1.35
Adult Literacy (% age 15+) 2013	38.99	62.75	89.59	93.52
Government Expenditure per pupil (% GDP per capita) Primary 2013	19.19	7.19	8.83	25.34
Government Expenditure per pupil (% GDP per capita) Primary 1998/9	-	11.83	7.96	-
GDP per capita (PPP[9] 2011 constant international dollars) 1998	588	2312	6419	2436
GDP per capita (PPP 2011 constant international dollars) 2013	1329	5131	11324	5124

Source: World Bank (2014)

The next section examines 'quality' more directly, in terms of learning outcomes and changes in outcomes over time.

4.2 Levels, Trends and Inequality in Learning Outcomes

4.2.1 International Assessments

Very few low or lower-middle income countries participate in internationally comparable assessment exercises and relatively few data are available for the Young Lives study countries, with none being available for Ethiopia. However, India, Peru and Vietnam have each participated in PISA, providing comparisons for pupils aged 15, typically close to the end of compulsory schooling. Peru has participated in three rounds– 2000, 2009 and 2012 and Vietnam in one round, 2012. The results for India are for two states only – Tamil Nadu and Himchal Pradesh (considered 'median' states in human development terms), which were included in an extension to PISA in 2009.

Figure 4 shows the test scores for each country by participating round in PISA. In 2000, results for Peru show low scores, at which point Peru's results were the lowest of all participating countries and equated at the mean to around the 5th percentile of performance in the OECD (World Bank 2007: xiii). However, only two participating countries (Albania and Indonesia), albeit with slightly higher scores, had lower GDP per capita than Peru in PPP terms at the time. Peru's scores, nonetheless, show strong improvement over time. However, at the rate of progress observed between 2000 and 2012, it would take 18 years from 2012 for Peru to reach the OECD average in maths (for 2012) and 24 years for reading. These estimates are however, considerably lower than for many other countries, where improvement is weak or negative, as discussed in Beatty and Pritchett (2012). No information is available about changes in learning outcomes for Vietnam, Ethiopia or India from International assessments, while evidence from national assessments is considered in the next section.

In 2009, both of the participating states in India achieved very low scores in both subjects, being somewhat lower than Peru's, while only Kyrgyzstan had a lower GDP per capita in PPP terms at the time, which also achieved lower scores in both subjects. For India, additional attempts have been made to link test-scores from national-level sample studies to international scales. Das and Zajonc

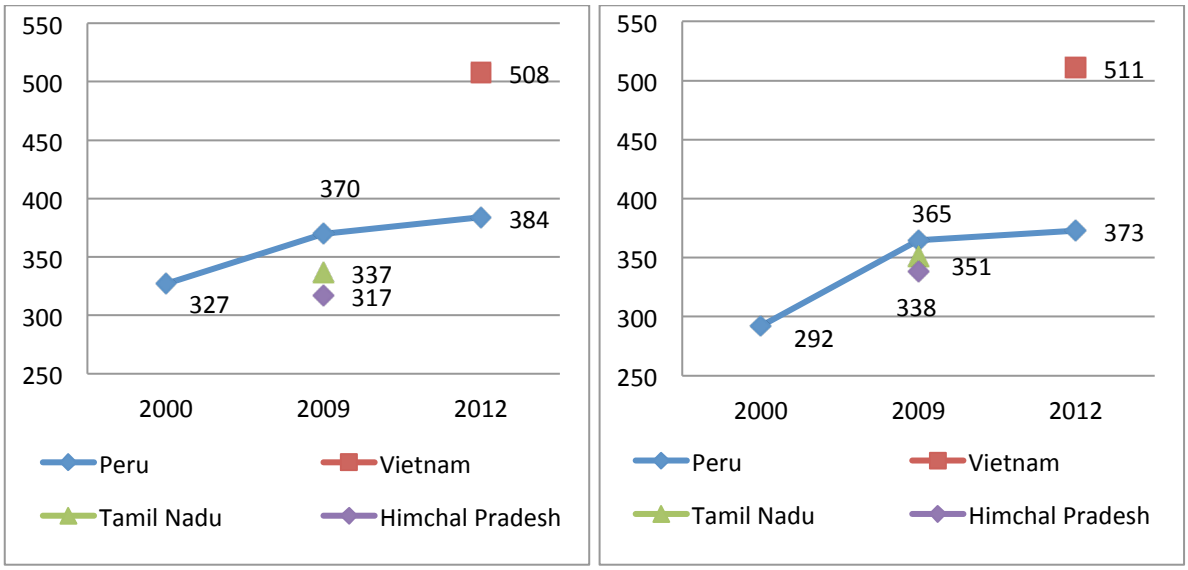
[9] purchasing power parity (PPP)

(2008) conducted assessments in two states of India – Rajasthan and Orissa using a number of TIMSS (Trends in International Mathematics and Science Study) items and linked pupils' scores to the international TIMSS scale for 2003. In this exercise they estimated average maths scores in Rajasthan at 382 points and in Orissa at 404 points, ranking India overall 46th out of 51 countries based on this sample. While these scores are low, no country participating in TIMSS with lower GDP per capita (PPP) achieved a higher score.

Results for both Peru and the two Indian states are slightly lower than would be predicted by a general linear relationship between per capita GDP and test scores (see World Bank 2007:4 and World Bank 2014:95), although this evidence is somewhat weak not least because there are very few participating countries at a similar level of development to validate this relationship at low income levels. However, given that Peru's enrolment rates have been somewhat high relative to its GDP, as is also the case for India to a lesser extent, results on PISA may be considered slightly lower than expected given levels of educational development (see World Bank 2007:4 for Peru). At the same time, within Latin America, a number of countries with considerably greater per capita incomes achieve PISA scores only marginally higher than Peru's.

Peru's results remained close to the bottom of the PISA table in 2012, while the first internationally comparable test results for Vietnam revealed startlingly strong performance. Vietnam's results were among the highest of the 65 participating countries and compare to those of Germany, being higher than those of the UK and USA in both maths and reading (OECD 2013), while per capita GDP is the lowest of all participating countries. Vietnam's results are the first in PISA demonstrating learning outcomes for a developing country which are even remotely close to those of the OECD, making Vietnam a notable positive outlier.

Figure 4: PISA Results 2000-2012 for Peru, Vietnam and Two Indian States



Source: OECD

Data from international assessments also provide information on the extent of inequality in test scores within countries. Inequality in Vietnam, based on the ratio of variance and mean scores in PISA 2012 is comparable to OECD levels (OECD 2014), while estimates of levels of inequality in Peru and India are very high in comparative terms. In Peru, comparing across all international assessments, inequality is among the highest of all countries and is also higher than would be predicted by levels of income inequality alone (World Bank 2007: 5). The position of India, on the

available evidence, is similar to Peru on inequality in test-scores. Das and Zajonc (2008), for example, estimate levels of inequality to be the second highest in TIMSS after South Africa. PISA defines 'resilient' students as those who are in the bottom quartile of performance within a country based on socio-economic status, but who are in the top quartile of pupils across all countries when taking account of socio-economic backgrounds; i.e. those who perform much better than expected based on their backgrounds. Around 17% of pupils fall into this group in Vietnam, lower only than in China[10], while less than 1% of Peruvian pupils fall into this group, a proportion which is higher only than Qatar (OECD 2013:32).

4.2.2 National and Regional Assessments

Annual national standardised tests in reading and mathematics (the Evaluación Censal de Estudiantes (ECE)), were introduced in Grade 2 from 2007 in Peru. Results in 2007 showed very low levels of performance, with only 16% of pupils reaching the level considered satisfactory in reading and 7% in maths. By 2014, however, results had improved dramatically to the extent that 44% had reached the same level in reading and 26% in mathematics. Improvements in the most recent year show particularly large gains, given that in 2013, 33% of pupils reached the satisfactory level in reading and 17% in maths (MdE 2014). Improvements were made in all regions in both subjects as well as in both urban and rural areas over the period since 2007, while nonetheless, a majority of pupils continue to perform below satisfactory levels. Large scale national standardised tests in later grades of schooling have not been conducted since the Ministry of Education's 2004 national assessment exercise, but Peru has participated in UNESCO's Latin American Laboratory for the Assessment of the Quality of Education (LLECE), a comparative study of learning outcomes in Grades 3 and 6 across sixteen countries, conducted in three rounds to date – in 1997, 2006 and 2013. While data for Peru were not released for the first round, data from the second round revealed that Peru's learning outcomes in mathematics and reading were lower than the average for other countries in the region[11] and lower than other countries in South America specifically (UNESCO 2008). Results from the third round, however, show considerable improvement in Peru on those of the second round and this improvement was typically much larger than for other low-performing countries in the study. Specifically, Peru's improvement was the third highest of all participating countries in both grades for reading and grade 3 maths; and was the highest of all countries in grade 6 mathematics (UNESCO 2014). Accordingly, in common with the results from PISA, learning outcomes in Peru are found to be improving comparatively quickly, albeit from a low base.

Also in common with PISA results, however, data from available national assessment exercises for Peru show very high levels of inequality, particularly between urban and rural areas and between mother tongue speakers of Spanish and indigenous languages. For example, in the second round of LLECE, Peru's urban-rural gaps in achievement were the highest among all participating countries in both reading and maths (UNESCO 2008:25), while in the ECE only 1 in 6 pupils reached 'satisfactory' in reading and 1 in 8 in maths in rural areas. Moreover, despite gains in achievement in both types of location, gains were larger in urban areas in both subjects over the period since 2007, while gaps between public and private schools declined (MdE 2014:35).

For Vietnam, nationally representative data on learning outcomes in basic education are available only from the Ministry of Education and Training's (MoET) Grade 5 sample surveys. These were conducted in 2001, 2007 and 2011. Results indicate that learning levels in Grade 5 in mathematics and reading are high and broadly similar to those of much more economically developed countries

[10] Macao, Shanghai and Hong Kong

[11] except in Grade 6 maths where results are close to the average

as Hong Kong, Ireland, the Czech Republic and New Zealand (World Bank 2011). Results also show notable improvement over time since the first study in 2001; although precise comparison is limited by changes in methodology. Learning levels were found to be considerably lower among pupils in 'isolated areas', however, and improvement in these areas was also weaker between 2001 and 2007 (World Bank 2011:52).

Two large-scale assessment exercises are conducted at regular intervals in India – the National Council for Educational Research and Training's (NCERT) National Achievement Survey (NAS) conducted in three year cycles since 2001 and the Annual Status of Education Report (ASER) surveys conducted since 2005. The former is a school based assessment (in grades 3, 5 and 7 or 8) for government schools in both urban and rural areas and ASER is household-based and is conducted in rural areas only for children aged 5 to 16 in all school-types. While the results of the two exercises are not comparable owing to differences in sampling and methodology and the NAS typically reports more positive results, both studies nonetheless report low levels of learning overall. For example, in the NAS for grade 5, only a third of pupils could compute the difference between two decimals and in grade 8 only 43% could solve a simple division problem (NCERT 2012 cited in Dundar et al 2014).

While changes in methodology mean that NAS results are difficult to compare over time, the comparable annual ASER results provide strong evidence on learning trends for rural areas. Specifically, the percentage of children in grade 3 who could read a grade 1-level text is found to have declined from 48.1% in 2006 to 40.3% in 2014. In grade 5, while 53.1% of children could read a grade 3 level text in 2006, only 48.1% could do so by 2014. The decline in learning outcomes in mathematics has been even greater. In 2007, 42.4% of children in grade 3 could perform simple subtraction, falling to 25.4% in 2014 and in grade 5, while 42.5% of children could perform simple division in 2006, this had fallen to 26.1% by 2014 (ASER 2015).

Further large-scale assessment exercises have been conducted by Education Initiatives India (EI) in the form of the 2009 'Student Learning Study' (SLS) (EI 2010) and the 2013 'Establishing Benchmarks for Student Learning' study (EI 2014). The SLS showed that almost 40% of students in grade 8 had not mastered grade 4 competencies in maths. The benchmarking study showed that, while performance is better on 'procedural' questions which may be mastered by 'rote learning', students fare particularly poorly (and improve less over time) on less familiar or non-straightforward questions requiring equivalent skills (EI 2014:59). For example only 16% of pupils in government schools could identify the fraction one third on a shaded figure (EI 2014: 53). This study compared results for pupils in grades 3 to 7 by school-types – government, 'affordable private' and 'high-fee private' for urban districts in six states. Differences in attainment were found to be very large. In high-fee private schools, performance in maths, for example was found to be close to international averages, based on a number of test-items taken from TIMSS and PIRLS (Progress in International Reading Literacy Study). The gap in performance between these schools and government schools, however, was 1.1 standard deviations (SDs) in maths and 1.3 SDs in language in grade 3, rising to 2.1 SDs and 1.7 SDs respectively in grade 7 (EI 2014). All sources of data for India show significant gaps by between the highest and lowest performing states and between more and less advantaged social groups, but somewhat less so by urban and rural location (see ASER 2015, EI 2010, EI 2014).

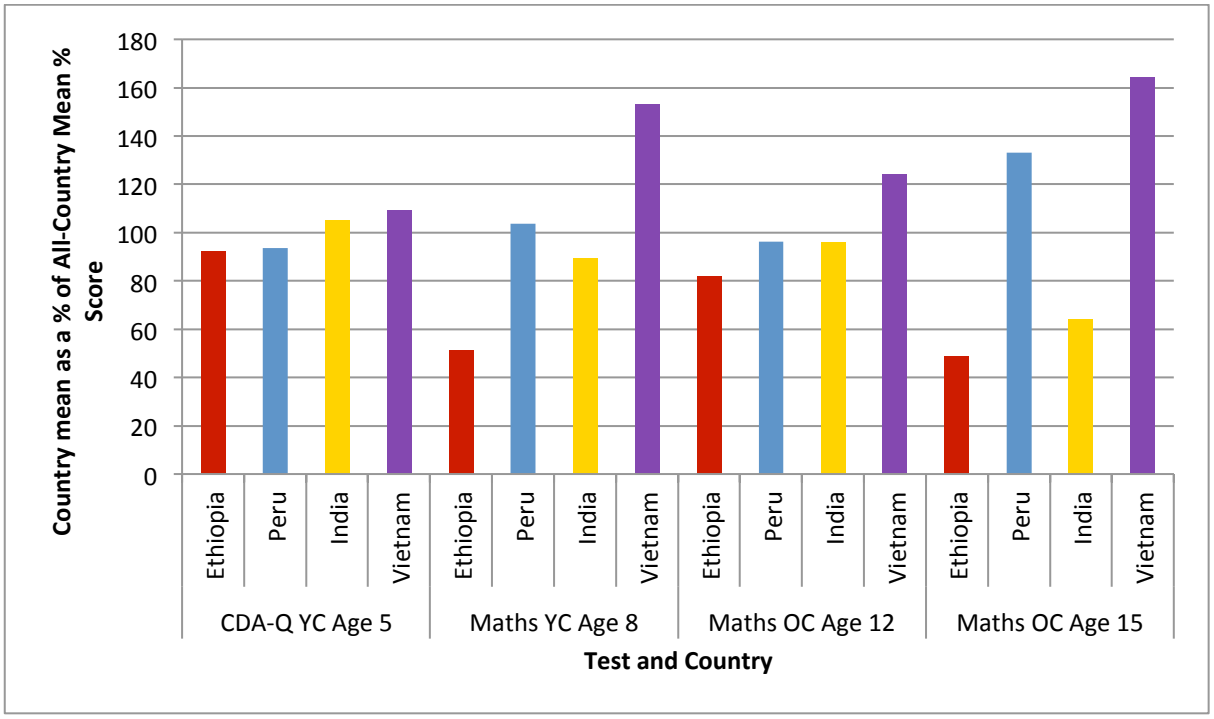
With regard to AP specifically, data sources differ as to whether learning levels are above or below the all-India averages. ASER data show that performance in maths is somewhat higher than for India overall, but with a similar pattern of decline between 2006 and 2014 while reading levels were below all-India in 2006 but had improved by 2014 to be somewhat higher than nationally. At least part of the explanation for reading appears to lie in the pace of growth in private schools in AP which has been more rapid than in India as a whole (ASER 2015).

Early Grade Reading Assessments were conducted in Ethiopia in grades 2 and 3 in 2010 in eight regions of the country. The assessments found that overall, at least 80% of pupils in all regions were not reading at the 'target level' (Piper 2010). In grade 2, more than 60% of pupils in the lowest performing region could not read a single word, and every region at least 20% of pupils were unable to do so. Levels of reading comprehension were especially low, with more than 50% of pupils in most of the selected regions being unable to answer a single comprehension question, rising to more than 70% in the lowest performing region. Some improvement was found by grade 3 such that in all but one region less than one third of pupils attained a zero score. However, "the stories and associated questions were developed such that Grade 2 children should have been able to answer 4 or 5 of the comprehension questions correctly" (Piper 2010:4). Some limited evidence on change in learning levels over time is available from the Ministry of Education's national learning assessments (NLA) conducted in grades 4 and 8 in 2000, 2004, 2007 and 2010/11. In these assessments, no region attained the 'expected minimum achievement level' of a 50% average composite score across all subjects at the 2000 baseline and across all assessments a majority of pupils do not reach the standard 'proficient', with most achieving at the level described as 'below basic'. The national average score for mathematics in grade 4 was 39.3% in 2000, falling slightly to 37.1% in 2010/11 and for grade 8, average scores fell from 40.9% to 25.5%. In reading (assessed in grade 4 only) the decline was also large – from 64.3% to 43.0%. Composite scores fell in both grades – from 47.9% to 40.1% in grade 4 and from 39.7% to 35.3% in grade 8 (Abay 2013; MOE 2013). Inequality in test-scores in Ethiopia varies somewhat by assessment and subject, but regional differences are perhaps the most notable inequalities. For example, in 2010/11, reading scores in Grade 4 averaged 62.6% in Addis Ababa compared to 35.3% in the lowest performing region (Gambella) (MOE 2013).

4.2.3 Comparisons using Young Lives data

Young Lives' identical assessments in early numeracy and mathematics may be employed for cross-country comparison of (i) learning levels (ii) learning profiles and (iii) changes in learning levels over time. Figure 5 shows the results of assessments administered at ages 5 and 8 to the Younger Cohort in 2006 and 2009 and to the Older Cohort in the same years, when they were aged 12 and 15. The CDA-Q (Cognitive Development Assessment – Quantity) measures early numeracy skills at age 5, typically before children had attended school. At this point, differences in learning outcomes between countries were small, while being highest in Vietnam, followed by AP, Peru and Ethiopia. By age 8, however, pupils in Vietnam had made substantially more progress and their test scores were more than twice as high as pupils in Ethiopia and 1.5 times higher than those in AP. Among the Older Cohort at age 12, while the ordering of countries is the same as at age 8 and also at 15, gaps are somewhat smaller. At age 15, however, differences between countries are widest of all, with Vietnamese and Peruvian pupils achieving scores more than twice as high as those in AP and Ethiopia. At age 15, results for the three countries included in PISA (and earlier at ages 12 and 8) are consistent with the ordering of countries in PISA, with results for Ethiopia being somewhat lower than in AP.

Figure 5: Test Scores in Maths at ages 5, 8, 12 and 15 (Young Lives)



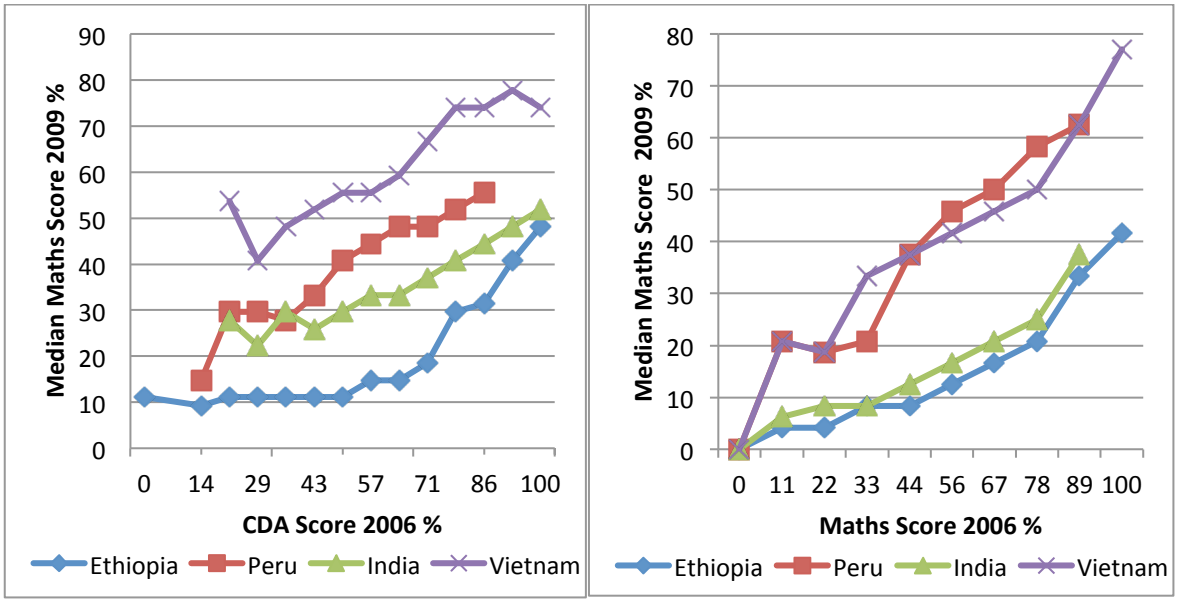
Source: Rolleston et al (2013)

4.2.4 Learning Trajectories

Given the patterns of learning outcomes at various ages presented above, especially the relatively small differences in test-scores at age 5 and large differences at age 15, pupils clearly follow somewhat different learning trajectories across countries. These are illustrated in Figure 7 below, which shows the levels of attainment for each cohort in 2006 on the horizontal axis and the average level of attainment in 2009 for each group of pupils (by attainment in 2006) on the vertical axis. For the younger cohort of children, there is a clear separation of countries, in the same order as for attainment at age 8 onwards above, with children learning most in Vietnam and least in Ethiopia across all levels of prior attainment. For the older cohort, while the broad pattern is the same, countries separate into two groups, with children in Vietnam and Peru making substantially more progress over three years to age 15 than in Ethiopia and AP. These patterns do not identify learning progress which is necessarily due to schooling quality alone, owing to differences in home backgrounds and exposure to school across the countries, considered further in Section 5.

Figure 7: Learning Trajectories in Mathematics 2006-2009

Ages 5 to 8 (Younger Cohort) **Ages 12 to 15 (Older Cohort)**



Source: Adapted from Rolleston et al. (2013)

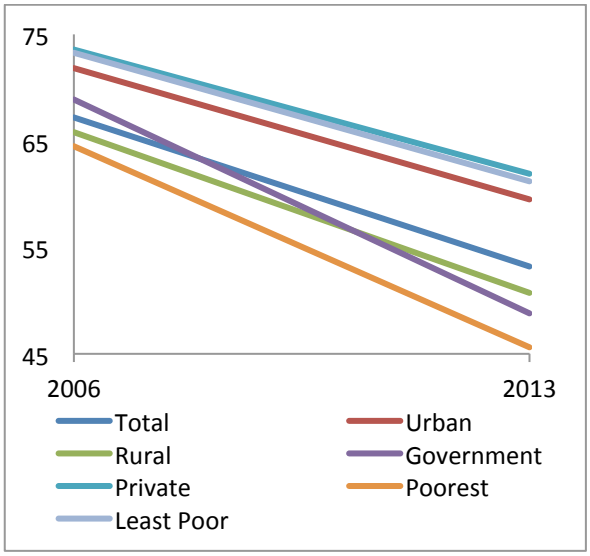
4.2.5 Changes in Learning Outcomes over Time

Although data are somewhat limited, evidence from national and international assessments presented so far suggest overall improvements in average learning outcomes over time in Peru and Vietnam and decline in Ethiopia and India. Longitudinal data from Young Lives allow comparison across the two cohorts of pupils, both representative of the same sites in each country, at age 12 (in 2006 and 2013). Figure 6 illustrates the trends in test scores[12] from preliminary analysis of Round 4 data for each country, separated by key axes of advantage in each case. In Ethiopia and India, consistent with other data sources, maths scores declined between cohorts over the period from 2006 to 2013. In Ethiopia this was despite improvements in grade completion. Further, in Ethiopia, relative decline appears to be greatest for the poorest group of pupils and for those in rural areas, indicating a worsening equity position. Similarly in India, decline appears to be greatest for the poorest and especially those attending government, as opposed to private schools, while there was also a notable decline in test scores in private schools. In Vietnam, test scores overall increased slightly, but the largest increases are observed for ethnic minority and poorer pupils, indicating an improvement in equity, although more advantaged pupils may have reached a 'ceiling' performance level in both cohorts, with results being close to 90%. In Peru, test scores improved overall, with the largest increase being for the richest group and the smallest for the poorest and those whose mother's first language was not Spanish, representing a worsening equity position.

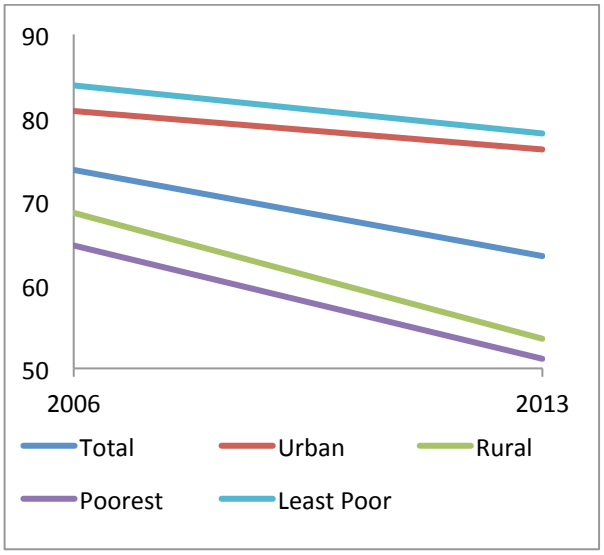
[12] Preliminary findings are compared on simple indicators prepared for country factsheets – percentage correct scores based on test items which were administered at bout survey rounds 3 and 4.

Figure 6: Inter Cohort Changes in Test Scores (% Correct) 2006-2013

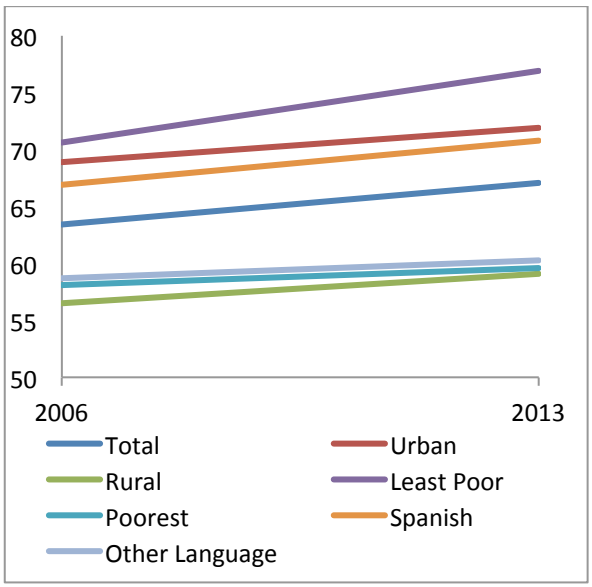
India – Andhra Pradesh (Mathematics)[13]



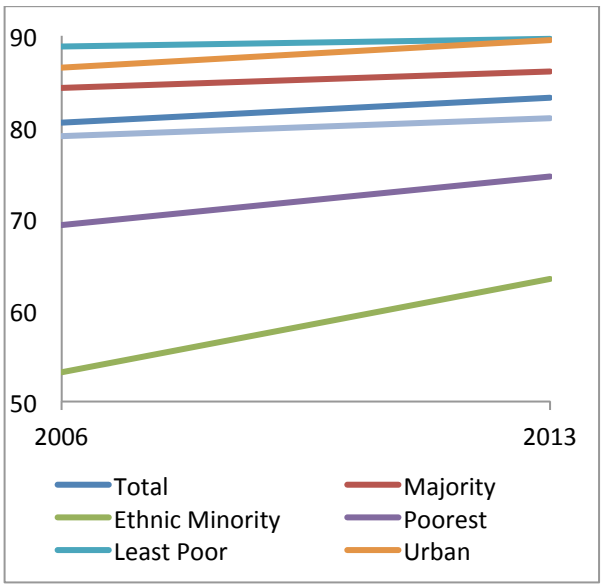
Ethiopia (Mathematics)[14]



Peru (Receptive Vocabulary)[15]



Vietnam (Mathematics) [16]



Source: Young Lives Rounds 3 and 4

[13] Average of three maths questions
[14] Average of two comparable maths questions
[15] Results are shown for the Peabody Picture Vocabulary Test. Although trends for mathematics are reported to be similar they are not yet available.
[16] Average of three comparable maths questions (same as India)

5. Discussion and Conclusion

Among the four countries included in this study, all have achieved 'mass enrolment' at the primary phase, with three having done so at lower secondary, while primary completion and progression to secondary remain weak in Ethiopia. Only Vietnam, however, has made the transition to 'mass learning'. The trend of declining learning outcomes in Ethiopia, seen in Young Lives and NLA data covers a period during which net enrolment rates at primary level continued to expand against a background of resource constraint, consistent with a quantity-quality trade-off explanation. In AP, and India more generally, enrolment growth had slowed significantly in the period since 2007, so that declining learning outcomes are not readily explained by a trade-off linked to resource scarcity. Persistently low per-pupil spending post-expansion does, however, to a large extent characterise the situation of basic education in India, and likely plays a key role in explaining the lack of improvement in learning outcomes, while it does not provide an obvious explanation for their decline. Rather, the indicative evidence for India suggests a role for weak educational effectiveness and/or efficiency and equity linked to poor service delivery, perhaps particularly for more disadvantaged pupils entering the system at the tail end of the gains in access that brought about universal enrolment in primary in around 2007. With regard to learning outcomes, there is little evidence so far that the 2009 RTE has led to improvements. The situation in India is accurately described in terms of a longer-term low-level equilibrium in learning outcomes to the extent that even if decline is eventually halted as timely primary completion rates approach 100%, learning outcomes appear set to remain very low in comparative terms. In Vietnam and Peru, rising outcomes and spending indicate that these systems had already passed any period of trade-off by 2006 and likely much earlier. In respect of Vietnam, Trân (2014) explains that in fact the country likely escaped such a trade-off altogether,

> "The number of weeks worked, the weekly number of periods, the variety of subjects taught, the percentage of teachers trained and their levels of professional training rose progressively. Reforms regularly changed the curriculum. Throughout, the government invested in school infrastructure and equipment. There has been no trade-off between education quantity and quality in Vietnam" (Trân 2014)

However, while learning levels are improving overall, weak improvements in test scores for the most disadvantaged pupils in Peru do suggest a potential low-level equilibrium of learning outcomes for these groups specifically. Moreover, the comparison between Vietnam and Peru suggests a large difference in system efficiency between the two countries, with learning outcomes being very much higher in Vietnam while spending is very similar in real terms (and much lower in absolute terms).

Singh (2014) sheds further light on the cross-country effectiveness comparison using Young Lives data. Using linked test-scores scaled across countries and over time using item-response modelling, he examines the sources of the divergence in learning profiles in mathematics using regression analysis. Explanatory variables including child-level characteristics such as care-giver education, height-for-age, household characteristics including wealth and access to services and time-use indicators such as time spent studying at home plus prior test-scores, years of schooling and grade attained are employed in models to identify education-system productivity. His study finds that the effects of these variables do explain part of the gaps in learning gains between countries. Specifically, 'child inputs' (including exposure to schooling) explain most of the difference in learning progress between Ethiopia and AP both between ages 5 and 8 and between 12 and 15. Moreover, the estimated effect of an additional grade completed on learning outcomes is lowest in India among the four countries at the primary stage. This finding, that there is little difference in the contribution made by schools between Ethiopia and India, is suggestive of relatively weak school effectiveness in AP, given its much higher level of economic and educational development; and also

of relatively weak efficiency given its greater commitment of resources (based on all-India figures). Conversely, greater learning gains in Vietnam compared with the other three countries during the primary education stage are found to be substantially due to greater system-productivity, so that "raising the effectiveness of a grade of schooling to Vietnamese levels, even keeping all endowments (including learning at 5) as well as all other coefficients unchanged, closes the gap between India and Vietnam by about 70% and between Peru and Vietnam entirely" (Singh 2014:23). While Vietnam is clearly an outlier, educational effectiveness in Peru, and also efficiency given its comparatively high spending in absolute terms, may be considered relatively weak, with effects of grade completion being much closer to those of Ethiopia and India than to those of Vietnam.

It is clear from the cases of India and Peru that even when high levels of completion in basic education have been reached and, for Peru at least, adequate financing secured, education systems may remain far from achieving 'mass learning'. Educational effectiveness, efficiency and equity must be adequately addressed and oriented towards 'learning for all' if mass learning is to be reached. While India and Peru's commitment of resources to education is low in relation to income, it is also apparent that the resources that are committed do not translate adequately into learning outcomes. This is especially true for disadvantaged pupils in these contexts of high inequality, an important feature of these systems in terms of explaining low average learning outcomes. While the differences in performance between schools have been highlighted, Glewwe et al (2014) show that in Peru at least, differential effectiveness is also found within schools to the extent that 'school effects' for disadvantaged pupils in Peru in terms of ethnic/linguistic group (non-Spanish speakers) and in terms of initial cognitive skills are significantly weaker than for their more advantaged peers. Policies to address the effectiveness of schooling for disadvantaged groups especially in Peru are required to ensure these pupils escape a 'low-level equilibrium' by securing learning gains equivalent to or greater than more advantaged groups. Such policies in Vietnam have included those focused ensuring 'minimum standards' in basic education, with specific attention and subsidy to disadvantaged areas (see Rolleston and Krutikova (2014)). While the education system in Ethiopia has made huge strides in terms of 'getting students in seats', access gains appear to have been achieved to some extent at the expense of learning outcomes, perhaps unsurprisingly given that school infrastructure and resources remain stretched. For example, pupil-teacher ratios remain higher than 1:50 base on the Young Lives school survey (see Aurino et al 2014). Nonetheless, indicators of educational effectiveness and efficiency appear to be relatively more favourable than those for AP or India more generally. While improving equity is a major policy issue for educational development in India, declining learning levels are found for almost all groups of pupils, requiring system-level reforms to improve educational effectiveness more generally. While the RTE sets standards in a number of areas relating to infrastructure and resources, including pupil-teacher ratios, it sets no clear standards for learning. In the absence of improvements in efficiency and effectiveness, improvements in educational investment may be insufficient to escape long-term and persistent low levels of learning.

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