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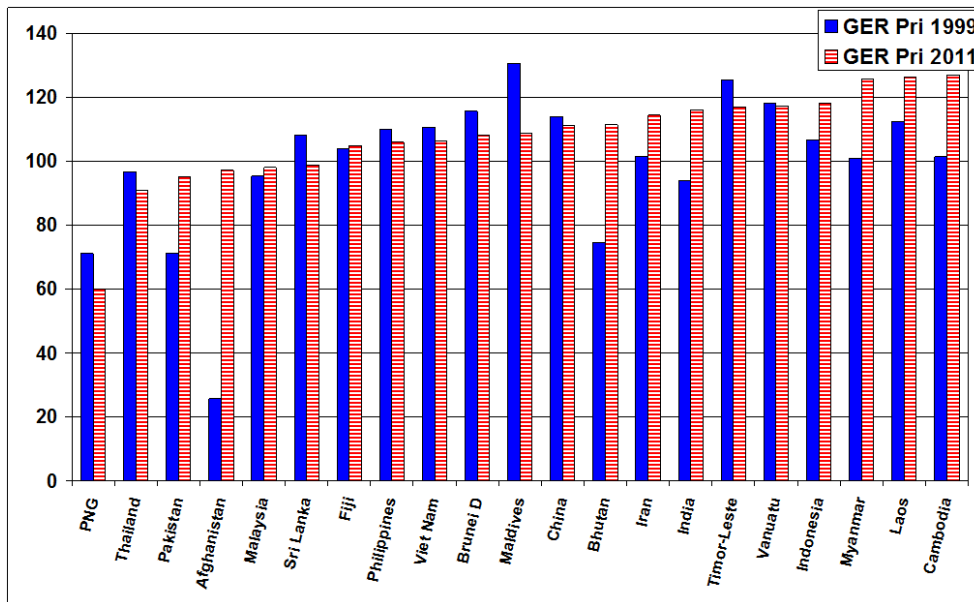
Financing education in Asia: profiling participation and financing towards 2030

Keith M. Lewin

Introduction

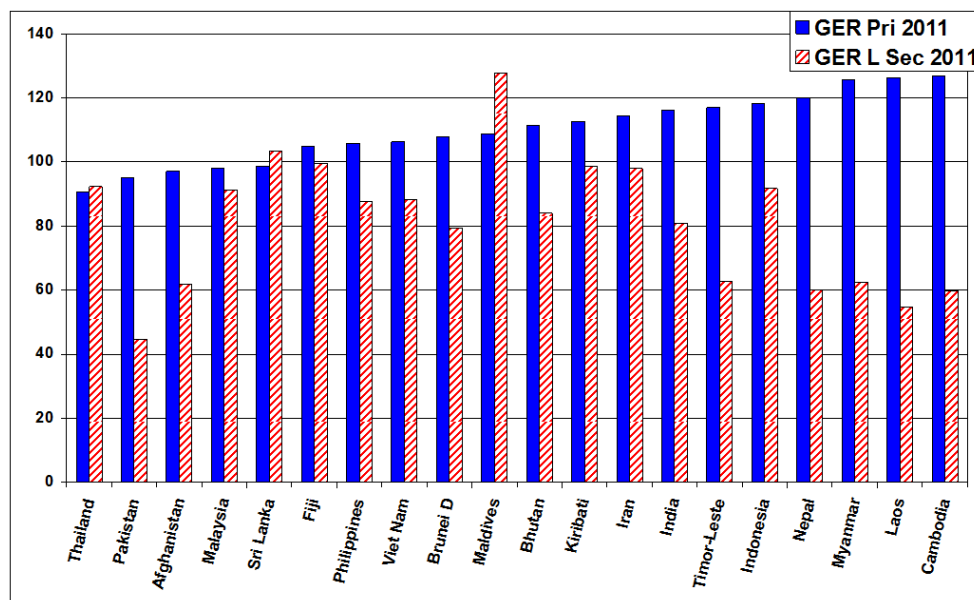
- 1 Access to education in most part of Asia has increased rapidly in the Jomtien (1990) and Dakar (2000) World Conferences on Education for All. Across the region the majority of countries now enrol almost all children in Grade 1 and most complete the primary cycle, though many underachieve. South and South-East Asia are very diverse. The region includes the world's second largest country (India) and several other very large low-income states (Bangladesh, Pakistan). It also includes some of the smallest and richest (Singapore, Brunei).
- 2 Gross enrolment rates (GERs) at primary level across South and South-East Asia now average a little over 100% at primary and about 80% at lower secondary. Progress towards these levels has been steady. Net enrolment rates are now approaching 90% at primary and over 70% at lower secondary. The variation in primary enrolment rates over the last decade between countries is shown in Figure 1. Here the majority of countries had GERs that were over 100% in 1999. By 2011 some of those with the highest enrolment rates saw the value of the GER fall as the numbers of overage children within the primary cycle reduced. Several of the lowenrolment countries made large gains in enrolment rates.

Figure 1: GERs at primary level in South and South-East Asia (SSEA), 1999–2011



- There is little correlation between enrolment rates at primary and those at lower secondary (Figure 2). There is however a tendency for those with the highest enrolment rates at primary to have low enrolment rates at secondary. This reflects the fact that those systems that are less developed often have large numbers of overage children in primary, inflating GERs to 120% or more.

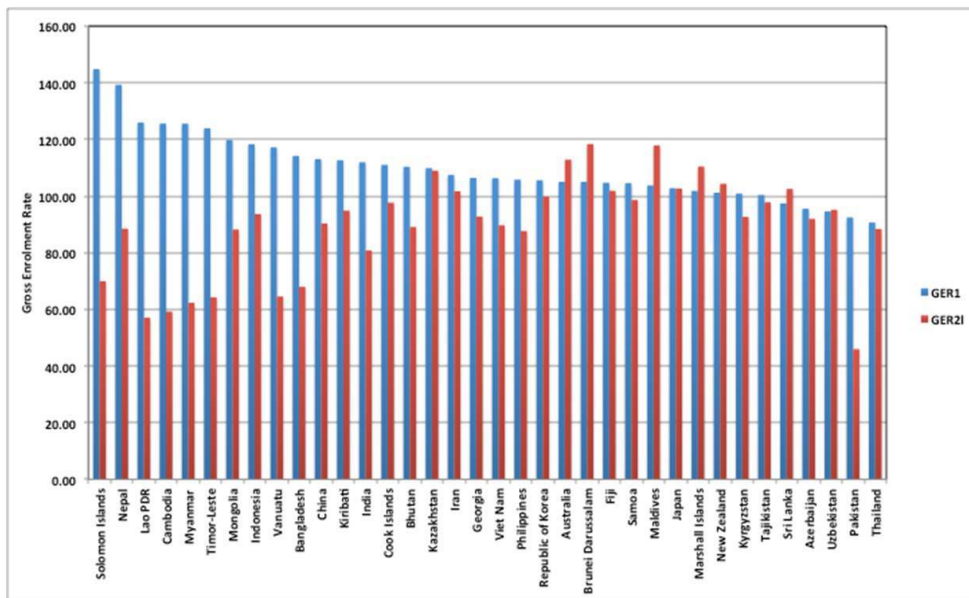
Figure 2: GER at primary and lower secondary in SSEA, 2011



- How much needs to be allocated to recurrent finance for education clearly depends on the starting points and the levels of ambition in terms of enrolment rates. Figure 3 shows GERs at primary and lower-secondary level. About half the countries in the region are well short of universalising access to lower secondary school and will need to mobilise additional finance for this purpose (and more if upper secondary and higher education is

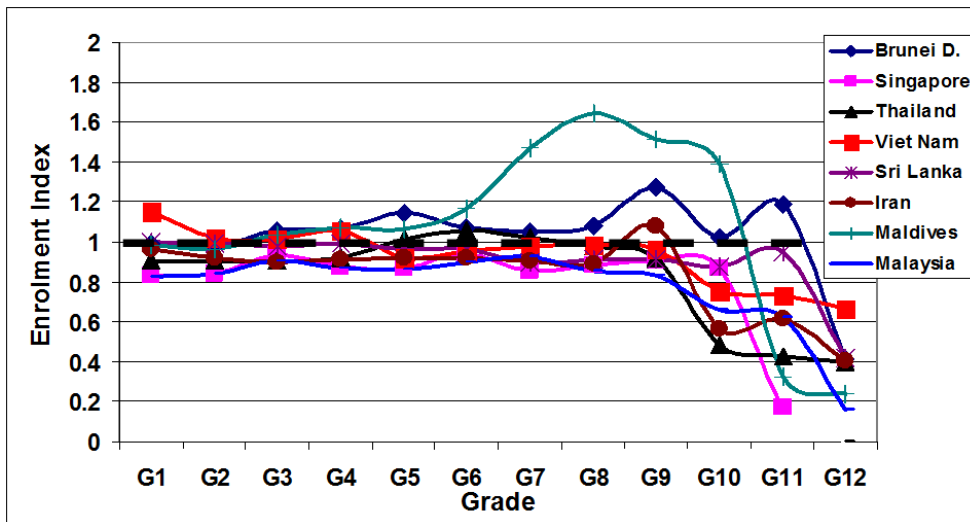
to be expanded). Though it appears almost all countries have enough primary school places to enrol all children of school age, the aggregation of data conceals the large numbers of overage children, repeaters and late entrants in the countries where less than half of all those who enter complete the first cycle successfully (e.g. Bangladesh, Cambodia, India, Laos, Pakistan, Timor Leste). And the overall GER also conceals the conditions under which children may be learning in very large classes and inappropriate buildings with little learning material.

Figure 3: Participation indicated by GERs at primary and lower secondary



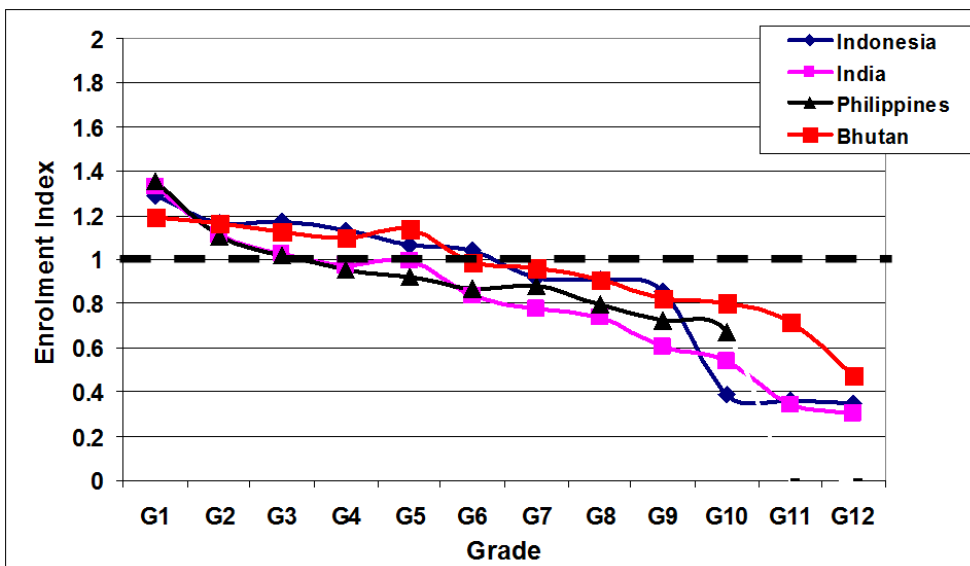
- 5 Countries in the Asian region can be grouped according to patterns of participation. This identifies how demand for sustainable financing is likely to be affected by patterns of growth over the next two decades. In countries with a high participation rate, increased budget allocations are most likely to be directed towards inputs to improve quality. In countries with low participation and a high dropout rate, much additional financing may be needed to reach goals of universal access. A range of strategies will also be needed to finance higher education where growth will be difficult to sustain without some forms of cost-sharing and reduced costs per student.
- 6 In the first group of countries enrolments are high up until Grade 9, indicating that virtually all children are enrolled and that dropout is small (Figure 4). The high-enrolment countries in the region include Brunei Darussalam, Singapore, Thailand, Vietnam, Sri Lanka, Maldives, Iran, and Malaysia. The Maldives has an unusual pattern with an increase in enrolment rates in Grades 7 to 9 and then a rapid drop-off. This is likely to reflect repetition and patterns of migration between islands up to Grade 10, after which significant numbers may go abroad to continue their education. The pattern shown on the charts includes only school enrolments. Above Grade 10 in some countries the education system becomes diversified with a range of further education options.

Figure 4: Group 1: High participation, low dropout



7 The second group of countries has enrolments in Grade 1 that are between 100% and 130% of the number of 6 year olds. The enrolment levels fall off by Grade 9 to between 50% and 80% of the age cohort (Figure 5). These countries include Indonesia, India, Philippines, and Bhutan. The shape of the enrolment curve in this group is of a shallow decline up until Grade 9, with some countries having a slightly convex pattern of enrolment. In this group there is a tipping point where there are more in the age group for the Grade than there are enrolled at about Grade 6. Enrolment curves tend to be convex.

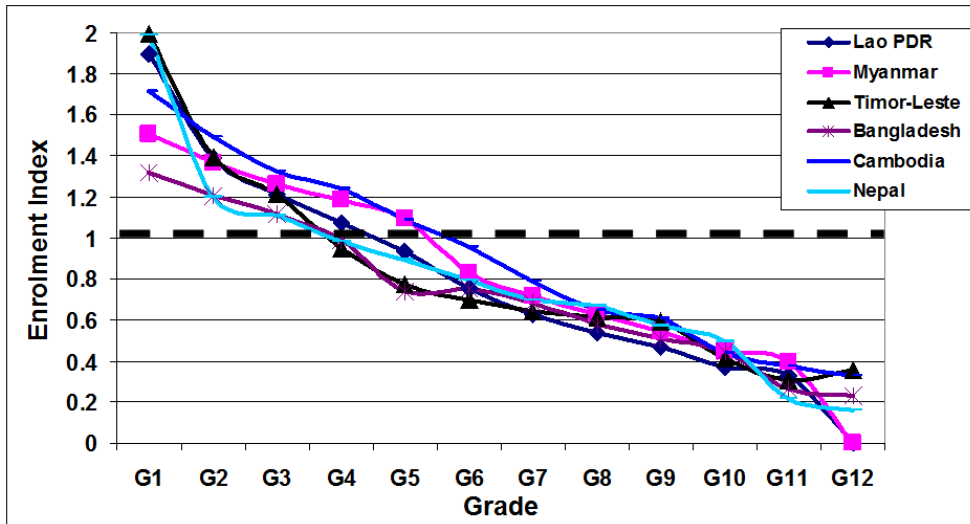
Figure 5: Group 2: Middle-level enrolments and dropout



8 Group 3 countries are different (Figure 6). Enrolments in Grade 1 are typically between 30% and 100% more than the number of children in the age group for Grade 1. This is an indication that there are many overage children enrolled. Dropout is then substantial and continues through the grades. In most of the countries there is a continuous decline grade on grade above the lowest grades. By Grade 9 enrolments are less than 60% of the

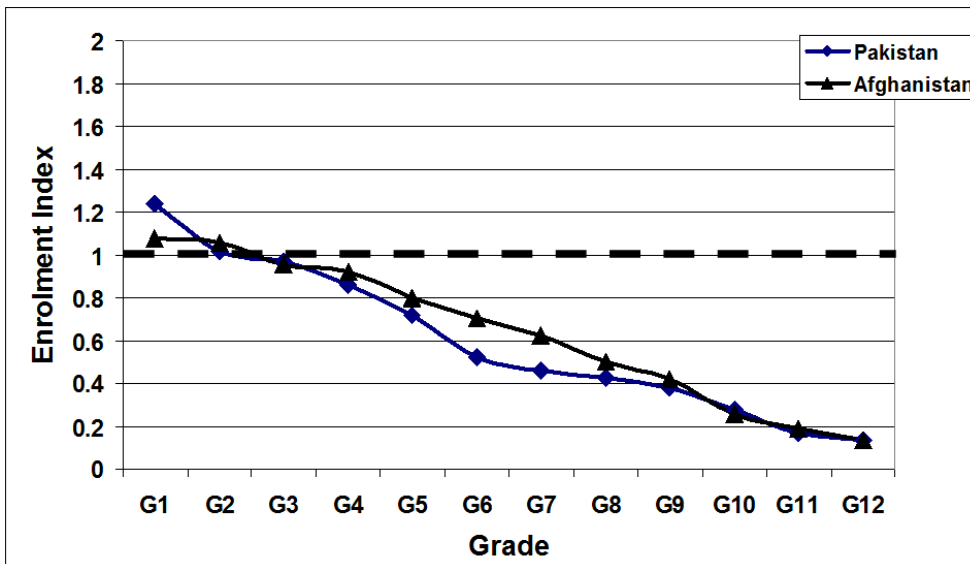
number of children in the equivalent age group. In these countries fewer than half the children complete lower secondary school. The tipping point for more in the age group than enrolled is typically about Grade 4. Enrolment curves are mildly convex.

Figure 6: Group 3: Countries with high initial enrolment and high dropout



- 9 Group 4 countries are those with very low overall participation rates (Figure 7). Only two countries within the region fall into this group. They are Pakistan and Afghanistan. In both, the number entering school in Grade 1 is quite close to the number of children in the age group. However by Grade 9 enrolments have fallen to below 40% of the number of children in the age group. The tipping point is at Grade 2 and the enrolment curve shows a fairly linear decline.

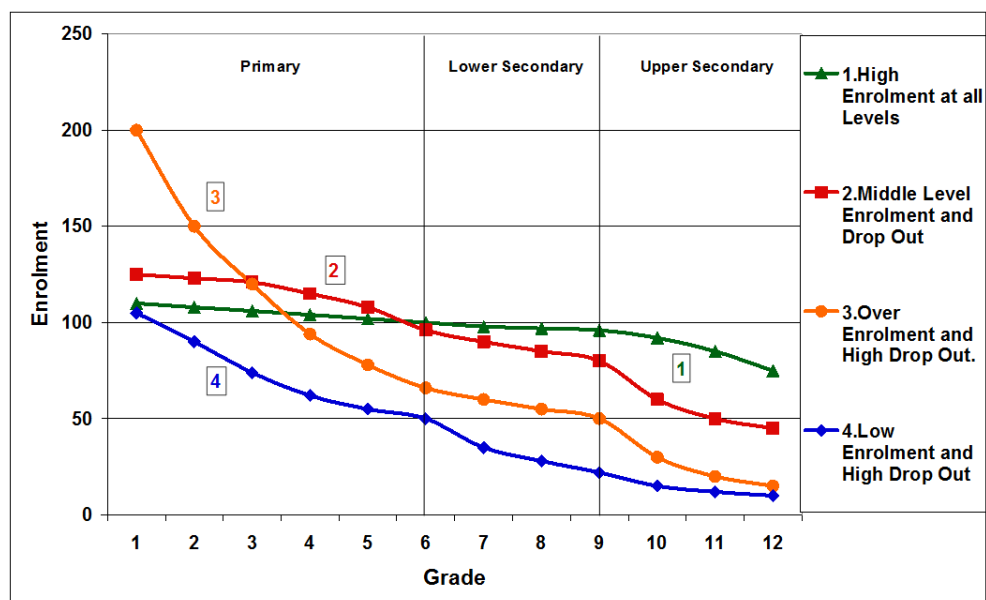
Figure 7: Group 4: Countries with low enrolment and high dropout



- 10 This analysis leads to a generic chart of patterns of enrolment in South and South-East Asia (Figure 8). Pattern 1 is virtually identical, with almost all children enrolled through to Grade 9 and most continuing to Grade 12. Pattern 2 has over-enrolment in the lower grades, but by not much more than 25%, followed by a slow drop-off in higher grades to

about 80% of the age group by Grade 9. Pattern 3 has considerable over-enrolment in Grade 1, by as much as twice that of the age group, followed by a steep decline to enrolments of around 50% of the age group by Grade 9. Pattern 4 is indicative of low enrolments in every grade, though not quite as low as the worst cases in sub-Saharan Africa.

Figure 8: Patterns of enrolment by grade in South and South-East Asia



- 11 These patterns suggest different priorities that reflect the fundamental differences between the countries in each group and suggest that planners should adapt their analyses and advocacy accordingly. The patterns are likely to lead to different demands on financing and a range of varied emphases in policy dialogue.
- 12 In Group 1 countries, the priorities are likely to focus on improved educational quality and managed expansion of upper-secondary schooling since most children are enrolled to Grade 9 and beyond. In Group 2, overall enrolment rates at primary are in the mid range: most children complete the primary grades, and about half proceed into lower secondary schools. These countries are likely to have concerns for balanced growth of secondary schooling and improved quality at primary. In Group 3 countries, enrolment patterns suggest very high levels of repetition and overage enrolment in the lower grades, and high dropout with low completion rates at primary. In these countries internal efficiency at primary is low and this must be addressed with some urgency. Group 4 countries are a long way from universal access to primary schooling. Expanding the capacity and the reach of the primary school system is likely to remain a priority since many children do not complete a full cycle of basic education.

Projecting financial demand

- 13 Financial demand can be projected using a simple algorithm that links desired participation rates with costs per students and the proportion of children of school age. This then indicates what proportion of GDP governments need to allocate to education.

The aggregate recurrent costs of expanding schooling towards target levels (e.g. gross enrolment rate (GER)¹ =100%) can be calculated using the equation:

14 $X = GER * A * C$ where:

X = Public expenditure on primary/secondary education as a percentage of GNP

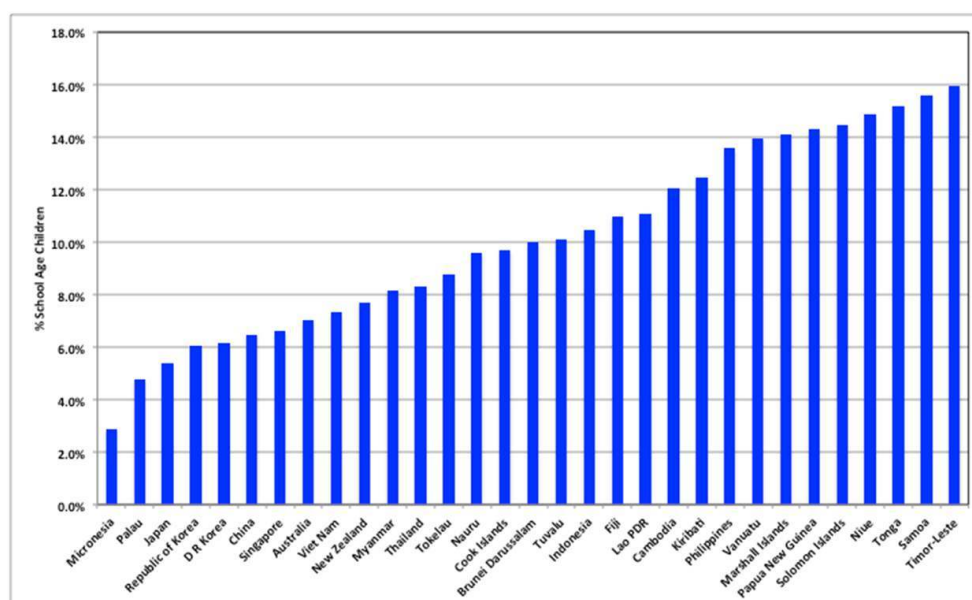
GER = Gross enrolment ratio

A = The proportion of the population of primary/secondary school age

C = Public recurrent expenditure on primary/secondary schooling per student as a percentage of GNP per capita

The values of A for primary vary as shown in Figure 9.

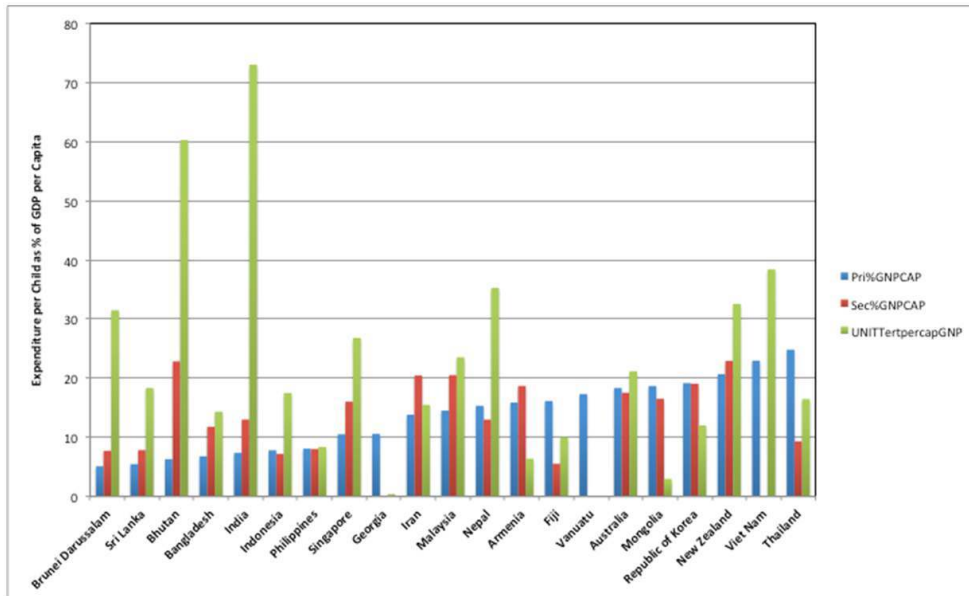
Figure 9: Proportion of primary children of school age in the population



- 15 The lowest proportion of the population of school age for primary schooling is found in Micronesia, Japan and Democratic Republic of Korea where less than 5% of all people are in the primary age range. These countries have undergone demographic transition to low growth as have Singapore, Vietnam, Myanmar, and some Pacific islands. By contrast, Cambodia, Philippines, Papua New Guinea and Timor Leste have a much larger proportion of children of school age. The financial effort needed to enrol all children of school age is greater for countries with a larger proportion of school-age children.
- 16 The proportion of children in the secondary school age population depends on the length of the secondary cycle, which varies. If it has two three-year subcycles for lower and upper secondary respectively, then the numbers across the whole six-year cycle will be comparable to those for the primary age range, if population growth is low. The situation is similar for higher education. Where population is still growing fast and demographic transition has not occurred, then the numbers of children of secondary and higher-education age will be correspondingly less than those in the primary age group.
- 17 Public recurrent costs for different levels of education vary and data available internationally may not be very comparable because of differences in cycle length and accounting practices. The limited data available provides the comparisons in Figure 10. From this it is clear that most of the low-income countries in the region spend less than 10% of GDP per capita on primary education school places. At the other end of the

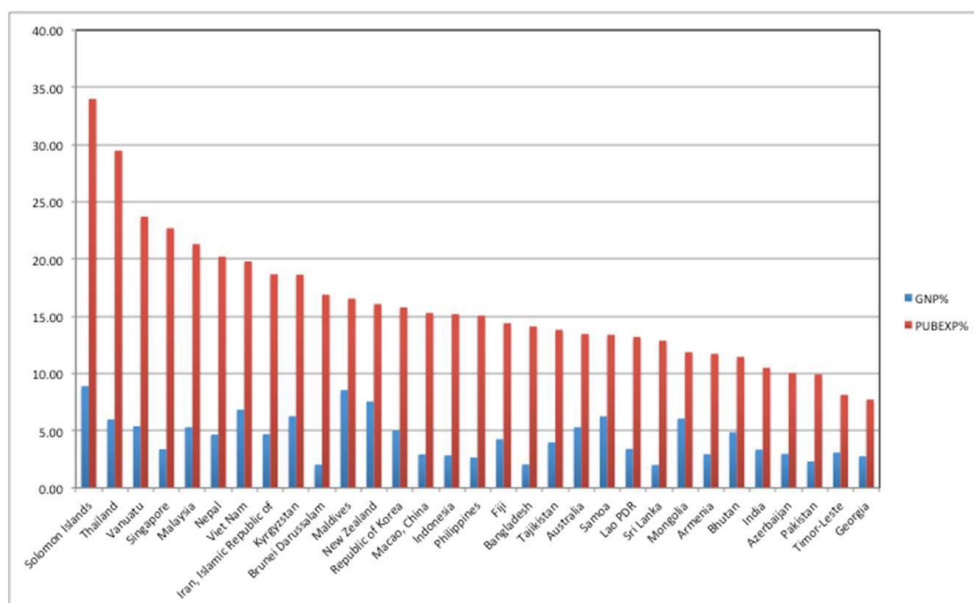
distribution Australia and New Zealand spend about 20% of GDP per capita per primary school place. So do some much poorer countries like Vietnam and Thailand. Higher-education unit costs can be very high and more than ten times as much as primary schooling, leading to financial constraints on mass access.

Figure 10: Expenditure per student as a percentage of GDP per capita by educational level



- 18 Countries in the region vary a great deal in terms of the financial allocations they make to education and the sub-sectoral commitments allocated to primary, secondary, higher and other forms of education and training. Figure 11 shows the variation. Solomons, Thailand, Vanuatu, Singapore, Malaysia, Nepal, and Vietnam all allocate more than 20% of public expenditure to education. This represents very different amounts of GDP because the amount of domestic revenue collected to finance governments varies so much. In Singapore 23% of the government budget translates into about 3.5% of GDP. By contrast, in Vietnam, 20% of public expenditure translates into 7% of GDP. At the lower end of the distribution allocation to education can be less than 10% of public expenditure and not much more than 2% of GDP (e.g. Pakistan). Universal access to education is not financeable at the lowest levels of allocation.

Figure 11: Allocation to education as percentage of GDP and as percentage of public expenditure



- 19 We can now use the identity $X = GER * A * C$ to model some simple scenarios that illustrate the magnitude of the financial challenge in different countries.
- 20 First, an ideal typical Type 1 country in the region would be allocating about 5.1% of GDP (X) to education, for which it would achieve universal enrolment through to the end of upper secondary and 50% participation in higher education. This is similar to high-enrolment, high-income countries in the region with demographic transition.

Table 1: Type 1: High participation, low dropout – Demographic transition

	GER	A	C	X
Primary	105%	8%	22%	1.8%
Lower Secondary	105%	4%	24%	1.0%
Upper Secondary	105%	4%	26%	1.1%
Higher	50%	6%	40%	1.2%
Total				5.1%

- 21 Type 2 countries have lower enrolments in higher grades and some drop out before the end of the lower-secondary cycle. The costs per student tend to be higher especially at higher grade levels. An ideal typical country spending around 5% of GDP on education would look like the table below.

Table 2: Type 2: Middle-level enrolment and dropout – Demographic transition

	GER	A	C	X

Primary	105%	8%	12%	1.0%
Lower Secondary	105%	4%	25%	1.1%
Upper Secondary	80%	4%	50%	1.6%
Higher	20%	6%	100%	1.2%
Total				4.9%

- 22 Type 3 countries are different. They have high primary GERs with many overage children and repeaters, and high dropout. Costs per child at higher levels are high, but low at primary level. Changing the pattern of participation to one similar to a Type 1 country would result in a need to increase the percentage of GDP spent on education by 50% to well over 7%. Few countries sustain such high levels. If cost per student were reduced as shown below, universal access to basic education could be achieved for about 6% of GDP.

Table 3: Type 3: High initial enrolment and high dropout – No demographic transition

	GER	A	C	X
Primary	150%	16%	10%	2.4%
Lower secondary	40%	7%	30%	0.8%
Upper secondary	20%	6%	70%	0.8%
Higher	5%	8%	200%	0.8%
Total				4.9%

Table 4: Type 3: High enrolment and low dropout – Increased enrolments

	GER	A	C	X
Primary	110%	16%	10%	1.8%
Lower secondary	100%	7%	30%	2.1%
Upper secondary	50%	6%	70%	2.1%
Higher	10%	8%	200%	1.6%
Total				7.6%

Table 5: Type 3: High enrolment and low dropout – Changed unit costs

	GER	A	C	X
Primary	110%	16%	12%	2.1%
Lower secondary	100%	7%	25%	1.8%
Upper secondary	50%	6%	50%	1.5%
Higher	10%	8%	100%	0.8%
Total				6.2%

- 23 Finally, Type 4 countries typically do not commit much of their GDP to education and this is a primary cause of their low enrolments. Where enrolment rates are a long way below universal levels and unit costs are high at post-primary level, low allocation to the education budget can imply only underinvestment at primary level and low participation at post-primary level. Countries with this profile may spend not much more than 2.5% of GDP on education. They would need to double their spend to finance universal basic education. Improved management of costs per child would allow increases at primary level financed by savings at high levels.

Table 6: Type 4: Low initial enrolment and high dropout – No demographic transition

	GER	A	C	X
Primary	130%	16%	8%	1.7%
Lower secondary	20%	7%	30%	0.4%
Upper secondary	5%	6%	70%	0.2%
Higher	3%	8%	200%	0.5%
Total				2.8%

Table 7: Type 4: Low initial enrolment and high dropout – Increased enrolments

	GER	A	C	X
Primary	110%	16%	8%	1.4%
Lower secondary	105%	7%	30%	2.2%
Upper secondary	25%	6%	70%	1.1%
Higher	5%	8%	200%	0.8%

Total				5.5%
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Table 8: Type 4: Low initial enrolment and high dropout – Changed unit costs

	GER	A	C	X
Primary	110%	16%	15%	2.6%
Lower secondary	105%	7%	25%	1.8%
Upper secondary	25%	6%	50%	0.8%
Higher	5%	8%	80%	0.3%
Total				5.5%

Concluding remarks

- 24 Financing educational development in Asia requires balancing domestic revenue generation with desired outcomes, and efficient and effective allocation decisions. A number of challenges and associated policy options can be identified from the analysis in this short paper and experience in the region over the last two decades.
- 25 First, the current patterns of participation and resource allocation provide a baseline to develop pathways for the sustainable financing of educational development to 2030 and beyond. The analysis indicates that, in general, universal access to a full cycle of basic education is unlikely to be sustainable unless about 5% of GDP is allocated to education as a whole, and at least 2% for primary schooling.
- 26 Second, where unit costs are high, especially at post-primary level, they will have to fall towards levels found in high-enrolment countries. This means secondary schooling cannot be more than twice as much per child as primary, and unit costs should not exceed about 25% of GDP per capita. How this is achieved needs to be the subject of educational reforms designed with this in mind. Lower unit costs do not imply lower salaries if they are coupled with efficiency gains and productivity similar to that in high-enrolment countries.
- 27 Third, a balance has to be struck between financing quality improvement and expanded access at different levels. What is appropriate is a policy choice determined in part by current patterns (especially distance from universalising primary), and partly by domestic prioritisation (especially the choice of expanding lower-secondary education while restricting publicly financed growth at upper-secondary level and higher education).
- 28 Fourth, structural changes in some countries could facilitate higher secondary enrolment rates at costs that can be financed. Changes in school management should also be considered so that there are incentives to manage human and physical resources efficiently. This can be linked to productivity with changed methods of school financing

that introduce more elements of formula funding, local accountability, and whole-school development strategies.

- 29 Fifth, physical capacity requires planned expansion in ways that optimise increased access and control both recurrent and development costs. This implies effective school mapping, efficient procurement, and medium-term planning of construction programmes for new classrooms and schools.
 - 30 Sixth, expanded needs to be linked to the capacity of households to pay any costs associated with attendance. For those below the poverty line this means schooling has to be fee-free.
 - 31 The last point is that it is essential to develop credible plans which mobilise the external finance that may be available. For those countries that are aid-dependent and which are often also fragile states with limited capacity and infrastructure, external assistance can and should still play a catalytic and transitional role in transformation towards domestically financed mass education systems. New circumstances challenge development partners to re-examine what their roles should be and how the resources they influence may best be used. New development partners in the region – China, India, sovereign wealth funds – have the scale and ambition to change the architectures of aid.
 - 32 However, sustainable financing of education must always have at its core fiscal policy that generates sufficient domestic revenue to provide public goods, including basic education and participation at higher levels in the national interest. The social contract between governments and their peoples is essential to development. Simply put, this means that the bargain between the state and the people to collect taxes and use these to provide public goods is honoured. It is not only sustainable plans to finance educational development that are at stake but also the kind of social cohesion that comes from responsible governance and widely available public services managed in pro-poor ways.
 - 33 The development of the Pacific Rim Asian countries in the latter part of the 20th century was less a “miracle” and more the result of sustained investment in education focused on learned capabilities and cognitive competencies. Future financing of education in Asia should build on this foundation and extend the benefits of mass access to education to the populations that are still marginalised, and ensure that future expansion is pro-poor and makes use of the latent talents of all citizens in ways that are efficient, effective and equitable.
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NOTES

1. GER = gross enrolment rate. If net enrolment rate (NER) is preferred then a range of assumptions need to be made explicit about entry ages, repetition, and overage enrolment.

ABSTRACTS

This paper explores recent patterns of growth in participation in education across the Asian region. This illustrates how demand is changing and how varied the challenges of growth in access and attainment will be over the next fifteen years. The financial challenges can be assessed using a projection algorithm that interrelates public costs with the drivers of costs which are participation rates, unit costs per student, and the proportion of the population who are of school age. Projections of costs indicate some key issues for policy dialogue.

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Geographical index: Asie, Asie du Sud-Est

Mots-clés: dépenses publiques, financement de l'éducation, enfant non scolarisé, enseignement secondaire, enseignement primaire, parité de genre, taux de scolarisation

Palabras claves: financiación de la educación, gasto público, niño no escolarizado, enseñanza primaria, enseñanza secundaria, paridad de género, tasa de escolarización

Keywords: public expenditure, primary education, secondary education, out-of-school children, gender parity, enrolment rate, educational finance

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