

Stuck in the Middle? Human Capital Development and Economic Growth in Malaysia and Thailand

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Several emerging Asian economies face the challenge of sustaining current high growth rates for long enough to attain and maintain high per capita incomes.¹ Success in meeting this challenge cannot be taken for granted since of 71 countries classified by the World Bank in 2010 as high income countries only 15 were not already in this category by 1987.

When the Commission on Growth and Development analyzed thirteen cases of developing countries sustaining high growth rates in the post-war period (of which ten were Asian) it found five striking points of resemblance among them: committed, capable and credible governments; open economies; market-based systems; high rates of savings and investment and the maintenance of macroeconomic stability. The Commission also stressed that governments put substantial effort into schooling their citizens and deepening their human capital (Commission on Growth and Development (2008): 21-37). While these policies cannot necessarily be imported wholesale because of differing country circumstances and a different global context, there are useful lessons to be learned.

In this chapter we focus on the role of human capital development in sustaining growth of per capita incomes in two of the thirteen cases, Malaysia and Thailand. In both countries, while per capita incomes have risen in the post-war period, they have recently lost momentum, as the Growth Commission puts it. We examine the role of education as a possible reason by benchmarking their performances against those of other fast-growing Asian economies with an emphasis on South Korea. In the next section, we review recent literature on education's role in sustaining growth. In the third section, we present the case studies of Malaysia and Thailand, asking whether their education systems are producing the 'right' skills as measured in the second section. In the fourth section, we review options for improving their prospects through setting budget priorities, rewarding teachers appropriately, providing appropriate educational choice, ensuring that the education system is responsive to changing labor market demands, investing in early childhood education, and financing for higher education. The final section concludes.

The role of education in sustaining economic growth rates

The development economics literature emphasizes the contribution to growth made by moving surplus labor out of low-productivity jobs in agriculture into labor-intensive manufacturing and higher-productivity agriculture. The loss of growth momentum by countries making the transition from middle- to high-income status has fueled debate about the risk of the 'middle-income trap' in which their rising labor and capital costs hinder their competitiveness with lower-income countries producing low-cost manufactured exports while they are not yet able to compete successfully with highly-skilled producers in the advanced economies who rely more on

knowledge- and innovation-based products and services (Kharas and Kohli 2011; World Bank 2010). If such a trap does exist, education that provides the right skills to make people more productive may be one of the keys to avoiding it.

Japan, Hong Kong, Taiwan (China), Singapore, and South Korea have successfully managed the transition to high-income economies. Can aspiring countries in Southeast Asia hope to experience the same success? The track-record so far is not promising. Growth rates were rapid in Malaysia, Indonesia, Thailand and the Philippines in the 1980s and early 1990s but insufficient to advance to high-income status. Since the 1997 East Asian crisis their growth rates have stagnated, or even contracted for a period of time (Figure 1).

This paper focuses on Malaysia and Thailand who appear to be on the ‘cusp’ of sustained growth as the two most prosperous Southeast Asian economies. Data for 2010 show that Malaysia’s per capita income was \$4987 while Thailand’s was \$2604 in constant 2000 US dollars. They have surpassed per capita incomes of countries like Indonesia and the Philippines with which they were once comparable but still lag the high-income economies and do not seem to be catching up.

[Insert Figure 1 here]

The secret of sustaining growth is elusive (Easterly 2001a).² Kharas and Kohli (2011) argue that for middle-income countries is to rely on growth of capital- and skill-intensive manufacturing and high-productivity service industries. Non-tradable services such as house cleaning or hair cutting have little room for productivity improvements and market expansion, but sophisticated financial, consulting, health and environmental services do.

As the Growth Commission argues, there may be no one path but human capital formation is an indispensable ingredient. Physical capital and natural resources are passive factors of production. Human beings, on the other hand, “are the active agents who accumulate capital, exploit natural resources, build social, economic, and political organizations, and carry forward national development” (Harbison 1973). A sound education system, while not sufficient, is a necessary condition for sustainable economic growth. What are the pathways through which this may take place?

The role of education in economic growth

Recognition of education’s key role in the growth process can be traced back to Adam Smith (1776). More recent research has focus on the “unexplained” residual in economic growth (Abramovitz 1962). Schultz (1961) introduced the concept of human capital to help explain this residual. The importance of education in the growth process re-emerged in the 1980s with the influential writings of Romer (1986, 1990, 1992) and Lucas (1988). Romer and Lucas distinguish human capital’s contribution to economic growth by introducing two concepts. First, beyond the quantity of human capital output also depends upon the average level of human capital. Second, human capital is endogenous, rather than exogenous, in the system in the sense that it is produced by using resources. The implication of these conceptual insights is that knowledge becomes a public good that spills over into the economy as a source of growth. For

countries this means that they do not converge to a common steady state path; they can grow at different rates – as can per capita incomes. Another, equally important implication of this model is that, by virtue of the average stock of human capital being available to all, there might be social underinvestment in human capital formation.

These ideas have major implications for the study of the role of education as a source of growth. It is not just the quantity of education delivered in a country; it is the relevance and quality of education that provides skills which enhance abilities to learn and allow those with more schooling to adopt technology faster. Under such circumstances the returns to capital will grow.

If these ideas are correct, focusing only on the returns to an additional year of schooling may not be the best guide to social investment decisions (Pritchett 2001). A standard criticism of economic estimates of the returns to education for individuals or for national growth is that they refer to the quantity of schooling, saying nothing about the quality. Several studies have shown the importance of school quality in determining earnings (Behrman and Birdsall 1983; Bedi 1997; Card and Krueger 1996). At the macroeconomic level, Barro and his coauthors (Barro 1997; Barro and Lee 1993, 1996) have shown the positive association between test scores and economic growth. But it was not until Hanushek and Woessmann (2008) put together the panels of international test scores that the effect of education quality on growth became evident. They presented strong evidence that the cognitive skills of the population – rather than mere school attainment – are powerfully related to individual earnings, the distribution of income, and to economic growth.

The importance of relevant education

What matters is not only added years of education or even high quality education; it is the type and amount of skills imparted by such education. Aside from basic cognitive skills such as literacy and numeracy, two other skill types are important: generic skills such as team working and communication, and occupation-specific skills. Most occupations require a blend of different skill types, with a specific ability level within each of which.

What types of skills might middle income countries require to maintain growth momentum? Such economies will have to move from activities such as relatively labor-intensive low value-added manufacturing and assembly jobs to more productive and higher value-added activities. Thus, they should experience a growing demand for young people who have moved beyond basic education and gained the technical skills that normally associate with sound upper secondary and higher education systems.

Such systems stress science, technology, engineering and mathematics (STEM) education. STEM occupations are among the highest paying, fastest growing, and most influential in driving economic growth and innovation. Individuals employed in STEM fields enjoy low unemployment, prosperity and career flexibility (National Governors Association 2011). Falling behind in this is the result of: lack of rigorous K–12 math and science standards; lack of qualified instructors; lack of preparation for postsecondary STEM study; failure to motivate student interest in math and science; failure of the postsecondary system to meet STEM job demands.

Access to education

Creating a robust middle class is a crucial factor in a country's long-term growth. A viable middle-class population generates dynamic domestic consumption and demand for better governance (Donnorummo 2000) and tends to demand better health and education services and lower fertility (Banerjee and Duflo 2008).

All high-income economies have a robust middle class which receives a high share of total income, has access to education and has better health. These economies have better infrastructure, less political instability, better economic policies, more social modernization and are more likely to be democratic (Easterly 2001c). The middle class can also help protect against the vagaries of global downturns by generating domestic demand (Kharas and Kohli 2011). East Asian economies that have relied chiefly on exports to sustain growth may have to rely more heavily on domestic demand if traditional markets in developed countries such as those in Europe and North America undergo prolonged economic stress.

Education plays an important role in developing the middle class as an economy grows. Technological progress tends to widen inequality (those with more skills benefit more) unless there is an offsetting increase in skills through wider access to education, not only for such high-end occupations as management and engineering but also for such middle level jobs as technicians and operators (Acemoglu and Autor 2012).

In sum, these indicators of the education system suggest that to sustain growth the level and quality of education should be coordinated with the economy's stage in the industrialization and modernization process; attention should be paid to the types of subjects that students are learning and the quality of their education – both at entry and at upper levels – as well as to skills gaps between demand for and supply of skills; and finally, equal access is necessary for different income and population groups.

In the next section we use these indicators to benchmark the systems in Malaysia and Thailand against that of South Korea.

The Cases of Malaysia and Thailand: Where do they stand?

Malaysia and Thailand have accomplished much in the past 30 years in moving from lower- to upper-middle-income status. But there are also some worrying economic signs that their trajectories are not following the steady rise seen in the East Asian Tigers like South Korea. In light of the preceding analysis we now examine whether the systems in these two countries are producing the 'right' skills using the indicators that we have defined.

We rely on such indicators as enrollment rates and years of schooling to measure the quantity of education and international assessments to measure quality. These assessments include the Programme for International Assessment (PISA); Trends in International Mathematics and Science Study (TIMSS); and the cognitive skills and the quality of education perceived by employers from surveys by the World Economic Forum (World Economic Forum Datasets).

Access to education

Malaysia and Thailand have relatively good track records on access to basic education—both countries have achieved universal primary schooling. But school enrollment rates at secondary and tertiary levels remain below what might be expected. In 2009, their gross secondary enrollment rates were 68 (Malaysia) and 76 percent (Thailand) compared to the average of 83 percent for upper middle income countries and 101 percent for high income OECD countries. Tertiary gross enrollment rates for the two countries (36 and 45 percent) remained below the OECD average (72 percent) and considerably below Korea (100 percent) (UNESCO Institute of Statistics). While the correlation between education and growth does not imply causality, historical comparison of years of schooling by Barro and Lee (2010) shows that Koreans in 1960s and 1970s when per capita GDP was about the same as Malaysia and Thailand, had about 1.5 more years of schooling (see Figure 2). This gap widened over time as Korea continued to expand its education system at the secondary and tertiary levels (see Figure 3).

[Insert Figure 2 here]

We also find that the distribution of access is fairly even across socio-economic groups in Malaysia although less so in Thailand. In 2002 there was a 17 percent point gap in secondary school participation rates between the poorest (76 percent participation rate) and richest (93 percent participation rate) children in Thailand, a gap that had narrowed from 24 percentage points in 1994. Such progress could be attributed to the more equitable distribution of public education expenditures across household incomes (Benveniste 2008). However, despite achievement in promoting equal access to education, challenges remain in closing the differences in learning outcomes between urban, particularly Bangkok, and rural areas in Thailand. This disparity is largely due to differences in the quality of the education systems and unequal resources for different school types (World Bank 2012a).

[Insert Figure 3 here]

Quality of education

The quality of education in Malaysia and Thailand is not up to the standard of the highest Asian performers in world rankings, a deficiency that can cause competitive challenges if the labor force lacks appropriate technical and creative skills. Both PISA and TIMSS international assessments show that, while Malaysia and Thailand are ahead of Vietnam and the Philippines in both, math and reading, their secondary school students are still learning much less than peers in wealthier countries like Hong Kong, Macao, Japan, Korea, and Singapore (Figure 4). Malaysian and Thai students on average score between 1.2-1.5 standard deviations below a Korean student in mathematics (TIMSS 2007). This underperformance can be a serious issue as nearly half of 15-year-old Thai students fail to achieve the level of functional literacy in PISA assessments. In other words, most of them are unable to locate information which may need to be inferred or perform other tests (World Bank 2012a).

[Insert Figure 4 here]

The time trend in academic performance indicates that Malaysia and Thailand have not caught up with others in the region; indeed they may have fallen even further behind. Mean scores in both mathematics and reading from PISA and TIMSS declined between 1999 and 2007. Thailand improved slightly in 2009 but not enough to restore the better 1999 levels. The World Bank's (2012c) analysis shows that the decline in Thai students' performance is mostly explained by the deterioration of the quality of the education system rather than by changes in students' backgrounds.

Non-cognitive skills also determine an individual's success (Heckman, Stixrud and Urzua 2006). As mentioned earlier, internationally comparable data on non-cognitive skills does not yet exist. As a substitute, we present information collected by World Economic Forum Surveys of employers, who were asked to rate a country's quality of education using a scale of 1 to 7 (see Figure 5). In both mathematics and science education as well as in management schools, educational quality in Thailand is well below regional counterpart institutions. The quality of education in Malaysia was perceived to be comparable to Korea and Hong Kong. There are drawbacks to these indicators, however, as they lack a standard for measurement, rely heavily on subjective judgments and are a small sample. Employers' survey provide some insights into how the supply of skills have been matched to the demand, but more reliable measurements are needed to provide an accurate understanding of basic skills that an individual needs for success.

[Insert Figure 5 here]

The economic benefits of human capital

The economic benefits of human capital can be estimated from education produced in schools or elsewhere (the home, for example). There are both private benefits which accrue to individuals as better jobs and higher wages, and social benefits that affect others as well as the educated individual. Better educated mothers have lower fertility rates; parental education raises children's schooling level and scholastic achievement as well as child health. More schooling in general improves one's health and life expectancy. Other benefits include openness to and diffusion of technological, social cohesion and reduced criminal activity (Psacharopoulos and Patrinos 2008).

The market benefits of human capital can be captured in rate-of-return calculations estimated from wages reported by workers in nationally representative surveys (ie, based on reported market wages of more and less educated people). Such estimates provide proxy indicators of shortages of quality education. Low-income countries tend to yield higher rates of return to schooling reflecting skilled labor shortages. The average rates of return to each additional year of secondary schooling are 20, 18 and 12 percent for low-income, middle-income and high-income countries, respectively. At the tertiary level, the average rate of return in low-income countries is double that of a high-income country (Psacharopoulos and Patrinos 2004).

Compared to Korea and Singapore, the rates of return to each year of additional schooling in Thailand are more than double and closer to quadruple, reflecting the scarcity of skilled workers. Returns to education are not as high in Malaysia—closer to those in the United States and the United Kingdom, but still exceeding other high-income countries in East Asia, suggesting a similar story (Figure 6).

But the returns to schooling, despite tremendous growth in the numbers of students and graduates over time, have not declined in Thailand. They have increased. In 1970, the rate of return to secondary schooling was 11 percent (Blaug 1976). Between 1985 and 1995, the average private rate of return to a year of education was 10-11 percent (Hawley 2004). In 2002 it was as high as 15 percent. By 2009 it had declined, but only to 13.5 percent (Garcia and Patrinos 2012). In Malaysia, though the information is sparse and methodologies differ, Hoerr (1977) estimated for 1968 a rate of return to primary schooling of 13 percent, 18 percent for upper secondary, and higher education of 16 percent. And even though Gallup (1997) estimated an overall rate of return of just 7.6 percent for 1979, Chapman and Harding (1985) found an average return to education of 9.4 percent in 1977. But in 2002 and 2004, the average rate of return was between 10.0 and 10.5 percent (Ismail 2007). In Korea, by contrast, the return to schooling was above 15 percent in the early to mid-1980s; it has since steadily declined to about 7 percent (Choi and Jeong 2003). These trends imply that these countries may be lagging in the classic Tinbergen-type race between skill-intensive technological change and the ability of learning systems to produce those skills (Acemoglu and Autor 2012).

[Insert Figure 6 here]

Education and the Options for Improving Growth Prospects

The preceding discussion shows the mixed records in Malaysia and Thailand in raising the quality of education as preparation for labor force participation. They have achieved inclusive access but clearly need to improve the relevance and quality of their education systems.

It is tempting to turn to South Korea and attempt to duplicate what it was done to enhance the quality and relevance of its education system. Countries in East Asia, though, are at different stages of development, and it is not clear whether the education policies used by today's relatively wealthy and high performing countries are necessarily suitable for those that have lower institutional capacity and higher rates of poverty and inequality. Since the 1960s, Korea's GDP increased 40 times, something that Lee (2008) largely attributes to the country's education system. In what follows we point out that, while useful lessons can be drawn, rather than trying to duplicate South Korean policies, thoughtful adaptation is advisable.³ We suggest six options to address the salient issues we identify above – of sequencing the quantity of education, addressing quality and relevance concerns and assuring broader access for left-out groups.

Set budget priorities

Given budget constraints, governments must set priorities. South Korea carefully sequenced the expansion of its public schooling system as Jimenez and King show in Chapter 2 in this volume. Primary school enrolment expanded first, until approximately 90 percent of eligible children were enrolled by the early 1960s. Then, secondary enrolment became the focus and was expanded throughout the 1960s and 1970s. But it was not until middle and upper secondary schooling became nearly universal, higher than 80 percent, that the focus turned to tertiary education. Between 1990 and 2005, the tertiary enrolment rate increased from 23 to 62 percent.

Low and middle income countries, however, are not following this same sequence. Thailand had a net secondary enrolment rate of 72 percent in 2010; whereas when Korea had the same GDP per capita, its net secondary enrolment rate was 57 percent (UNESCO Institute of Statistics). In fact, almost all low and middle income countries have secondary enrolment rates that exceed those reached by Korea at the same stage of development, suggesting that these countries are taking a different approach to that of Korea.

There are similar trends at the tertiary level. Korea's share of public spending on tertiary education grew from 0.3 percent of GDP in 1970 to 0.67 percent in 2009. Some low and middle income country governments are spending about the same as Korea did at the same stage of development while other countries, notably Malaysia, are spending much more. Malaysia's public expenditure on tertiary education is 1.4 percent of GDP, which is nearly three times more than South Korea's expenditures at the same stage of development (World Bank 2010b).

What is apparent is that Malaysia and Thailand both began to expand secondary and tertiary systems even before their primary systems achieved high levels of quality, at least relative to Korea. Perhaps they had no choice. After all, low and middle income East Asian countries are much more integrated into the global economy than South Korea was at the same stage of development. Manufactured exports from Malaysia and Thailand are around 50 percent of GDP – which puts Malaysia's export share of GDP at 1.8 times South Korea's had at the same stage of development, and Thailand's 2.5 times higher (World Development Indicators). But it is apparent from PISA and other results that more attention needs to be paid to improving quality at these lower levels.

Reward teachers appropriately

Researchers in South Korea attribute its strong performance in international exams that test education quality such as PISA and TIMSS to being able to attract the “best” into teaching (Kim et al. 2009). Competition to be a teacher is intense – in 2006, only 15 percent of those who received teaching certificates after completing programs at secondary teacher education institutes were employed by public and private schools. Korean teachers have also received higher remuneration than their counterparts in other countries. In 1965, teachers with 15 years of experience were paid 3.9 times the average per capita income, and in 1985 the ratio peaked at 4.2. Indeed South Korea's spending on teachers as a percentage of GDP per capita is higher than all other East Asian countries at comparable times in their history (Macdonald and Park 2012).

But raising salaries alone will not be sufficient to improve quality. Without adequate accountability, education systems may simply wind up with higher paid but still poor-performing teachers. Also important would be to ensure that the teachers are accountable and produce results for the higher pay. In Korea the accountability of schools to parents is a defining feature (Macdonald and Park 2012). Since 1999, school councils at every school supervise budget implementation. At the same time, information flow is ample, with standardized tests the norm (OECD 2011). We return to this theme below.

Malaysia and Thailand have established systems of attracting the best into teaching and motivating teachers to perform. This assessment is based on recent ranking – A three on a scale

of four – which implied that they had good practices with some limitations (World Bank 2012b). However, shortage of qualified teachers remains a large problem in Thailand. The teacher shortage index is high (0.65) compared to the average OECD countries and the high-income East Asian economies (0.51 for Japan, -.31 for Taiwan (China) and -0.2 for Hong Kong (China)). This may hinder students' academic achievement—a unit increase in the teacher shortage index is correlated with an 18.2 point decrease in Thai student's average science test scores (World Bank 2012a).

Avoid Inflexible Tracking of Students

Tracking students into terminal degree, or “dead-end,” programs has shown to be both inequitable and detrimental to students' cognitive ability. Korea adopted a 6-3-3-4 single track education system to ensure that high school graduates are still qualified to apply to universities. Tracking to vocational programs does exist but the difference between Korea and other countries is that vocational programs, while not orientated towards university admission, do not disqualify a student from entering. In Malaysia and Thailand, 86 percent and 38 percent of upper secondary students, respectively, are selected into vocational tracks that disqualify them from entering all tertiary programs (World Bank 2012b). The key difference is that Korea has never at any stage of development produced secondary graduates that are not able to enter academic tertiary programs, let alone technical or vocational tertiary programs.

Provide autonomy with accountability

If an education system is to respond to rapidly changing needs of a growing economy, its institutions – whether schools, universities or vocational training centers – must have the autonomy to make important decisions. South Korea's system, especially at the higher levels, is remarkable because it is driven and held to account by a private sector that responds to market forces. The smaller and elite public sector also has direct links to private sector employers. But equally important, institutions have the autonomy to make changes in their curriculum and other policies that allow them to respond (Salmi and Kosaraju 2012). These institutions are then held accountable for results.

Malaysia's policy *intent* on school autonomy and accountability reflects good practice, with some limitations (World Bank 2012b). School principals have the authority to manage the school budget. However, authority over salaries is centralized. School principals can raise additional funds from the private sector and from non-governmental institutions. In terms of personnel autonomy, this is still relatively weak; teachers must be appointed by the Ministry of Education and deployed by the Ministry's office of human resources under a union or civil service agreement. Parental participation, thought to enhance quality, is well functioning. Overall school accountability, in terms of policy intent, is advanced. But implementation remains a work in progress.

Thailand is implementing education reforms with a clear objective of improving the quality of education so that it is comparable with high-income countries, but the policy for school accountability could be more effectively managed. Budgetary autonomy is well established (management of non-salary funds functions well), but non-salary transfers are slightly regressive.

School autonomy in personnel management, however, is almost non-existent. In highly centralized school systems schools cannot select teachers or manage incentives for effective teaching. Parent participation in school finance is well established but school boards have no legal authority over personnel choices. Overall school accountability is well established, since it is good at the administrative level but with gaps in teacher accountability (World Bank 2012a).

Invest in Early Childhood Development

Economists such as Heckman (2006) have demonstrated the benefits of investing in children at early ages. Labour market outcomes improve as more able people acquire skills and more skilled people become more able (Heckman 2004; Carneiro and Heckman 2003). The main mechanism through which early education affects labor force productivity is through its effect on cognitive and non-cognitive skills – such as persistence and dependability (Heckman and Masterov 2007). Early childhood interventions are more effective than remedies that attempt to compensate later in life. Enriched pre-kindergarten programs with home visitation have a strong track record of promoting achievement for disadvantaged children, improving labor market outcomes and reducing crime (Heckman 2004). Quality early education is a key part of the solution to this problem. Gross enrollment rates at the pre-primary level are much higher in Korea than in Malaysia and Thailand. Moreover, more than three-quarters of pre-primary enrollments are in the private sector in Korea, compared with 46 and 20 percent in Malaysia and Thailand.

Finance higher education appropriately

The sequential nature of education suggests that the education system should accord priority to improving literacy and numeracy skills and ensuring a quality basic education. But at the same time, increasing global competition requires emerging markets to have skilled and innovative workforces. A good tertiary education is important to develop professionals and leaders with high-level technical skills and with the potential to produce new knowledge.

In the absence of government intervention, investment in tertiary education will be less than what is socially optimal for reasons explained by Chapman (2006). Educational investments are inherently risky because of the uncertainty of the expected returns of investment (Barr 2001; Palacios 2004). Leaving financing for higher education to be financed through market institutions such as banks is risky in view of the difficulties of pricing loans to individuals with high risk and no collateral. Risk-averse individuals, especially those with lower social and economic backgrounds, would hesitate to borrow for higher education. Government intervention is therefore desirable to increase access to higher education.

The challenge is to define effective interventions to achieve the optimal quantity and quality of university education. The historical “free” provision of higher education by public subsidy has been proven suboptimal and regressive. Empirical evidence has shown that such a subsidy scheme is likely to cause quality deterioration (Chapman and Greenaway 2006) and reinforces inequalities in having access to university education (Patrinos 1992; Chapman 1997; Greenaway and Haynes 2000; Blondal et al. 2002).

How can governments help with financing? One way that has been tried is for governments to guarantee repayment in the event of default. This option is flawed because of moral hazard,

adverse selection problems and inequality as well as the high costs of public subsidies. Banks have less incentive to ensure repayments; low-income individuals will be excluded from loans that require up-front repayments burdens (Chapman 2006); and their default risks tend to be relatively higher because of the fixed repayment schedules that are insensitive to future income profiles (Dynarski 1994).

Income-contingent loans (ICL), if properly designed, on the other hand can offer both default insurance and consumption smoothing to borrowers (Chapman 2006 and chapter 4 in this volume). In Australia, ICL reduced administrative costs significantly and provided a considerable source of revenue. Higher education enrollment rate also increased after the introduction of ICL, although it is difficult to attribute the increase fully to ICL as the government also increased spending on higher education. The major drawback to such a scheme as Chapman points out is that its successful implementation depends on the existence of an effective and functional administrative and policy framework.

Conclusion

We have focused on the role of human capital formation in sustaining per capita income growth in Malaysia and Thailand, two countries where growth momentum has slowed in recent years. We have argued that a good education system is fundamental to equip workers with the right skills because an educated population earns more and education provides people with the cushion and the life skills to avoid falling back into poverty.

Malaysia and Thailand have successfully provided schooling access to children and young adults, particularly at primary levels, but quality of education remains an issue. Both countries produce achievement levels well below international and OECD averages. Their students on average score 1.2 to 1.5 standard deviations below a Korean student in mathematics. Such underperformance is a serious issue where almost half of 15-year-old Thai students fail to achieve the level of functional literacy in PISA assessments. Quality has also deteriorated over time with mean math and reading scores from PISA and TIMSS declining between 1999 and 2007. Thailand has improved slightly in 2009 but not enough to return to 1999 levels.

Malaysia and Thailand have different economic structures than did Korea at a similar stage of its development. They are more deeply integrated in to the world economy; manufactured exports as a percentage of GDP are twice Korea's at the same level of per capita GDP. Raising quality in their education systems requires systemic reforms within each country's economic and political context. Modern education systems should aim to provide universally-available quality education using the following policies: first, prioritize budgets to deliver quality and universally-available basic education before expanding higher levels of schooling; second, provide appropriate incentives and rewards to teachers; third, permit school autonomy and ensure accountability for results; fourth, invest in early childhood development and fifth, consider implementing income-contingent loan financing schemes to expand higher education.

Some steps have already been taken in these directions. Thailand's National Education Plan (2002-2016), for example, was created to promote a balance between educational development toward economic competitiveness and cultural self-reliance. The government has committed to ensure minimum quality standards for basic education for all and established a fast track for

high-achieving students. The Office for National Education Standards and Quality Assessment, established under the NEA, is strengthening its capacity to monitor school quality assessments, to raise community awareness on school quality and management, and to propose actions for non-performing schools. In addition, the Office of Basic Education Commission seeks to offer greater school autonomy, while empowering and motivating schools to set their own measures to improve the educational performance of students. The future challenges are to implement them well and adjust them in accordance with evolving needs.

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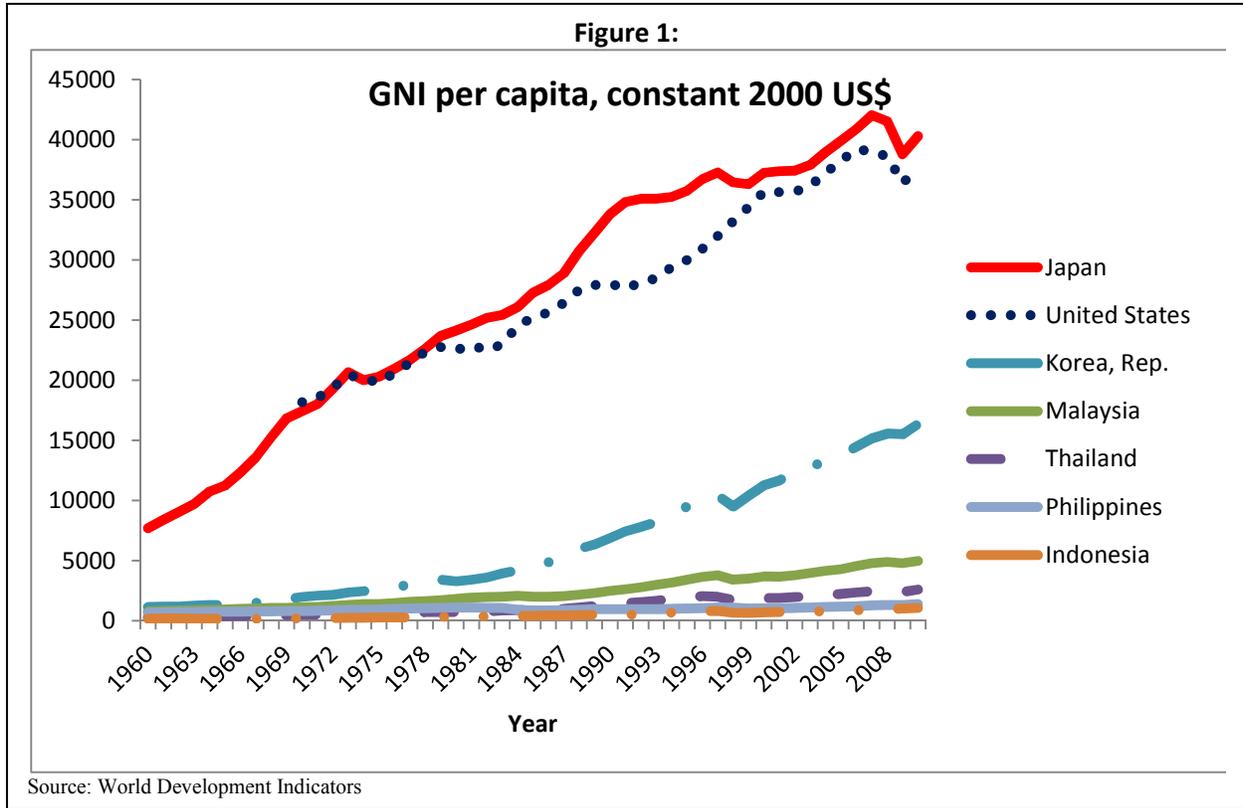


Figure 2: Trends in Years of Schooling

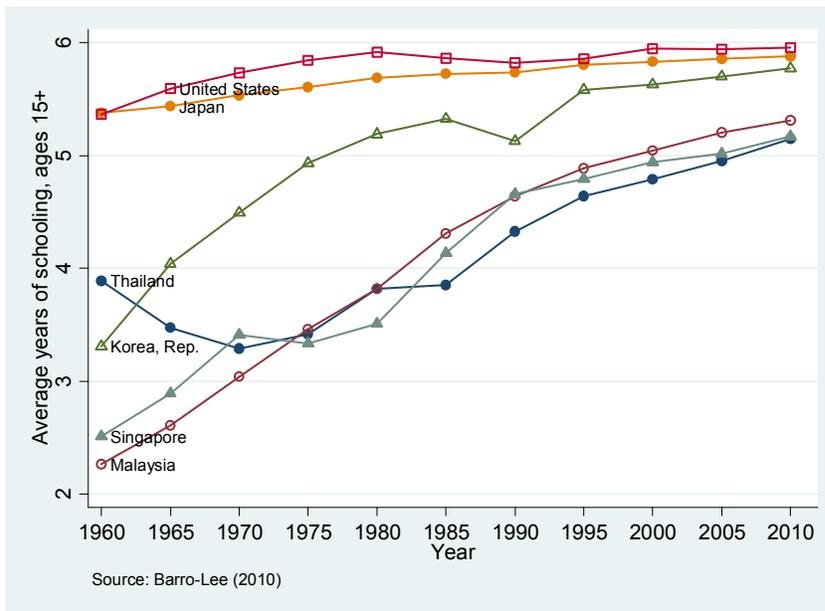


Figure 3: Access to Education over Time

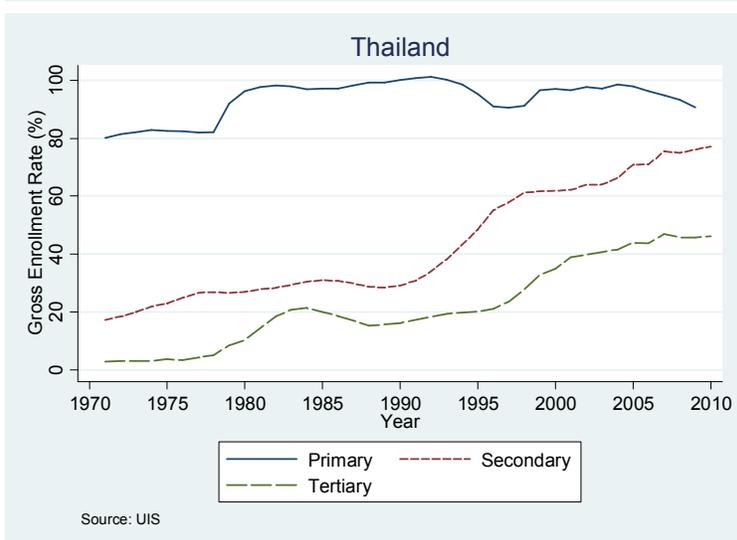
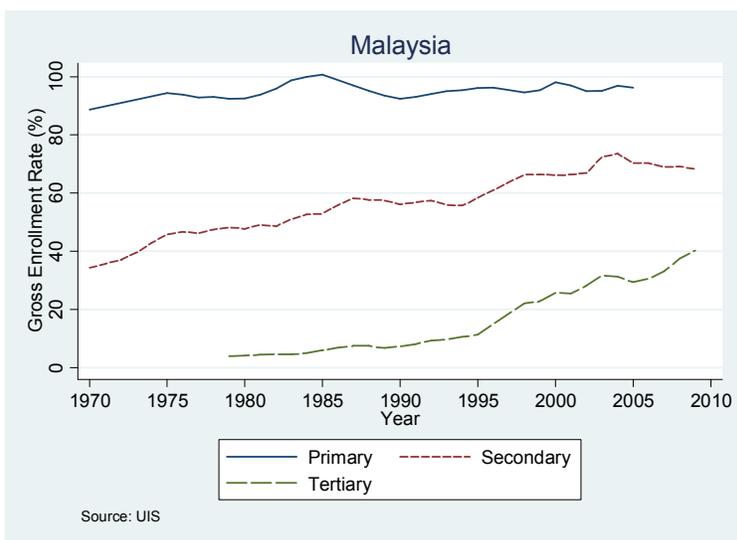
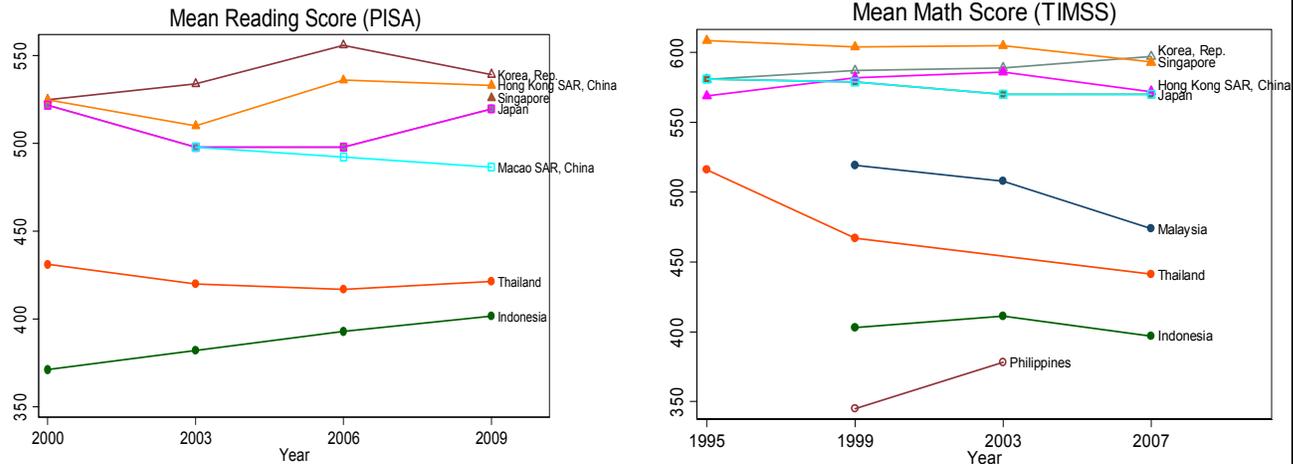
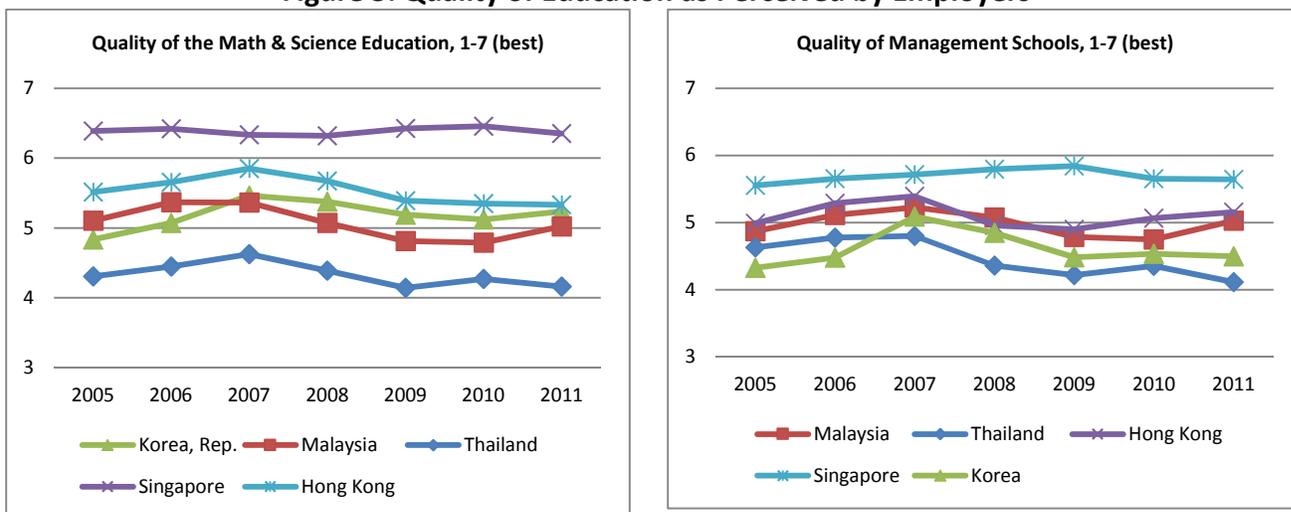


Figure 4: Learning Outcomes in East Asia over Time

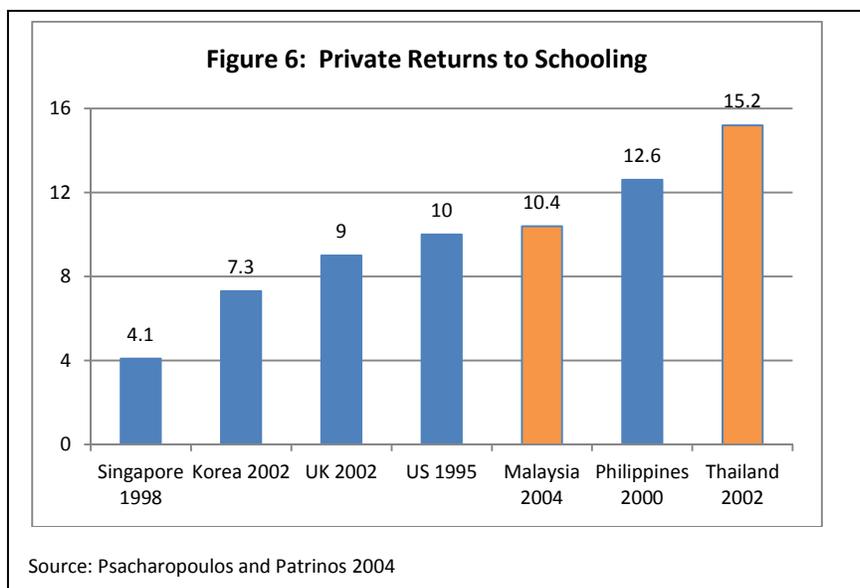


Source: OECD Programme for International Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS)

Figure 5: Quality of Education as Perceived by Employers



Source: World Economic Forum



Endnotes

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¹ World Bank country classifications: Low income: \$1,005 or less in 2010 GNI per capita; Lower middle income: \$1,006-\$3,975; Upper middle income: \$3,976-\$12,275; and High income: \$12,276 or more.

² Failure to explain the stagnation in developing countries during the 1980-1998 period – in spite of policy reforms – has puzzled many scholars and policymakers about the formula of growth. One explanation (Easterly 2001b) is that certain variables are omitted, such as non-country-specifics such as the world economic situation and analytical errors such as regressing stationary growth rates on non-stationary policies and initial conditions in growth regressions.

³ For some education policies, such as provision of public funds to private sector schools, low and middle income East Asian countries are pursuing a similar path as Korea. But for other policies, there are some stark differences. Teachers are paid much less than what Korea was paying at the same stage of development, and while Korea provides vocational education, it was never at a lower standard that disqualified graduates from applying to the same university programs as those students following the general curriculum, unlike in almost every low and middle income country today. Additionally, some policies and practices are more recent innovations in Korea. For example, the use of assessments and the accountability of schools to parents have only been strengthened in recent years. As a result, many low and middle income countries are more advanced in these two areas than Korea was at the same stage of development.