Human Capital Formation and Growth: Microeconomic Dimensions

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Human capital formation is a prominent feature in the growth experiences of the economies in the Asia and Pacific and is likely to become even more important in the future. The region has known years of rapid growth as it has industrialized and integrated into the world economy. Millions of non-farm jobs have been created, lifting millions out of poverty. Investments in schooling have been a central feature in development strategies. But as populations age and economies pass through the demographic transition, the importance of the quality of knowledge and skills of the labor force will increase as economies rely more heavily on technology and productivity growth to sustain their growth over time. The purpose of this volume is to examine more closely the interactions between the demographic transition and growth and to deepen understanding of factors influencing decisions of households, firms and governments to invest in more and higher-quality knowledge and skills, as well as in cross-border flows.

Two decades ago Robert Lucas (1993:252) highlighted questions about the role of human capital in countries’ economic growth and development when he noted how in 1960 the Philippines and South Korea had similar per capita incomes, population sizes and demographic composition and degrees of urbanization. They had similar levels of primary schooling; indeed the share of Filipinos in their early twenties in college was more than twice that in South Korea, which still relied more heavily on agriculture. But between 1960 and 1988 annual growth in per capita incomes in South Korea averaged 6.5 percent a year compared to 1.8 percent in the Philippines. Why?

At the country level Lucas’ (1988) earlier work and the seminal contributions of Paul Romer (1986, 1990, 1992) to the literature on endogenous growth theory emphasized the importance of human capital formation in the growth process, that is, the use of resources to educate and augment the productivity abilities of the labor force. These works developed the insights – which today are taken for granted – that one of the reasons economies grow is because knowledge and skills development become generally available. Growth results not just from a growing labor force but because of augmentation of labor force quality and diversity. These insights imply that per capita incomes of different societies can diverge; that social investments in human capital formation matter – and some societies may under-invest relative to what is necessary to sustain long-term growth. A third implication is that while formal education is key to human capital accumulation, it must be appropriate, that is, supply skills that people can use.

Additional insights about how human capital can be viewed as one of the sources of growth come from North and Thomas (1973) who noted that simply adding more educated people is growth, while the use made of education and the ways labor supplies are augmented is what causes growth. An economy’s incentive structures influence whether it grows, stagnates or declines over time. An expanding labor force is an asset if workers have incentives to be productive, but it is a potential burden if they do not. Thus economic growth is sustained by labor market institutions that reward education, skills training and productive employment, and by financial institutions that facilitate such behavior. Acemoglu and his colleagues (2005, 2012)
argue the importance of inclusive (rather than extractive) institutions. Without inclusive institutions and fiscal and social incentives, for example, educated people may apply their knowledge in the pursuit of rent seeking rather than in generating wealth.

The papers in this volume reinforce these macroeconomic insights in their investigations of related microeconomic issues at country, firm and household levels. The questions we ask are How do we measure human capital formation? What are the records of the emerging Asian economies in investing in appropriate quantities and quality of education and encouraging inclusive access to education and skills training? Are these investments appropriately timed to anticipate changing demands for skills? What are the development implications of successive stages of the demographic transition? What are some of the pitfalls encountered in the transition? Are there lessons for others to learn about avoiding such pitfalls? How is knowledge diffused across borders through international linkages and labor mobility? And finally, what are the priorities for international cooperation on education and human capital issues?

What do we mean by human capital formation? Human capital is more than the size of a country’s population of labor force age, the most conventional measure. Indeed the studies in this volume pay close attention to how governments, households, firms and educational institutions go about educating and augmenting labor force skills – an insight emphasized in the endogenous growth literature. Much attention is directed to education and skills training, but the emphasis is on improved quality. It follows, as Emmanuel Jimenez and Elizabeth King outline in the second chapter, that policies and institutions should not only ensure youth are well prepared for labor force participation but should also encourage workers to continue to augment their skills.

Measurement is a controversial issue. Human capital stock measures say nothing about what the labor force does and how it does it. Educational enrollment rates are commonly used measures of access to building human capital, but convey little about the quality of the education delivered. Educational attainment measures provide differentials that yield more insights. Indeed several economies in the region have achieved some of the world’s highest levels of educational attainment. Umbu Reku Raya and Daniel Suryadarma show in chapter 7 that the small shares of Indonesian students in secondary and tertiary schooling is a worrisome indicator of potential skills shortages facing employers seeking to improve productivity performance. But more information and insights are needed about the skills of the current and future labor forces than are provided by these three basic measures. These authors also stress that skills variations better explain variations in per capita income and economic growth. From their examination of Indonesian studies of indicators such as numeracy and general cognitive skills they find weaknesses in numeracy but strengths in general cognitive skills.

The emphasis on augmenting the quality of skills rather than merely increasing the quantitative supply of education presents public policy challenges. Jimenez and King note the importance of the design of policies and institutions such that education and training institutions produce skills in current and future demand. Bruce Chapman, in the fifth chapter, takes the design arguments further with his focus on the design of student loans that release the financing constraints faced by low-income parents in their decisions to invest in higher education. Here is a classic example of financial market failure where large potential repayment burdens can lead to less than optimal educational investments and where loan program design is an important part of the response.
These studies also illuminate the channels used to supply and enhance skills such as general education and vocational training delivered by public and private schools and, in Indonesia, the Islamic school system. Jimenez, Nguyen and Patrinos in chapter 8 illustrate how parents in Malyasia and Thailand invest in private schooling in response to deficiencies in the educational quality available in public schools because they perceive rising returns to investing in quality education. But this solution may exacerbate inequality since low-income parents may not be able to afford the private schooling alternative. Indonesia faces a different problem since private schools are seen as inferior to public schools but parents resort to them because the latter are full to capacity. Another serious problem is teacher and teaching quality. In Indonesia, salary increases for teachers who achieve certification are not followed up by evaluating their subsequent teaching performance which weakens the incentives to deliver quality teaching.

These findings have a number of implications. The stock of a country’s human capital may not be a source of growth when educational quality is low. Low quality education exacerbates the challenge of ensuring youth are well prepared for labor force participation, especially if the majority have acquired only basic education and remain unskilled.

Of longer-term significance are the implications of the interactions between the demographic transition and economic growth, a major theme in these studies. The demographic transition occurs as high fertility and mortality in a population decline to low levels. Because mortality declines generally precede fertility declines a period of relatively rapid population growth ensues. Mortality declines also tend to be concentrated in the young which causes the age structure to change such that a ‘bulge’ develops in the population of labor force age. This bulge is known as the ‘demographic dividend’ or ‘bonus’. It is the population in these age groups that works, saves and reproduces. But eventually they age. So the window for realizing the demographic dividend is finite and begins to close as the ‘bulge’ moves towards the elderly who dissave and consume more than they produce. The dividend then becomes a deficit or ‘onus’.

The demographic dividend has significantly influenced East Asian growth rates; Bloom et al (2000) show that it accounted for more than a third of the so-called ‘miracle’ growth. When they added variables measuring the changing age distributions to regressions analyzing the sources of growth in the East Asian miracle economies they found that these demographic variables accounted for much of the growth. But as Jimenez and King stress, this positive impact is not automatic. Latin American countries experienced similar changes in age structures but failed to turn in similar growth performance which strongly suggests the importance of policies and institutions to facilitate the productive employment of these youthful populations. Naohiro Yashiro in chapter 4 points out as well that the direction between growth and human capital can be two-way. Abundant supplies of labor and high labor quality drive growth; at the same time, however, rising expectations of growth encourage investment in human capital formation through the demand for and supply of schooling and acquisition of skills. Furthermore, higher returns to education encourage families to invest more in fewer children, reinforcing the trend in fertility decline.

Beyond the demographic dividend lies the demographic deficit. Where South Korea has become a celebrated example of a country that successfully leveraged the demographic dividend to sustain high growth rates and industrialization, the subsequent deficit is now a reality in Japan. Japan’s long period of relative economic stagnation is commonly thought to be caused by
macroeconomic policy failures and political gridlock. But Yashiro’s analysis illuminates the critical role of population aging on Japan’s human capital as a factor.

These diverse interactions between growth and the demographic transition have significant policy and institutional implications pointed out by Jimenez and King and in the three country studies of Malaysia and Thailand by Jimenez, Nguyen and Patrinos, Cai and Du’s study of China, and Raya and Suryadarma’s study of Indonesia. Failure to recognize the transient nature of the demographic dividend risks the ‘middle income trap’. This is a dilemma in which economies fail to adjust and lose competitiveness both with producers in the poorer emerging markets with abundant supplies of low-cost labor as well as with the advanced economies relying on productivity growth through investments in R&D and highly-skilled knowledgeable labor forces.

There are growing concerns that East Asia’s emerging economies are not changing their policies and institutions sufficiently, or sufficiently quickly, to ensure a smooth transition as their populations age and labor forces begin to shrink. Gradual disappearance of the factors and advantages that propelled their higher growth phases, such as abundant low-cost labor and easy adoption of existing technologies, means they must seek new sources of growth. China’s 12th Five Year Plan has a strategy to shift growth, but progress is slow because of conflicting pressures from interests vested in the status quo. Another reason for slow responses may be the unanticipated speeds of demographic transitions; fertility is falling faster in some of these economies than previously expected. And a third is undoubtedly related to the fiscal consequences of significant increases in spending on systems delivering the more advanced education and skills training that will be in demand.

The consequences of slow or inadequate responses are potentially severe in that future competitiveness depends increasingly on productivity growth, technological innovation and increasing supplies of highly-skilled labor -- rather than on the reallocation of labor from agriculture to higher-productivity manufacturing which raised productivity in the past.

Cai Fang and Du Yang’s study in chapter 6 illustrates an interesting aspect of China’s dilemma. Rising unit labor costs require a response from employers to address the challenges to their low-cost labor comparative advantage by shifting to higher value added production. A major part of the policy response has been to increase the supply of college graduates. In theory, if this new supply is matched by increased demand for their knowledge and skills, these college graduates should command skills premia for their added capabilities. But only some employers, i.e. the larger, more capital-intensive firms with rising labor productivity, are responding to the changing skills supply in their recruiting. One possible reason for this mismatch is that institutions are outdated, such as government favoritism of state-owned enterprises which, because of their input subsidies and willingness to pay the skills premium, distort market signals for the large number of smaller, more labor-intensive potential employers in non-state firms who cannot afford to pay the high prices.

The ‘high income trap’ is another potential trap suggested by Yashiro’s study of Japan. For reasons similar to those in the emerging economies, such as unwillingness to change labor force and human capital policies and institutions, the aging economies could also see growth fall below potential. As populations age such cherished polices as employment protection, aspects of family organization and retirement policies need to be reformed or even abandoned to promote
productivity growth and sustain positive growth rates. Labor shortages can be addressed by removing the barriers to utilizing older males, adopting flexible migration policies, and increasing female labor force participation. The latter may also further reduce fertility unless accompanied by reforms to reduce the costs of child care for working parents. This dilemma may soon confront South Korea as its population begins to age more rapidly (median age is now 35 years, similar to that in China, but far behind Japan’s 44 years). There are lessons to be learned from Japan’s experience; while the cultures and experiences of the two countries differ, impending demographic and human capital challenges should encourage South Korea to anticipate reforms that may be necessary to sustain growth as the population ages.

A third possible trap is the ‘knowledge trap’ identified by Menkoff and Evers in chapter 9 --one in which countries acquire knowledge and technologies which are more sophisticated than the capabilities of workers and firms to utilize them effectively. Countries commonly augment their knowledge and human capital through cross-border flows of knowledge, technologies, and skills through trade, FDI, joint ventures and alliances among firms, and through the movements of skilled labor. Asia’s diverse experiences with such flows of knowledge include China’s Special Economic Zones which encouraged foreign investment, foreign products, skills and knowledge that then diffused into the local economy. Singapore’s cluster strategies are another. Menkoff and Evers’ case study of the Singapore Maritime Cluster shows the path dependence of mature industry clusters which build on earlier economic and social conditions and respond to market forces. But clusters can also result from direct government interventions which raises the fundamental question as to whether the visible hand of government is superior to the hidden hand of the market. The justification for policy interventions should be to overcome market failures by generating knowledge spillovers and externalities that improve productivity performance. But evidence of market failures can be difficult to detect, for example, because reverse causation has to be ruled out: clusters may be encouraged by productivity growth rather than the reverse.

Attracting skilled foreign labor to the advanced countries helps to address skills shortages and sustain innovation and knowledge-based growth. But rising demand for these skills in the emerging markets is now intensifying the global competition for talent. The recruitment strategies of major receiving countries, including Australia, Canada, Hong Kong, Japan, Singapore and the United States, are described by Kang and his colleagues in chapter 10. These include a variety of selection of foreign skills guided by labor market supply and demand criteria in the recruiter countries, as well as programs to attract international students to become permanent residents and to target their own diasporas. Japan’s recruitment strategy is somewhat unique in its reluctance, despite its shrinking population, to allow foreigners to settle permanently in the country.

Studies of cross-border flows illustrate the differing predicaments of the advanced and developing countries. While the advanced countries solve skills shortages by recruiting abroad the developing countries must meet their own demands by investing in their educational systems. A common perception is that this combination of strategies is a zero-sum game unless host countries compensate source countries. Increasingly, however, the developing/sending countries are recognizing and exploiting the positive externalities of their diasporas by utilizing their transnational skills, experience and networks.
These findings suggest a number of key implications for policy makers which were brought out by a panel and in the discussions summarized in the next section:

• **The importance of educational attainment and its impacts merits better recognition.**

But what level of education as Hugh Patrick asked? Much of the analytical emphasis was on higher education, but the biggest payoff may lie in delivering universal primary education. Looking only at the level of educational attainment may not tell policy makers what they need to know about the **types** of education and training being demanded.

• **Recognize the roles and importance of changing human capital endowments in driving growth.**

Endowments take years to change. During that time the supply of education is determined by political and financial institutions which can be captured by powerful vested interests with the outcome being education and educational quality that are not necessarily in the long-term national interest. Several participants noted that higher education should be gradually expanded; pushing students into higher education can be counter-productive, especially if students’ skills are not job-relevant. It was also noted that human capital as a source of growth evolves during development; in the early stages of abundant labor supplies, technology can be labor-displacing. But as countries move closer to the technology frontier, technology becomes a factor in labor demand; more schooling is required to get a ‘good’ job at graduation.

• **Anticipate the transience of the demographic dividend.**

Use this window of opportunity wisely by designing policies and institutions to produce useable skills in youthful population to make them economically productive. Promote the quality of education and the quality of teaching. Use on-the-job training to augment the workplace skills of both unskilled and skilled labor. Institutional reforms, such as second-chance institutions, are desirable to address those excluded from basic education and training by their rural locations or by parental decisions (who may perceive the returns to investing in education for their children as inferior to sending them to work). Institutional reforms are needed to keep education systems in step with the economy’s modernization and industrialization, something South Korea is considered to have done well. Closer linkages are desirable among educational institutions and with employers, as well as increasing the autonomy and accountability of institutions of higher education.

• **Recognize that education policies can increase income inequality.**

The way education is distributed – and its cost -- may contribute to rising inequality. In countries moving up the value chain, what becomes of employees thirty years in the future whose skills have not increased beyond today’s compulsory nine years of education? Yao Yang pointed out how the Chinese government’s education budget, now four percent of GDP, targets university diplomas. As tertiary education absorbs more of the budget, urban education benefits at a cost to rural areas where access to education is still poor. Both the higher relative cost of rural education (because many children must board at schools) and the worsening income distribution between urban and rural areas are further worsening income inequality.
• **Human capital formation can be influenced by international factors.**

Trade agreements can encourage cross-border learning by reducing barriers to knowledge embodied in imports and exports. Patterns of global industrial growth and increasing energy and transportation costs are also factors that influence human capital formation because of changing relative prices. As David Hong noted, shortages in such inputs as energy and natural resources will affect relative prices in world markets including those for human capital.

• **More international cooperation is desirable in a number of areas.**

Emmanuel Jimenez proposed some basic principles of cooperation which include ensuring free flows of information to guard against market failures; recognizing that policy learning needs to be pragmatic (accept what works and discard what does not); and the importance of cooperation in freeing up migratory flows. Not only is freer exchange of labor necessary, but it should be orderly. Countries need to cooperate to equalize cross-border supply and demand by balancing domestic preoccupations with employment protection with the desirability of recognizing foreign credentials. Cross-border convergence in social safety nets is also desirable to provide workers with adequate health and social protection.

Joseph Yap makes a thoughtful case in chapter 11 for facilitating credentials recognition and accreditation to reduce a major barrier to migration. But Siow Yue Chia pointed out the importance of identifying other obstacles such as language deficiencies in Southeast Asia. Simply measuring numbers of degree holders who are mobile tends to hide the impact of their lack of English. Yap also noted the importance of collaborative international networks to help match higher education policies to domestic requirements and to agree international standards against which developing countries can benchmark.

The panelists and participants discussed such cooperative issues as reducing the ‘trust deficit’ in the region which originates in historical mistrust, diverse levels of development as well as the primary preoccupation of many governments with domestic objectives and priorities. To tackle migration barriers such as employment reservations for nationals, the region’s Education Ministers should meet more regularly, to share experiences and concerns about cross-border issues and step up cooperation. The ASEAN Secretariat could help to diffuse information within the region about successful institutional and policy initiatives. Finally, more attention should be paid to human capital formation and cross-border mobility in the region’s many trade and investment liberalization agreements.

• **More research and policy innovation and better dissemination of what works.**

Jimenez and King stressed the importance of identifying and disseminating information on policies that encourage the education of excluded groups with low incomes or living in rural areas; ways to create better linkages within countries between higher education institutions and employers as well as among educational institutions; and addressing through international cooperation the barriers to cross-border labor mobility. Most authors stressed the importance of measuring educational quality but Raya and Suryadarma showed some of the difficulties at national levels. As a result, PISA and TIMSS seem to be the main reliable data sources. They
and Jimenez et al advocate the better utilization and application of existing research by governments in Indonesia, Malaysia and Thailand.

**Summary of Papers and Discussion**

The papers presented at this conference can be divided into five sections. The first is a keynote presentation that established the tone and focus of the conference. The second is a series of three papers that address the big issues of human capital and long-term growth and the demographic-growth interactions in the region. The third section contains country studies of China, Malaysia and Thailand, and Indonesia. The fourth section includes two papers on cross-border flows of knowledge, technology and labor. The fifth section consists of a paper on international cooperation in education.

**Keynote Address**

Emmanuel Jimenez delivered the keynote in which they asked what the tiger cubs (Indonesia, Malaysia, Philippines, Thailand and Vietnam) can learn from the positive experiences of the Asian Tigers (Japan, Hong Kong, South Korea, Singapore and Taiwan) -- lessons that are conditional on reforms and structural improvements necessary to sustain their growth rates over the long term.

**Emmanuel Jimenez and Elizabeth King in chapter 2** note that much of the Tigers’ growth was the product of their demographic dividends (more people working than not) as infant mortality and fertility rates declined and dependency ratios dropped. Jimenez cited a recent World Bank economic update on Asia which shows that the decline in fertility rates has already contributed positively to growth rates. But will it sustain high rates of growth? Looking ahead, the issue is to improve productivity performance in anticipation that today’s youthful populations will age. Significantly, East Asia’s productivity performance lags both Latin American and OECD averages.

They identify improvements in education systems as key to future productivity gains. Education quality should be improved at all levels of schooling because even though enrollment rates have increased, student performance lags that of the Tigers. Evidence of low levels of cognitive skills implies that the human capital in their labor forces will constrain firms’ abilities to innovate and improve their productivity. Public policy should address skills deficiencies by aligning the output of the education system today with the skills that firms will demand tomorrow; governments should invest in skills training and education that is useful and will be rewarded by labor markets as the economic systems become knowledge-based. More research is needed to identify those skills in future demand. Will tasks shift from manual routine to non-manual non-routine?

The cubs should also empower workers who have already entered the labor force but have limited knowledge and skills. Jimenez and King argue that deficient skills among the employed and in disadvantaged groups should be mitigated by encouraging workers to enrol in second-chance and on-the-job training programs. Higher education should also be reformed to make universities both more autonomous and more accountable in promoting innovation and investing in quality education and research. Finally, they note the desirability of harnessing the potential
of the demographic dividend by encouraging labour mobility within and between countries, even though this option is still a hard sell politically.

**Human capital formation and long-term growth: theory and evidence**

In *chapter 3*, *Been-Lon Chen* calibrates an endogenous growth model with search costs to study the effect that labour market frictions (such as high search costs and skills mismatches) can have on growth and welfare and to evaluate human capital policies that might mitigate such frictions. Assuming large households (people can choose whether to work or not) and large firms (firms can create multiple vacancies), he first mathematically derives the effects of labor search costs on indicators of positive growth. After calibrating his model to such US parameters as capital depreciation rates and the capital-labour ratio he finds that employment, learning effort and output growth increase with an improvement in human capital accumulation policies, reduced job separation rates and with improved labor market matching where vacancies are effectively filled in the least costly manner for both firms (i.e. reduced vacancy creation costs) and workers (i.e. reduced search costs). Labour market frictions can, therefore, have serious negative impacts on growth-enhancing indicators and policy should intervene to mitigate such frictions.

He then considers two human capital accumulation policies that seek to mitigate these frictions and, hence, promote growth. The first policy is an exogenous policy that aims to improve general aspects of human capital growth (such as mandatory K-9 schooling) while the second is an endogenous on-the-job training policy to increase employee skills. Comparing the two policies, the model predicts that those that directly affect learning such as on-the-job training are more growth-promoting than the more generalized education programs, even though they may lead to a welfare loss when workers’ earnings “dip” while on costly training (as well as the loss of leisure time). Chen then proceeds to evaluate the impact that these would have on growth if labour frictions were to decrease. The results are counter-intuitive suggesting that as frictions diminish, the effects of the schooling and job training on growth are smaller. In other words, the human capital accumulation policies yield more positive results in the presence of labour market frictions than they would in a frictionless environment.

Discussants David Green and Xiadong Zhu pointed out that the model is too specialized to make policy inferences. Green argued that one way to think about the counter-intuitive result is to posit that people investing in their human capital necessarily reduces frictions because search costs become smaller and firms can match the skills that they demand more easily with the skills supplied. This raises questions about the wages of low-skilled labor: what is the impact on inequality between the skilled and the unskilled? Zhu pointed this out by noting that in China, the number of college graduates has increased but the impact on the skills premium has been to raise their unemployment rate because employers are unwilling to pay the premium. Such empirical questions could provide more insight into Chen’s results. Related empirical questions included one about modeling the sources and impacts of labor market frictions, such as skills mismatches, which are a common phenomenon in fast-growing economies. Another related to China’s *hukou* household registration system which inhibits labor supply by migrant workers. Others noted that Chen’s model is calibrated to US labor market conditions yet in countries such as China high growth rates are necessary to generate employment. Shekhar Shah noted that in India restrictive labor laws create disincentives for firms seeking to grow beyond a fixed number of employees, and who are too small to provide on-the-job training and skills development.
Human capital formation prior to entering the labor market is, of course, also seen as a source of growth. The literature on the socio-economic returns to higher education is well-established and 

**Bruce Chapman in chapter 4** carries it forward by analyzing the importance of access to education in Indonesia, Vietnam and Thailand. Access to higher education affects economic inequality and poverty and students from diverse economic backgrounds need to be encouraged to pursue higher education. Use of the wrong financial model, which Chapman argues is found in both developed and emerging economies, can increase inequality. Since capital markets fail to deliver socially optimal investment in education governments have an active role to play. Chapman examines the design of student loan programs; typically (and in the case of Thailand) they tend to be mortgage-type loans (MTLs) with costly debt repayment requirements that burden recent graduates by commanding high proportions of their incomes. As Indonesia and Vietnam expand higher education programs, this is the likely design to be adopted. He argues that income-contingent loans (ICLs) are a superior design in which loan repayments depend on income or earnings after graduation. This design, now in use in Australia, could avoid high repayment burdens as well as the associated disincentive to disadvantaged students from seeking higher education.

In the discussion, a central theme was that mortgage type loans are not sustainable and need reform. Narongchai Akrasanee argued, however, that income contingent loans may not mitigate repayment burdens because students tend to enroll in courses which they like rather than in those commanding good pay. Policies should aim to reduce skills gaps in labour markets by encouraging such entities as learning centers and commercial incubators. People are following the entrepreneurial route into business which policy does not take into account. Other discussion noted that some governments supply higher education with no or low tuition fees even though this is an unfair use of public funds when the returns to education accrue to individuals, many of whom come from high-income families. Default was also a topic of discussion: high default rates could mean less public resources for education and even more inequality; and a final theme was about alternative designs, such as grants to students agreeing to specified work commitments.

**Naohiro Yashiro in chapter 5** provides a big picture of the interactions between the demographic transition and economic growth. Like Jimenez and King he points out the virtuous circle of high rates of economic growth supported by abundant labor supplies and high savings rates. Mature economies which have experienced the demographic dividend benefit from expanded average working periods and high quality human resources but low mortality and low fertility rates subsequently cause a shift from the population ‘bonus’ to ‘onus’ with an increasing social security burden. He noted that low fertility rates, in which Japan now leads, cause population aging which is likely to discourage investment in both physical and human capital. Household savings ratios will fall as the elderly draw them down and firms’ incentives to invest in human capital enhancement will decline at the prospect of shorter-term returns from older workers. Yashiro predicts a vicious circle of low investment leading to slow economic growth as inevitable in Japan. This means that institutions and employment practices established to catch up should be reformed to use human resources more efficiently. Changes should include removing institutional barriers to the better utilization of married women and older men in the labor force and to draw on skilled foreign workers. The discussion emphasized the importance of educational reforms to increase labor force participation and the importance of productivity growth. Companies should recruit labor according to college degree rather than college entrance; employment practices and laws should be changed to allow both parents to seek employment;
and a better work-life balance could be promoted by policy reforms to facilitate market delivery of child care.

Participants noted how vested interests resist change; the government monopoly on child care delivers a low-cost ‘welfare’ service instead of allowing market forces to meet the excess demand for such care. Japan’s lessons for the region were also discussed with some participants suggesting the possibilities for greater international flows of people and capital to compensate for Japan’s labour market deficiencies, as Jay Menon argued. Focusing only on the Japanese market may be sub-optimal because allowing a more flexible work-life balance in exchange for less employment protection has negative welfare implications. Differentials between benefits enjoyed by older full-time workers and those of part-time women and younger employees may be deepened. Kim also noted that emphasis on greater participation by the elderly should recognize the vulnerability of this group and the risks of workplace discrimination.

**Country Experiences with Learning**

The third set of papers focused on country experiences with human capital demand and supply in China, Indonesia and Malaysia and Thailand. In chapter 6, Cai Fang and Du Yang anticipate the changes underway in China as industries upgrade and the economy is restructured. Rising wages for both unskilled and skilled workers, the authors argue, is a reflection of labor shortages at both firm and national levels. This trend suggests that firms in labor-intensive industries will seek to substitute capital for labour. The resulting technological changes could shift firms’ demands for workers towards higher quality and certain skills rather than simply adding more workers. To gain insights into this behavior the Cai and Du ask what types of skills and workers are needed to steer China into its next phase of economic development? With wages rising wages and labor scarce, will firms be price- and output-sensitive when designing and implementing their employee recruitment policies? Will there be an employment shock from the shift to demand for skilled workers?

They use a representative sample of 1644 manufacturing firms across China to gauge the types of firms that demand highly-skilled labor; their purpose is to gain an idea of how quickly China’s manufacturing sector will move up the value chain and how the labour markets will need to adjust to meet these changes. They find that larger firms demand more human capital at both the production and management levels since they are involved in more complex processes and are more complex to run. Capital-intensive and more productive firms also demand workers with more human capital, which is expected. One surprising finding is that export-oriented firms demand production workers with less human capital than do non-exporting firms. This finding suggests that China’s exporting industries are still labour-intensive ones with low-cost labor a key source of comparative advantage.

The authors then investigate firms’ hiring and firing policies: are they price- and output-sensitive? They find that firms are indeed sensitive: a proportional rise in wages for both unskilled and skilled workers leads to a larger decline in the demand for unskilled labor. Rising wages are particularly relevant to manufacturing which continues to be reliant on the dwindling low-cost labor advantage. Further, if there is skill-biased technological change and firms demand more human capital the potential for rising unemployment of unskilled workers will become a policy concern. They conclude that public investment is desirable, but accompanied by
reforms to make labor markets more efficient and supply adequate human capital as firms seek to move up the value chain.

In the discussion Loren Brandt commented on his own experience with firm surveys which revealed distortions in the allocation of skilled labor and capital attributable to state-owned enterprises which pay higher wages than non-state firms can afford. More clarity was requested on the definition of skilled and unskilled labor, as were more insights into how firms respond to labor market changes. Haworth noted that the Lewis turning point concept (the move from infinite labor supply to labor shortage) may be more of a process than a turning point. In view of the size of China’s market, with local, regional and international dynamics at play, a model accounting for this diversity may be desirable to capture changing labour market dynamics.

In chapter 6 Umbu Reku Raya and Daniel Suyadarma examine the relationship between Indonesia’s educational system and its economic development. While input measures of education include school enrollment (primary school enrolment rates much higher than those for secondary and tertiary) and educational attainment, the output of the education system in terms of the skills students acquire is the more relevant measure. Their investigation of how to measure skills finds no clear correlation between educational attainment and mathematics skills, but a positive correlation with cognitive skills which implies that general ability increases with education.

Indonesia has invested heavily in several educational programs. One aimed to increase enrolment at all levels of education; a second aimed to prevent disadvantaged children from dropping out of school. The most recent interventions aim to increase teacher effort and the quality of education they deliver. But available evidence shows that the quality-enhancing programs failed to deliver. Teachers’ salaries were doubled with no observed increase in teaching quality. This lack of quality is pervasive across all levels of education and should concern policy makers trying to steer Indonesia to the next stage of economic development while avoiding the middle income trap. The sources of the quality problems seem to relate to high levels of teacher absenteeism; a disproportionate student-teacher ratio among schools; and lack of community involvement in school activities. Their policy prescriptions include the need to work pro-actively to raise quality as well as access. They recommend use of appropriate incentives to supply highly-competent teachers to rural areas; intensifying community involvement in schooling by establishing formal linkages between schools and village councils; and working with potential employers to address skills mismatches that raise labor search costs.

In the discussion, Sherry Kong argued that quality is not the only roadblock to Indonesia’s human capital development. Enrollment remains low at higher levels of education and despite increased government spending on vocational schools, enrollment has declined. This anomaly was reinforced by Chatib Basri who noted that vocational school attendance is not valued in higher wages despite the high level of government investment. The authors argue that both low educational quality and low returns to education means that parents are investing less-than-optimal amounts.

In chapter 8 Emmanuel Jimenez, Vy Nguyen and Harry Patrinos study Malaysia and Thailand as cases of economies at risk of the middle income trap. Growth momentum has slowed in both countries recent years. Are improved access to and quality of education ways to avoid
the trap? They argue the affirmative. Using South Korea as a benchmark they find that Malaysia and Thailand lag both South Korea and the OECD average on enrollment at secondary and tertiary levels. One of the reasons could be that certain socio-economic groups (mostly because of geography) do not have easy access to such schools, thereby limiting their opportunities even if policy makers are trying to promote equal access. Of greater concern, however, is the low quality of education. In mathematics students perform relatively poorly compared to Korean counterparts and average mathematics and reading scores have declined in the past decade. Recognizing that education and human capital accumulation are positively related to such outcomes as health status and productivity, the authors identify priorities for enhancing quality which include: giving budgetary priority to developing primary and secondary education systems to feed into the tertiary system (especially as there appears to be over-investment in Malaysia in tertiary education); creating incentives for teachers to improve their performance; investing in early childhood development where studies show high returns to investment; avoiding vocational tracking while emphasizing formal academic tracks; and integrating schooling systems into the economy by allowing parents to have a bigger say.

In the discussion there was consensus that while learning from Korea’s record is desirable, both Malaysia and Thailand should consider their own cultures and economic parameters in developing their own paths. Chia Siow Yue also argued persuasively that the middle income trap is not well defined; it could be a transitional stage rather than a trap from which it is difficult to escape. It is also important to recognize that factors other than the human capital formation may condemn a country to such a trap, if it exists. Hostile business environments, institutional and policy barriers are some other possible determinants. Malaysia and Thailand are not the most business-friendly economies in the region and may face competition from more friendly neighbours such as Singapore.

Knowledge diffusion and skills transfer across borders

The fourth set of papers examines cross-border issues of knowledge diffusion and movements of human capital.

Thomas Menkhoff and Hans-Dieter Evers in chapter 9 consider the successful case of Singapore’s knowledge hub in the offshore marine sector. Businesses tend to cluster in certain geographical regions to take advantage of networks, spillovers and external economies of scale. Knowledge clusters are known to be associated with high degrees of innovation, job creation and local economic growth since dissemination of knowledge is best carried out when there is frequent interaction and information exchange amongst peers. But access to technology and being able to use it effectively are different phenomena. A “knowledge trap” can occur if the capabilities to absorb and utilize it effectively are lacking. Singapore has avoided this trap, which the authors demonstrate in a case study of the Singapore Marine Cluster (SMC). Knowledge diffusion takes the form of export-led growth, skills and human capital upgrading and continued R&D activities that add value to the economy. They argue that governments can intervene to create frameworks and infrastructure that induce businesses to locate in close proximity to one another -- a good way to stimulate growth in a knowledge-based world. Policy makers can learn the following lessons from the SMC case: build upon locational advantages with excellent infrastructure and political stability; enhance human capital in order to provide global technological leadership (implying continued R&D and close collaboration with educational institutions); continual alignment of the inputs and outputs of the education system to match the
demands of the knowledge-based economy; limit bottlenecks by encouraging supporting industries such as transport and banking; and work with international institutions to create a true global interchange of knowledge.

In the discussion, Juan Palacios delved deeper into the clusters and hubs concepts, pointing out that the terms are often misused and may refer to different notions of industry agglomeration. Loren Brandt argued that clusters, in and of themselves, are not the answer to sustaining economic development. Knowledge governance may be a key driver of success but governments should support clusters with care. Successful clusters depend on businesses having reasons to do so; governments intervening to encourage businesses to locate and cooperate have led to many failures. If a consensus develops on the desirability of a cluster (such as a business park), there might be a role for governments to encourage and facilitate its formation.

Kang Qing Zhang, Evelyn Chan, Charles Lebreque, Heather Kincaide and Mikhail Iturralde in chapter 10 address a particular aspect of cross-border labor mobility: the recruitment strategies of advanced countries with skilled labor shortages, including Australia, Canada, Hong Kong, Japan, Singapore and the United States. Rising global demand for skilled workers is driven by population aging, the intensifying global competition for talent and increasing opportunities for cross-border employment. Indeed the largest migratory flows are now between developing and high-income countries. These advanced economies increasingly rely on foreign labor to fill labor market vacancies; as many as 41 percent of employers surveyed in the region experience mismatches between available supplies of labor and the skills demanded. Government recruitment strategies include demand- and supply-driven approaches to immigration. The former reflect employer demands while the latter rely on human capital models and award points for desirable attributes of potential immigrants. Governments are shifting towards hybrid recruitment strategies to provide more flexibility in the duration of migrants’ stays and to allow for greater inputs from employers. As well, they are increasing efforts to retain foreign students after they have completed their studies and making better use of their own diasporas. Corporations are also pursuing recruitment strategies of their own. The increasing competition leads not only to more pressures on existing immigration policies but on international cooperation around issues like credentials recognition and the portability of social security benefits.

International Cooperation

In the final section, Joseph Yap in chapter 11 takes up some of these issues of international cooperation. He sees regional cooperation in education as a way to promote regional development by forming networks to improve educational performance through information sharing on best practices. In the Philippines and other emerging economies with inadequate or low quality education systems, greater regional cooperation has potential in several areas: to promote collaboration among teachers and students to exchange learning experiences; to increase openness to transnational education arrangements in which foreign institutions establish campuses in developing countries as has happened in China, Hong Kong, Malaysia and Singapore; and to cooperate in developing credible credentials recognition systems. A regionally-recognized accreditation system will encourage occupational and geographic mobility of developing country labor to the advanced economies facing skilled labor shortages. The most important goal, however, should be to improve the quality of education in emerging economies.
such as the Philippines. Agreeing regional standards on education quality could provide a potentially powerful external incentive for these countries to use as benchmarks in such efforts.

References


