

67204

LEADING WITH IDEAS



Skills for Growth and
Equity in Thailand



Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized

LEADING WITH IDEAS

Skills for Growth and Equity
in Thailand



THE WORLD BANK

©2012 The World Bank

The World Bank
30th Floor, Siam Tower
989 Rama 1 Road, Pathumwan
Bangkok 10330, Thailand
(66) 0-2686-8300

www.worldbank.org/th

Technical Papers are published to communicate the results of The World Bank's work to the development community with the least possible delay. The typescript manuscript of this paper therefore has not been prepared in accordance with the procedures appropriate to formally edited texts. Some sources cited in the paper may be informal documents that are not readily available.

The findings, interpretations, and conclusions expressed herein are those of the author(s), and do not necessarily reflect the views of the International Bank for Reconstruction and Development / The World Bank and its affiliated organizations, or those of the Executive Directors of The World Bank or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgement on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development / The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone 978-750-8400, fax 978-750-4470, www.copyright.com.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

Report number: 67204-TH

Cover photo (left to right): Mrs. Sarunya Srisakulchairak, Mr. Duangrit Bunnag,
Mr. Pornthep Tirawiboon
Location: Duangrit Bunnag Architect Limited, Bangkok, Thailand
Photographer: Gerhard Joren

FOREWORD

Across countries, workforce skills development has become a key element in the quest toward raising productivity, enhancing competitiveness, facilitating employment and promoting inclusive growth. To create jobs, produce higher incomes and reduce poverty, the increasingly important challenge is ensuring that the workforce acquires and is able to utilize the skills that match employer needs. ASEAN member nations, including Thailand, have recognized the key role of skills for prosperity and seek to promote skills development and the free flow of skilled labor as part of the ASEAN Economic Community integration agenda.

In Thailand, enhancing workforce skills and promoting innovation is part of the country's strategy to facilitate the transformation toward a more knowledge-intensive and creative economy generating good jobs. The Royal Thai Government has placed human capital at the heart of the country's strategy toward sustainable and inclusive growth and competitiveness. In this respect, Thailand's strategy corresponds to the emerging recognition that the ability of labor to acquire and utilize skills will influence both the competitiveness and sustained growth of the Thai economy and the equity and cohesion amid the Thai society in the future. This raises the bar for Thailand's labor market institutions as well as for its education and training systems.

The National Economic and Social Development Board (NESDB) invited the World Bank to contribute to the understanding of the emerging shortages of skilled labor facing Thailand's employers, underlying causes, and possible responses as part of the 11th National Economic and Social Development Plan. The summary of the findings is presented in this report.

The report's early findings have been discussed in numerous meetings and at seminars organized by the Thailand Development Research Institute (TDRI) and NESDB in July and September 2011, respectively. The discussions involved representatives of multiple ministries and government agencies, private sector employers, skills providers and other stakeholders. These discussions highlighted the importance of adopting a comprehensive approach to skills development – as outlined in the Skills Toward Employment and Productivity framework presented in this report – recognizing that a critical foundation for skills is established in early childhood and as part of quality basic education and continues throughout the life cycle, including in the workplace. From the employers' perspective, the discussions stressed the need to link Thailand's training centers and higher education institutions with employers.

This report provides valuable insight for Thailand to develop the skills necessary to boost ideas-led growth and equity. The report draws on findings from employer surveys, analyses Thailand's skills development performance from the lifecycle perspective, and outlines possible strategies to meet the emerging challenges in matching labor force skills with Thailand's development objectives. In particular, the report highlights possible approaches for consideration while implementing the skills agenda outlined in the 11th National Economic and Social Development Plan.

It is our hope that this report will contribute to a constructive discussion and informed decisions that will help the equitable and sustained growth of Thailand's economy.

Arkhom Termpittayapaisith



Secretary General
National Economic and Social Development Board

Annette Dixon



Country Director, Thailand
East Asia and Pacific Region
The World Bank

ACKNOWLEDGMENTS

This report was prepared by a World Bank team led by Hana Brix in cooperation with experts and officials of the National Economic and Social Development Board (NESDB). Arvil Van Adams, Direk Patmasiriwat, Piriya Pholphirul, and Sutayut Osornprasop contributed background analyses.

The team consulted with, and received valuable feedback from government officials of various government ministries and agencies, including the Ministry of Education, the Ministry of Labor, and other government and partner institutions. Many senior officials and experts provided comments and suggestions at seminars held at the Thailand Development Research Institute (TDRI) and NESDB in July and September 2011, respectively.

The team would like to recognize the invaluable guidance provided by Khun Arkhom Termpittayapaisith (Secretary General of NESDB) and Khun Suwanee Khamman (Deputy Secretary General of NESDB). The team would also like to express a very special thanks to the following officials and experts for sharing views and suggestions: Dr. Sasithara Pichaichannarong (Permanent Secretary of the Ministry of Education); Dr. Sumate Yamnoon (former Secretary General of Office of Higher Education Commission), Dr. Piniti Ratananukul (Deputy Secretary General of Office of Higher Education Commission), Assoc. Prof. Kamjorn Tatiyakavee (Deputy Secretary General of Office of the Higher Education Commission); Prof. Chanrarong Pornrungrroj (Director of Office for National Education Standards and Quality Assessment); Dr. Sampan Panpruk (Director of National Institute of Educational Testing Service (NIETS)); Dr. Benjalug Namfa (Deputy Secretary General, Office of Basic Education Commission), Dr. Wanna Chongdarakul (Bureau of Educational Innovation Development of Office of the Basic Education Commission); Dr. Sakarindr Bhumiratana (President of King Mongkut's University of Technology Thonburi), Dr. Krissanapong Kirtikara (Advisor to the University, King Mongkut's University of Technology Thonburi); Khun Chirapun Gullaprawit (Director of Social Development Strategy and Planning Office, NESDB); Dr. Phanit Laosirirat (Executive Director of Thailand Productivity Institute); Khun Jiraporn Kesronsutjarit (former Director General of Department of Skill Development), Khun Praphan Montakarntiwong (Director General of Department of Skill Development), M.L. Puntrik Smiti (Deputy Director General of Department of Skill Development); Dr. Nipon Poapongsakorn (President of TDRI), Dr. Dilaka Lathapipat (TDRI), Dr. Srawooth Paitoonpong (TDRI), and Dr. Yongyuth Chalamwong (TDRI); Prof. Dr. Vicharn Panich (Chairman, Knowledge Management Institute); Dr. Sauwakon Ratanawijitrasin (Director of SEAMEO RIHED), Dr. Chantavit Sujatanond (Adviser to SEAMEO RIHED); Dr. Narongchai Akraseranee (Chairman of the Board of the Office of Knowledge Management and Development (OKMD)); Khun Chatpong Wongsuk (President of Personnel Management Association of Thailand); Mr. Simon Matthews (Country Manager of Manpower).

Furthermore, the team appreciates the contribution of partners that provided helpful insights and information: Tomoo Hozumi (Representative, UNICEF Thailand Country Office), Sachiko Yamamoto (Regional Director, ILO Regional Office), Thetis Mangahas (Deputy Regional Director, Policy and Programmes, ILO Regional Office), Phu Huynh (Labor Economist, Regional Economic and Social Analysis Unit, ILO Regional Office) and Barbara Orlandini (Chief, Office of the UN Resident Coordinator).

Many World Bank staff, including Emanuela Di Gropello, Frederico Gil Sander, Kevin Macdonald, Kirida Bhaopichitr, Harry Patrinos, Ian Walker, Magnus Lindelow, Mathew Verghis, Omporn Regel, Pamornrat Tansanguanwong, Prateek Tandon, Shabih Ali Mohib, Suhas Parandekar and Sofia Busch, contributed useful comments and inputs.

Finally, the team would like to express sincere thanks for the strategic guidance of Annette Dixon (Country Director Thailand), Xiaoqing Yu (Human Development Sector Director for East Asia and Pacific Region), Emmanuel Jimenez (former Human Development Sector Director for East Asia and Pacific Region), Luis Benveniste (Sector Manager for Education Sector Unit), and Eduardo Velez Bustillo (former Sector Manager for Education Sector Unit).

CONTENTS

EXECUTIVE SUMMARY	1
1. THAILAND'S QUEST FOR COMPETITIVENESS AND EQUITY DEMANDS SKILLS	4
1.1. Skills are in demand for a knowledge-based and creative economy	4
1.2. Skills can help improve equity, social mobility and self-insurance against risks	8
2. WHAT ARE THE CONSTRAINTS IN SKILLS DEVELOPMENT AND UTILIZATION?	10
2.1. What skills gaps and mismatches do employers face?	10
2.2. What are the weaknesses in providing and matching skills with employment?	12
2.3. What are the causes of the skills gaps and mismatches in Thailand?	28
3. IMPLEMENTING THE NESDP'S SKILLS AGENDA TOWARD IDEAS-LED GROWTH WITH EQUITY: APPROACHES FOR DISCUSSION	30
3.1 Enforcing salt iodization	31
3.2 Supporting children according to their needs and investing in teachers	32
3.3 Overcoming institutional fragmentation, adopting performance-oriented financing and strengthening accountability	34
3.4 Linking higher education institutions and training centers with industry	39
3.5 Providing quality assurance	40
3.6 Way forward	41
REFERENCES	42
ANNEX	45

ACRONYMS

ECD	Early Child Development
ESA	Educational Service Area
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
IDD	Iodine Deficiency Disorders
ISCED	International Standard Classification of Education
KEI	Knowledge Economy Index
MICS	Multiple Indicator Cluster Survey
MOE	Ministry of Education
NEA	National Education Act
NESDB	National Economic and Social Development Board
NESDP	National Economic and Social Development Plan
NIETS	National Institute of Educational Testing Service
NQF	National Qualification Framework
OBEC	Office of Basic Education Commission
OECD	Organisation for Economic Co-operation and Development
ONESQA	Office of the National Education Standards and Quality Assessment
PBB	Performance-based Budgeting
PICS	Productivity and Investment Climate Survey
PISA	Program for International Student Assessment
R&D	Research and Development
SENAI	National Industrial Training Service
SETAs	Sector Education and Training Authorities
STEM	Science, Technology, Math and Engineering
StEP	Skills toward Employment and Productivity
TIMSS	Trends in International Math and Science Studies
TVET	Technical and Vocational Education and Training
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

EXECUTIVE SUMMARY

This note reflects on the economic and policy context of skills development in Thailand, the human resource base, and the possible strategies that can be drawn from international experience to meet the emerging challenges for achieving ideas-led growth with equity. It summarizes not only the skills gaps but also the mismatches facing Thailand. This note also employs the StEP framework (Skills toward Employment and Productivity) to assess the root causes and possible solutions to both these skills gaps and these mismatches. In particular, the note highlights possible approaches for consideration while implementing the skills agenda outlined in the 11th NESDP.

Enhancing workforce skills and increasing innovation is part of Thailand's strategy to move to a more knowledge-intensive, creative economy and employment – producing higher incomes and reducing poverty. The Royal Thai Government is rightly placing human capital at the center of the country's growth strategy and competitiveness. The ability of labor to acquire and utilize skills will influence both the competitiveness of the economy and the equity amid society. This raises the bar for Thailand's education and training systems.

This analysis recognizes the strong human resource base and policy framework on which Thailand can build, and it draws attention to the main remaining weaknesses in both providing skills and matching skills with employment.

Priorities

Step 1: Starting right. In building the foundation for skills development in early childhood, Thailand is comparatively advanced, not only in reducing malnutrition but also in promoting maternal and child health and pre-primary education. A uniquely serious problem in Thailand is iodine deficiency, which erodes the intellectual capacity of children and negatively affects their learning and productivity later in life. This problem stems from the government's limited capacity to enforce salt iodization and to implement the national plan for iodine deficiency disorders control.

Step 2: Ensuring that all students gain basic skills. Thailand has achieved nearly universal coverage in basic education. Ensuring that children attain a quality basic education, however, remains a challenge illustrated by relatively weak student test performance. This challenge may reflect governance weaknesses and capacity constraints in student support programs and possibly teachers' training constraints.

Step 3: Building job-relevant skills. The coverage of formal education at the upper-secondary and tertiary level is wide and it is complemented by an extensive training system. But structural imbalances exist, including low enrollment in science and technology. These imbalances may emerge from the existing labor market's information constraints and from

incentive distortions and capacity constraints in the education and training systems. Moreover, tertiary enrollments – influenced by the uneven quality in earlier education and by the concentration of higher education institutions in Bangkok – seem to exacerbate income inequality.

Step 4: Encouraging entrepreneurship and innovation. Initiatives to connect teaching and research and to bring higher education institutions closer to employers, training centers, research and development, and earlier levels of education have been underway, but disconnects persist. Key disconnects may arise from low information in higher education institutions about the research needs and entrepreneurship opportunities in the market, academic faculty constraints, and weak incentives and capacity in firms to invest in research and innovation.

Step 5: Facilitating labor mobility and job matching. Market institutions for quality assurance, licensing, regulation, accreditation, employment services, and coordination among skills providers and users are emerging in Thailand. Their weaknesses may include insufficient information on study and career choices, varying levels of competency, poor mechanisms for job searches, and varying quality of skills and skills providers. These weaknesses may also be caused by limited incentives and the limited capacity of skills providers to share information and coordinate the provision of skills. There also seems to be inadequate capacity for quality assurance, licensing enforcement, regulation, and accreditation.

Future investment in strengthening human resources requires both quality and equity

to attain proper skills development that will lead to employment and productivity. As a contribution to the ongoing policy discussion, Table 1 highlights specific priorities and possible approaches to support implementation under the 11th NESDP, building on the existing policies and ongoing initiatives.

Possible Approaches for Discussion

- 1. Enforcing salt iodization.** International experience suggests that an appropriate legal and regulatory framework, enforcement, and a public awareness campaign are necessary to control iodine deficiency disorders.
- 2. Supporting children and investing in teachers.** The pedagogy, curriculum, and special support programs may need to be strengthened; at the same time, it also may need to reflect the diversity of students and their needs. In addition, the teachers training system may need strengthening by first focusing on teaching key subjects (math, science, English, and IT).
- 3. Overcoming institutional fragmentation, adopting performance-oriented financing, and strengthening accountability.** The education system's administration may require a detailed review and simplification. In the training system, the diverse skills provider community may require stronger coordination. Thailand may further pilot and evaluate financing mechanisms toward better performance, such as performance-based budgeting, vouchers, and training funds. To strengthen accountability relationships toward quality and relevance of skills provided

Table 1 Skills development toward ideas-led growth with equity in Thailand

Key Elements	Priorities	Possible Approaches for Discussion
Strategy: Strengthen human resource base toward developing a creative knowledge economy and promoting an ideas-led growth with equity		
Equity and coverage in skills development to expand Thailand's talent pool and skills base Quality, relevance, and effective utilization of skills to strengthen Thailand's creative knowledge economy	<p>Step 1: Starting right: <i>IDD control</i></p> <p>Step 2: Ensuring that all students obtain basic skills: <i>Basic education quality</i></p> <p>Step 3: Building job-relevant skills: <i>Skills relevance and equity in higher education</i></p> <p>Step 4: Encouraging entrepreneurship and innovation: <i>Education-training-R&D-industry links</i></p> <p>Step 5: Facilitating labor mobility and job matching: <i>Market institutions</i></p>	<ol style="list-style-type: none"> 1. Enforcing salt iodization 2. Supporting children and investing in teachers 3. Overcoming institutional fragmentation, adopting performance-oriented financing, and strengthening accountability 4. Linking higher education institutions and training centers with industry 5. Providing quality assurance

throughout the education and training systems, quality assessments may need to play a stronger role to create opportunities for performance improvements.

4. Linking higher education institutions and training centers with industry.

Higher education institutions can provide for both short-term training of workers and entrepreneurship training. They can support incubators, extension and product development services, technology licensing offices and spin-offs to commercialize research and transfer knowledge and technology. Also, higher education institutions

and training centers can appoint industrial practitioners as their staff.

5. Providing quality assurance. National qualification frameworks in Thailand can further build on the existing testing and certification systems, and connect to a regional framework to promote labor mobility. These national qualification frameworks can coordinate stakeholders and define qualifications, set competency standards, test individuals, and certify skills. A stronger accreditation system can help reduce varying quality among skills providers.

1

THAILAND'S QUEST FOR COMPETITIVENESS AND EQUITY DEMANDS SKILLS

Enhancing workforce skills and increasing innovation is part of Thailand's strategy to move to a more knowledge-intensive, creative economy and employment – producing higher incomes and reducing poverty.¹ Evidence shows that skills are correlated with innovation, productivity, and growth.² Moreover, skills are becoming a leading factor influencing income distribution and social mobility in not only Thailand but also the majority of East Asia countries.³

1.1 Skills are in demand for a knowledge-based and creative economy

The Royal Thai Government is rightly placing human capital at the center of the country's growth strategy. Thailand's growth over the past 25 years has been driven primarily by an expansion of employment in the industrial sector and capital investment. Gains from productivity have been relatively low, with total factor productivity accounting for only one-sixth of the annual growth rate from 1985 to 2005. Less than one-tenth of the growth can be attributed to human resource improvements. (NESDB and World Bank, 2008) With the advantage of the emerging decline in labor cost and the gradual appreciation of the Thai Baht, the nation's success in sustaining high growth in the future will depend on its ability to improve the productivity of its workforce. This has been the path followed by other economies in the region that have moved to higher income levels over time, for example, Korea, Taiwan, and Singapore.

The NESDP's emphasis on strengthening the human resource base and improving productivity is a key to the nation's competitiveness. Thailand's competitive strategy has been shifting from a race toward lower wages to the pursuit of higher productivity. By raising productivity, the unit cost of goods and services can be kept low and competitive while raising wages and earnings. The pursuit of higher productivity through innovation and investment in workforce skills can enhance competitiveness and provide for employment and more inclusive growth. Only by adopting this approach can Thailand expect to raise the incomes of its workforce and join the ranks of other high income countries. (Adams 2009)

Thailand's quest for global competitiveness raises the bar for its education and training systems. Global supply chains offering opportunities for Thailand's development demand

¹ For discussion on developing knowledge economy and creative economy in Thailand, see NESDB (2010a and 2010b) and NESDB and World Bank (2008).

² The term "skills development" is used as a broad concept to capture the many different institutions and approaches that facilitate early learning, building job-relevant skills, entrepreneurship and innovation, and labor mobility and job matching during the working lives of individuals. "Skills" comprise cognitive, non-cognitive, and technical skills. Cognitive (i.e. academic and general thinking) skills are directly related to productivity and growth; cognitive ability and non-cognitive skills (intended mostly as behavioral skills) are related to labor market outcomes; management skills are positively correlated with innovation and productivity, as are high level science, technology, math and engineering (STEM) academic and technical skills. World Bank (2011b).

³ World Bank (2011a).

quality in the production of goods and services. They place demands on skills and capacity for the continued learning of employees, and thus on the national education and training systems. Countries that only offer their multinational partners a cheap, disciplined, dexterous workforce are likely to become increasingly outperformed by countries that provide better educated and trained workers. Drawing lessons from the 9th and 10th NESDPs, which already sought to improve Thailand's competitiveness, the 11th NESDP emphasizes quality and continuity of skills development throughout the life of individuals – with effective skills utilization.

An export-led development strategy is helping move Thailand's economy up the value chain.

Learning by exporting, Thai firms have adopted new technologies (often by acquiring them from a parent company), introduced new production processes and developed new product lines. According to the Ministry of Commerce, Thailand's share of high-tech exports rose from 47 percent in 1995 to 71 percent in 2010. The automobile and computer industries have become top exporters, replacing textiles. Although Thai firms mainly assemble products as a large part of their added value, the increasing share of high-tech products in Thailand's exports indicates that production has been gradually moving from labor-intensive to more technology-intensive goods and services. Moreover, the creative economy (including functional design, media, traditional and cultural expression, and art) is expected to become a new source of growth for service exports. According to UNCTAD, Thailand is ranked 17th as a global exporter of creative goods. Royalties and license fees have sharply increased in recent years, partly driven by exports of software products and television programs.

Industries with high numbers of skilled workers have expanded their role in the economy, contributing to the demand for skills.⁴ In spite of the global economic slowdown, Thailand's automobile sector grew 65 percent in 2010, stimulated by a strong demand in both domestic and international markets. The increasing share of the automobile industry

(including completely-built units, especially passenger vehicles) in manufacturing is spearheading technological change in Thailand's economy.⁵ Such technological change is positively correlated with demand for educated workers, as shown in Thailand as well as China, Indonesia, and the Philippines. (Almeida 2009b)

Thailand's competitiveness and growth may already suffer owing to its workforce limitations.

According to the Global Competitiveness Index (GCI), Thailand's rank has fallen in recent years. An inadequately educated workforce and poor work ethic were cited among the top ten most problematic factors for doing business. (World Economic Forum, 2010) Among the competitiveness indicators, Thailand scored particularly poorly in the areas of "primary education and health" (ranked 80 out of 139 countries) and "higher education and training" (ranked 59), including the overall quality of the educational system (ranked 66), along with "technological readiness" (ranked 68). Thailand's GCI rank (38 out of 139 countries in 2010) places Thailand at an efficiency-driven stage of development. The findings suggest that workforce improvements are necessary to move Thailand to the innovation driven stage of global competitiveness.⁶

Workforce skills may be hindering Thailand's transformation into a knowledge economy.

Thailand's rank in the Knowledge Economy Index (KEI) weakened in the last decade – from 54 of 132 countries (in 2000) to 63 out of 132 countries (in 2009). This is largely due to the weaknesses in its economic incentive regime (ranked 66), education (ranked 64), and information and communication technology (ranked 64). The KEI reported a slightly better score for Thailand's innovation system (ranked 59).⁷ As in the case of the Global Competitiveness Index, these scores imply a considerable need for improvement in workforce development.

Enterprise managers perceive shortages of skilled labor as Thailand's top constraint to growth. The 2011 Doing Business data ranked Thailand 19 out of 183 economies in the ease of doing business. The 2007 Productivity and

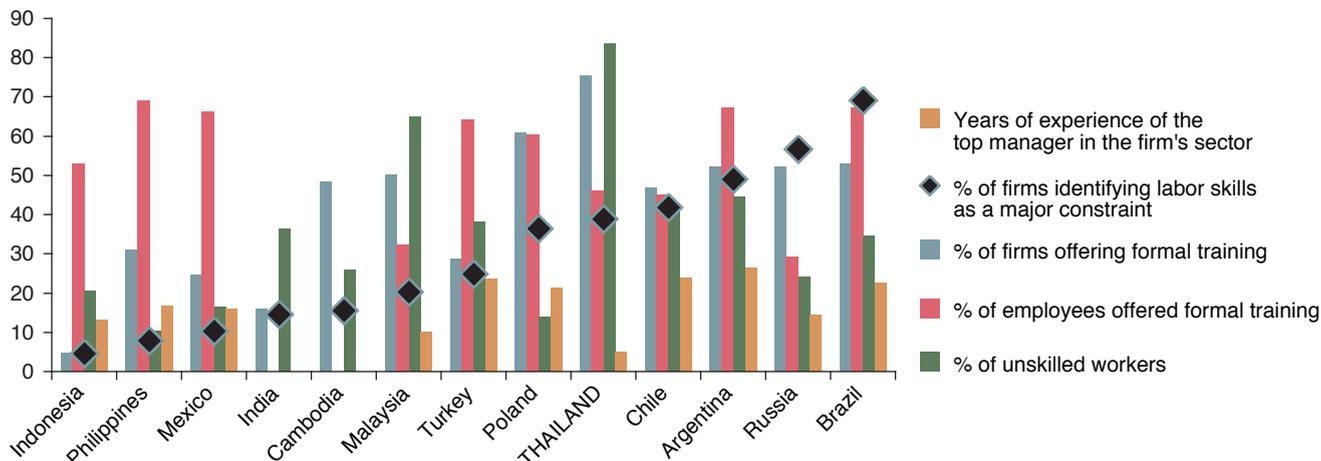
⁴ According to the Thailand Productivity and Investment Climate Survey (PICS) in 2007, industries with the largest share of workers with higher education (more than 12 grades) include the electronic components industry (31 percent of workers with higher education), electrical appliances and machinery/equipment (28 percent of workers with higher education), and automobile industry (27 percent of workers with higher education). Over two thirds of the workforce in these industries had secondary education (6-12 grades). Workforce with primary education accounted for 3 percent in electronic components, electrical appliances and auto parts, and for 8 percent in machinery and equipment industry. For discussion see World Bank (2008).

⁵ For discussion see World Bank (2011c).

⁶ For details see World Economic Forum (2010).

⁷ For KEI, please see World Bank KEI database. KEI includes 14 indicators. KEI assess the innovation system according to royalty and license fees payments and receipts, patent applications granted by the US Patent and Trademark Office, and scientific and technical journal articles. Education is assessed according to adult literacy rate and secondary and tertiary enrollments. For details see World Bank (2009a).

Figure 1 Firms in Thailand perceive skills shortages and engage in training provision



Source: World Bank's Enterprise Surveys, 2006-09.

Investment Climate Survey (PICS) indicated that Thailand is well placed in terms of infrastructure, regulation, and other objective investment climate measures; however, its traditional labor cost advantage is being eroded by fast growing countries and skill shortages that have become Thailand's biggest obstacle to doing business. In 2007, firms perceived skills and education of the available workforce as the 4th most serious obstacle to doing business in Thailand; the three preceding obstacles were macroeconomic instability, economic policy uncertainty, and corruption. About 40 percent of firms reported skilled labor shortage as one of their top three constraints to doing business (which is more than in comparator countries, including China, India, Indonesia, Korea, Malaysia, the Philippines, Poland, and Turkey, but lower than, for instance, Brazil and Russia, as shown in Figure 1).⁸ To compensate for these shortages, three-quarters of firms provide training to their workers.

Firms need an increasing amount of time to fill vacancies requiring high skills. The 2007 PICS showed that firms spent an average of 7.4 weeks to find a professional worker (up from 6.4 weeks in 2004), ranging from 6.0 weeks in central Thailand to 15.5 weeks in the northeast. Export industries needed an average of 7.9 weeks to find professional workers. For skilled production workers, firms spent an average of 5.2 weeks to fill a vacancy (from 3.6 weeks in north Thailand to 7.0 weeks in the east). Out of 64 countries with comparable data, Thailand ranked 53rd

in the amount of time needed to fill a vacancy for skilled production workers, exceeding the international average of 3.8 weeks by more than a third. This considerable amount of time to find workers makes job vacancies costly for firms. In fact, about 20 percent of firms in the garment, machinery, and equipment industries cite lengthy job vacancies as the main cause of capacity underutilization. (World Bank, 2008)

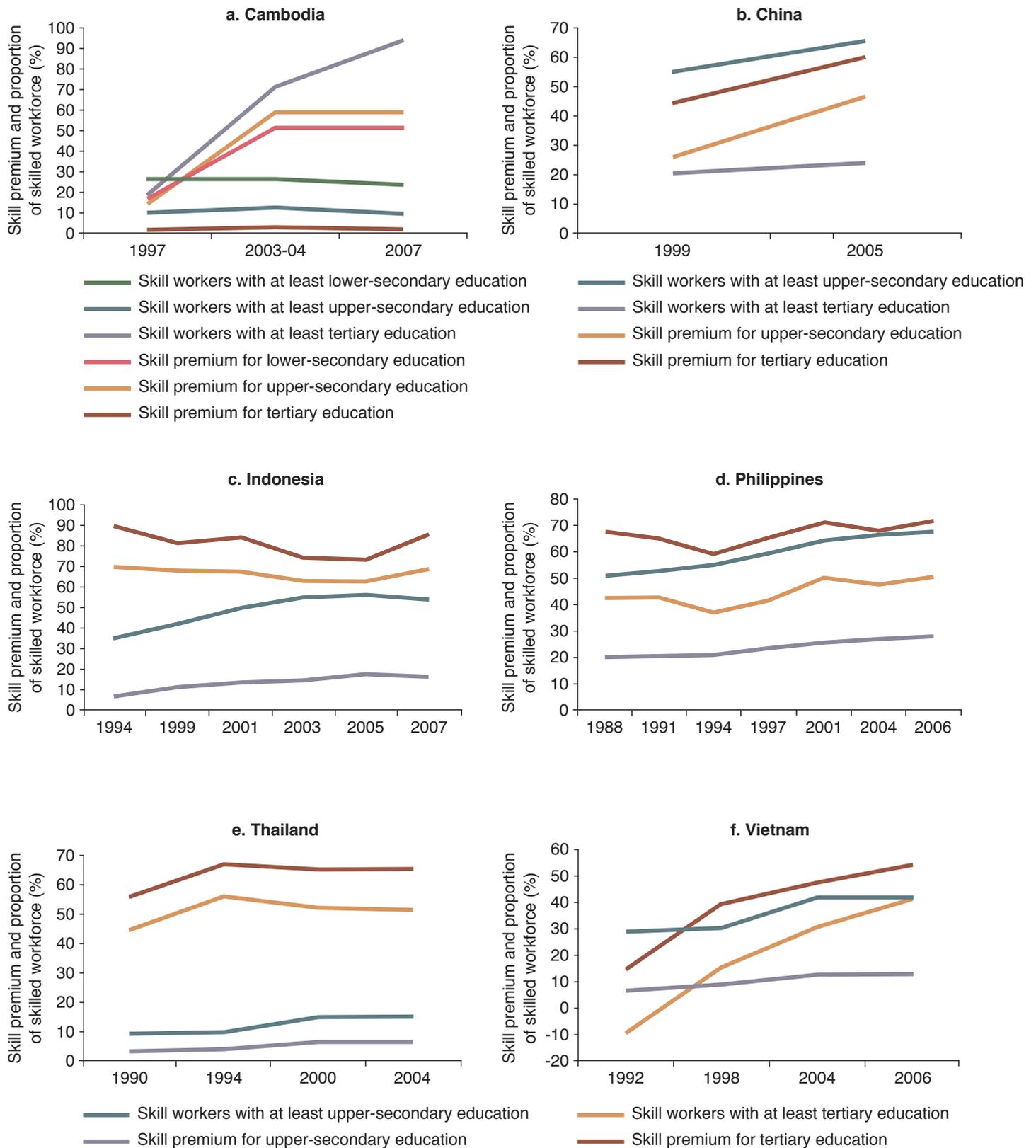
Shortages and mismatches of skilled labor have limited the ability of Thai firms to raise productivity. In Thailand's enterprise survey in 2007, 43 percent of firms reported a lack of knowledgeable and trained personnel as the main obstacle to innovative activities and to investment in research and development (R&D).⁹ This is worrisome given Thailand's overall low spending on R&D. Internationally, enterprise surveys suggest that the education of workers, along with knowledge spill-over, is the most important determinant of firm-level innovation.¹⁰ Educated workers are able to absorb and retain knowledge, and to generate, transmit, and implement new ideas and technologies. As technology may become more skill-biased and competitive pressures intensify, entrepreneurs and managers need more education and a larger number of skilled workers. Research shows that firms with the combination of not only substantial technology but also managers with more than a secondary education are more likely to hire skilled workers. (Almeida 2009a)

⁸ A comparison with the 2004 PICS findings suggests that in relative terms skills became a somewhat less serious obstacle to doing business in Thailand during 2004-07 (in 2004, workforce skills ranked as the second biggest obstacle to doing business, reported among their top three constraints by nearly 50 percent of firms). But although macroeconomic instability, economic policy uncertainty and corruption became more troubling, workforce skills clearly remained employers' major concern.

⁹ Lack of knowledgeable and trained personnel was reported as one of the top two constraints, along with high cost of innovative activities and R&D (reported as main constraint by 44 percent of firms). For details, see World Bank (2008)

¹⁰ World Bank 2011a. Less significant factors include the general investment climate, the regulatory system, crime rates, restrictiveness of labor laws, and access to financing (especially for smaller firms).

Figure 2 Wage premiums are relatively high in Thailand's industries



Source: Di Gropello and Sakellariou (2010).

1.2 Skills can help improve equity, social mobility, and self-insurance against risks

Thailand's policymakers are concerned about income inequality and social mobility. At 40 percent, Thailand's gini coefficient is higher than that of most countries in Europe or Asia (although lower than China's or the Philippines'). The richest quintile of the population outspends the poorest quintile by seven times. (World Bank 2011a) Such large disparities in wealth and spending, especially when that wealth is perceived to be generated in ways lacking legitimacy, have the potential to weaken social cohesion and fuel social strife.

Thailand has expanded access to basic social services, but many are still deprived of adequate skills development opportunities. There is a good effort to ensure universal access to essential health care and basic (compulsory 9-year) education. Primary education is free; however, location, school quality, household income, and parental education largely determine young people's readiness to proceed to upper-secondary education and beyond. Consequently, as discussed in Section 2.2, post-secondary enrollment in Thailand is highly unequal.

Inadequate skills limit income opportunities amid the poor. Nearly 90 percent of Thailand's population is in the lowest income quintile and dependent on agriculture as its main occupation. The gap between those dependent on agriculture and those with other employment opportunities is an important contributor to income inequality. By raising both productivity in agriculture and employment, a wider access to skills development opportunities can promote equitable income opportunities and increase the country's competitiveness.

Higher wages confirm the demand for skills even as the supply of skilled labor has grown. The share of workers with tertiary education in the larger industries has nearly doubled over the past two decades, reflecting rapid expansion of tertiary enrollment. (Di Gropello and Sakellariou, 2010) Nonetheless, skill premiums have been on the rise for upper-secondary and tertiary education, with a significant differentiation across sectors. The wage premium for tertiary

education over secondary education was about 120 percent in the early part of the last decade (although declining somewhat with the global recession during 2008-10). This is the highest level among the surveyed countries in East Asia Region, as illustrated in Figure 2.¹¹ In particular, skill premiums have remained strong in manufacturing and trade, while declining in agriculture and mining (Figure 3). Labor force and household surveys suggest that demand for skills is becoming increasingly sector-specific, with energy, finance, communications, and healthcare offering the highest remuneration. Moreover, industry premiums have been increasingly contributing to wage differentiation in Thailand, suggesting that labor markets may be suffering from segmentation.¹²

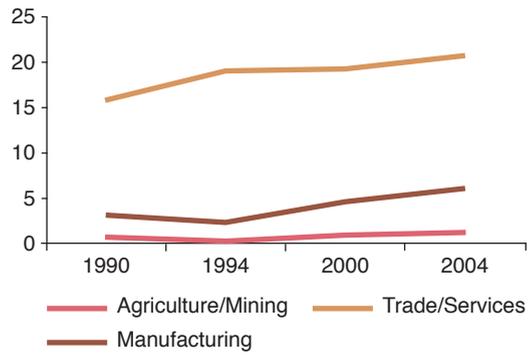
The ability of labor to move freely will influence inequality in the future. With rapid technological progress and continually changing composition of growth, the ability of people to shift across regions and industries – taking advantage of these emerging sources of growth – will determine their income and wealth. This will largely depend on how smoothly labor and other market factors function to provide necessary information, signals, and incentives to all parts of the population. Segmentation and roadblocks in the labor market – and hence weaknesses in labor market policies – are likely to have increasing consequences for inequality.

Skills will also influence inequality. The ability of people to find productive employment in the changing economic environment will increasingly depend on their skills. General skills make workers employable in a wide and changing range of jobs. Their skills protect them against labor market risks – even when conventional unemployment insurance cannot. From the household perspective, skills provide a means to self-insure against economic disruptions. Moreover, further technological progress is likely to make all spheres of economic activity, including the agricultural sector, more skill-intensive. Hence access to skills is likely to continually affect income disparity.

¹¹ Lathapipat (2010) and World Bank (2011a and 2011b).

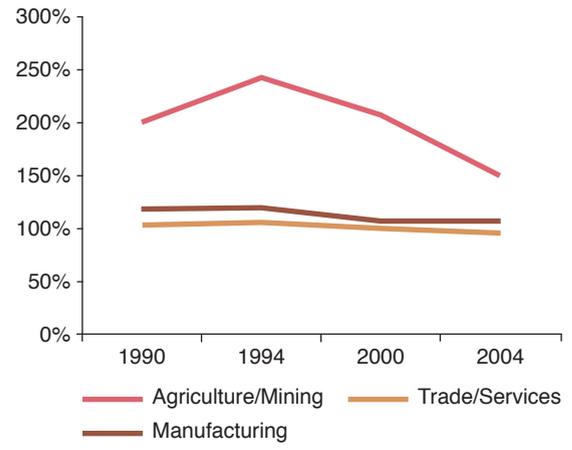
¹² Patmasiriwat (2011) and Di Gropello and Sakellariou (2010). The latter analysis of labor and household surveys over the past decade suggests the following main trends: a) increasing proportions of skilled workers across the region; b) increasing demand for skills in the region; c) increasing industry premiums in three countries of the region, namely Cambodia, the Philippines, and Thailand. Surveyed countries included Cambodia, China, Indonesia, Mongolia, the Philippines, Thailand, and Vietnam. The study defined skilled workers as workers with upper secondary and above levels of education.

Figure 3 Share of workers with tertiary education rose in manufacturing and trade/services ...



Source: Thailand labor and household surveys.

... and returns to tertiary education in manufacturing and trade/services remain strong



Source: Thailand labor and household surveys.

2

WHAT ARE THE CONSTRAINTS IN SKILLS DEVELOPMENT AND UTILIZATION?

This section presents available evidence on skills gaps and mismatches in Thailand from the perspective of both the employers and the providers of skills. It identifies a number of important skills imbalances facing the economy. Finally, it reveals the underlying causes of these gaps and mismatches as market failures and points to possible actions in response.

2.1 What skills gaps and mismatches do employers face?

Manufacturers in Thailand face difficulties in filling job vacancies. In Thailand's enterprise survey (PICS 2007), an average of 30 percent of firms reported a shortage of skilled production workers, including nearly 50 percent of auto parts firms, 34 percent of firms in machinery and equipment, and 32 percent of firms in electronics and electrical appliances (Figure 4). Furthermore, 20 percent of firms reported shortages of professional workers and 48 percent of firms lacked unskilled production workers. Although job vacancies of skilled workers are relatively fewer than those of unskilled workers, they take about three times longer to fill. (World Bank 2008)

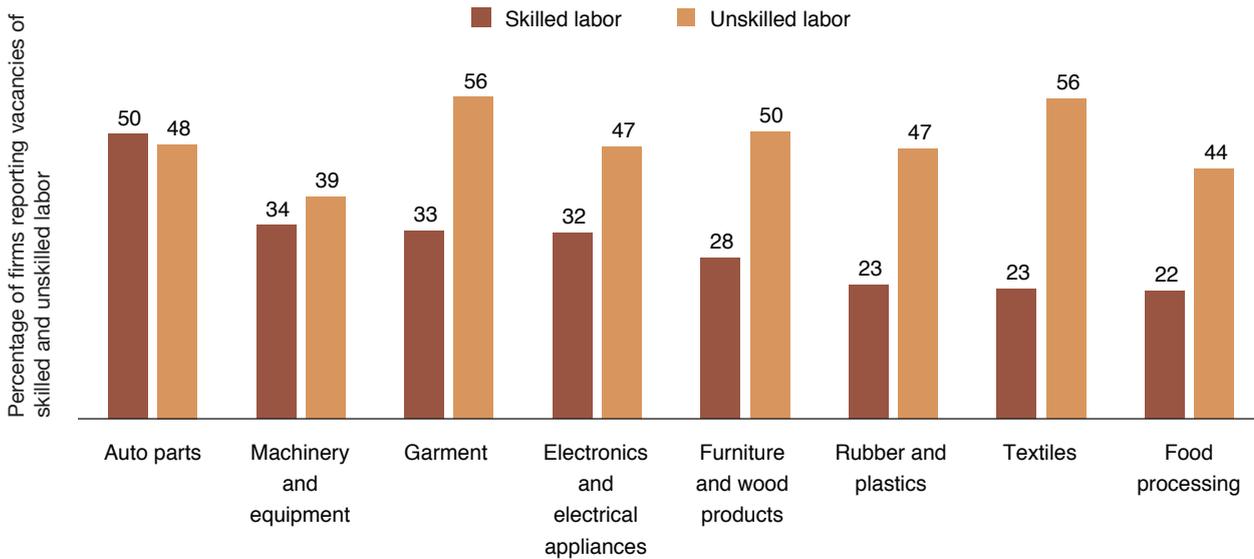
A lack of basic and technical skills – rather than a shortage of university graduates – help explain the prevalence of job vacancies. As Figure 5 illustrates, firms in Thailand complain about high turnover of new recruits and the lack of required basic and technical skills among

applicants. The shortage of skills seems to arise largely from skills mismatches in the labor market. Less than only 4 percent of surveyed firms responded that universities are not producing enough graduates. Skills shortages have also contributed to the observed high turnover of new recruits because they generate an intense competition among firms for qualified labor.

Weaknesses in information technology, English, creative thinking, and behavioral skills are pervasive. Nearly all firms and about a quarter of skilled workers rank skills in English and IT as the most serious skill gaps (Figure 6). Other basic *academic* skills, namely numerical skills, come next, as perceived by both firms and skilled workers. Skilled workers also point out weaknesses in *technical* skills. Both firms and skilled workers indicate, however, that gaps in *generic* skills are the most pervasive.¹³ Creative thinking and problem solving rank high among

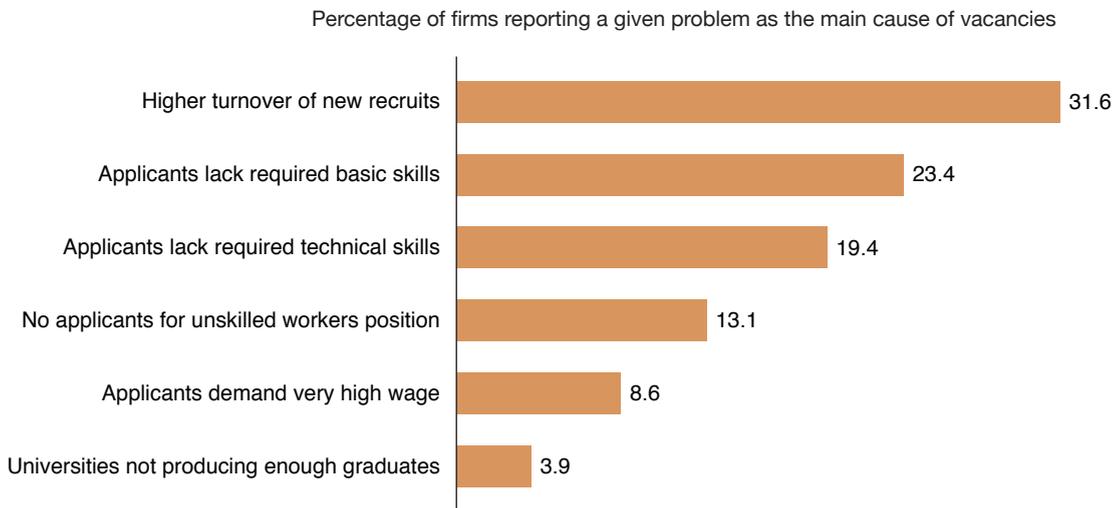
¹³ *Generic* (or life) skills refer to a broader set of skills transferable across jobs and from education to employment. They include thinking (critical and creative thinking, and problem solving), behavioral (communication, organization, teamwork, time management, the ability to negotiate conflict and manage risks, and leadership skills) and computing skills. *Academic* skills are directly measured and are associated with subject areas (such as English, math and literacy). *Technical* skills are a mix of specific knowledge and skills to perform specific jobs.

Figure 4 Manufacturing firms in Thailand report major shortages in both skilled and unskilled workers



Source: Thailand PICS 2007.

Figure 5 Firms report lack of required basic and technical skills among the main reasons of job vacancies



Source: Thailand PICS 2007.

generic thinking skills. Among generic behavioral skills, the widest skill gaps appear in leadership, communication, time management, social skills, adaptability, and teamwork. Most academic, generic, and technical skills can be acquired in institutional settings like schools and training centers. Other generic skills, such as creativity and adaptability, are best originated in early childhood. Recent literature emphasizes the importance of generic skills, both in the process of human capital development and as a determinant of schooling and employment outcomes.¹⁴

Despite the high turnover, many employers are active trainers. Thailand’s 2007 PICS indicated that over 75 percent of firms provide formal training and 46 percent of employees benefit from such training (Figure 1). Across industries, nearly all automobile, auto parts, and electronic components firms provided training. On the other hand, only one-half of garment and furniture firms offered any training.

¹⁴ For discussion, see for instance World Bank 2011b.

Enterprise size, capital and skill intensity, and technological change are positively associated with employer training.

Econometric analysis using the Thailand 2007 PICS data suggests that larger firms, firms with capital-intensive production, firms with a higher share of educated and technical workforce, and firms investing in R&D are more likely to provide both in-house and outside training to their workers. Among firms, 93 percent of large firms (with more than 200 employees) and 72 percent of medium-sized firms offered in-house training compared to 29 percent of small firms (with fewer than 50 employees). Similarly, 88 percent of large, 70 percent of medium-sized, and 37 percent of small firms offered outside training.¹⁵ On average, only about one-third of small firms train, which stands out against the relatively strong returns to such training.¹⁶ In particular, analysis of the employee panel data in Thai manufacturing industries showed significant returns to both on-the-job and outside training, including robust returns for informal on-the-job training.¹⁷ This analysis also shows that technological change is positively correlated with provided training and increased returns for on-the-job training.

Firms largely use their own staff to conduct in-house training and non-academic government institutions for outside training. In-house training mainly covers unskilled workers, while the majority of outside training benefits skilled production workers, professionals, and managers. Supervisors,

managers, full-time internal trainers, and experienced workers conducted nearly two-thirds of in-house training. Government and non-government institutions and training consultants accounted for 19 and 12 percent of in-house training, respectively. In contrast, government and non-government institutions and private training schools served as providers of 53 and 31 percent of outside training, respectively. Active providers of outside training include the Department of Skill Development of the Ministry of Labor, Thailand Productivity Institute, the Federation of Thai Industries, Thailand Management Association, and Technology Promotion Association. As Figure 7 illustrates, outside training focused on quality and safety management, and production technologies.

Thailand's labor market provides incentives for households to invest in skills development.

Economic rates of return to education for the worker are estimated from 14 percent to 16 percent. (Warunsiri and McNown 2009) As Figure 8 shows, hourly wages of graduates with a master's degree exceed those of upper-secondary graduates by a factor of four.¹⁸ Higher earnings are an incentive to those who invest in additional years of schooling. At the level of tertiary education, wage premiums are highest in the fields of health science, physics, and engineering. (Patmasiriwat, 2011) The next section explores whether these signals are sufficient not only to attract students but also to generate skills in such crucial disciplines.

2.2 What are the weaknesses in providing and matching skills with employment?

The StEP framework (Skills toward Employment and Productivity) helps organize the analysis of skills development issues and policies. As shown in Figure 9, skills development occurs in different settings.¹⁹ Namely, the StEP framework includes five steps: (1) starting the foundation for skills development in early childhood; (2) ensuring that all students

gain basic skills at school age; (3) building job-relevant skills at the pre-employment stage (when individuals are acquiring higher education and vocational and technical skills in apprenticeships, schools, and training centers) and the employment stage (when workers are upgrading skills and re-skilling for employment in a changing market); (4) encouraging

¹⁵ Thailand Development Research Institute (2008).

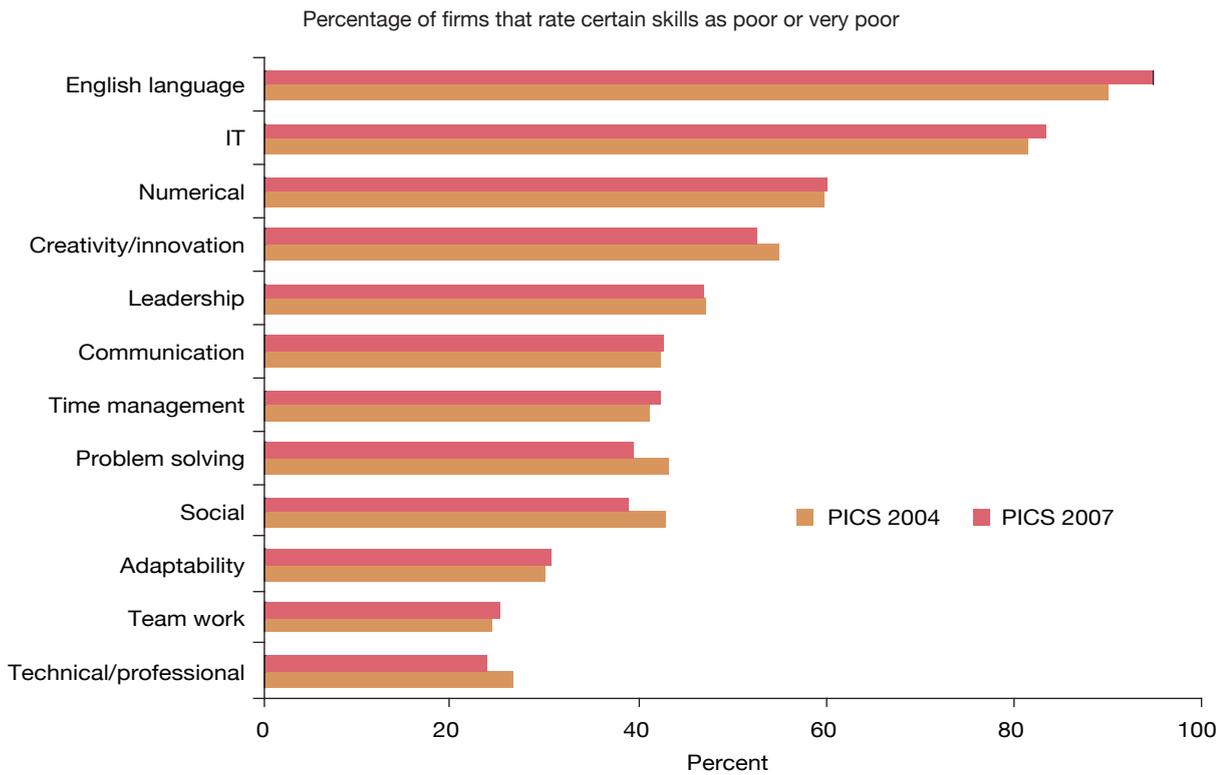
¹⁶ Yamauchi et al 2009.

¹⁷ Pholphirul 2011 and Yamauchi et al 2009. Yamauchi et al (2009) used in first-difference fixed effect estimation of wage equations, controlling for technical changes which differentially influence training investments and the returns.

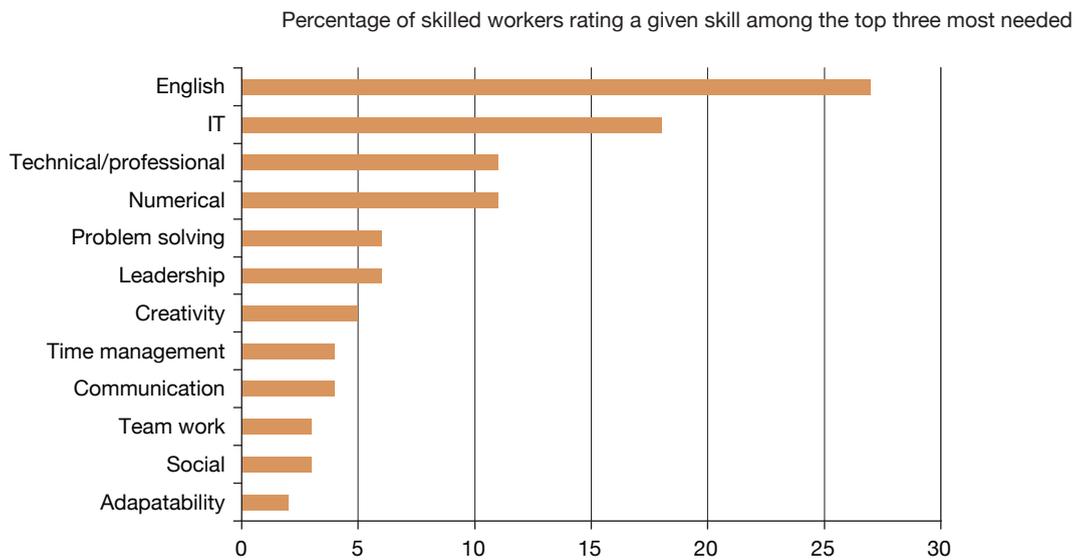
¹⁸ The wage gap between tertiary and secondary education graduates expanded during the last two decades. The pace of the relative demand shift favoring tertiary graduates appears to have accelerated after the 1997 financial crisis and may have slowed down more recently, during the global recession. (Lathapipat 2010 and Di Gropello and Sakellariou 2010)

¹⁹ Formal schools equip youth with the skills needed by a modern market economy providing a foundation of basic education on which to build higher level skills, including technical and vocational education. Non-formal training offered by public and private training centers help develop the skills required for initial employment and for later upgrading in response to the needs of a changing economy. Skills are further augmented by the investment of employers in their workforce through apprenticeships, on-the-job training, and other enterprise-based learning. Policies that encourage equitable access to and efficient utilization of skills throughout the life cycle are essential for meeting the goal of ideas-led growth with equity.

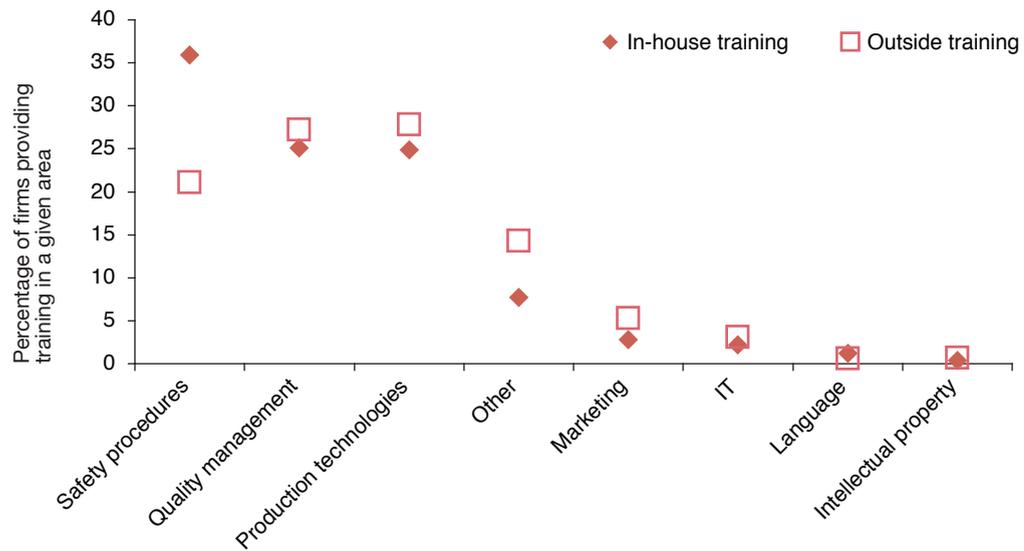
Figure 6 Nearly all firms in Thailand rate labor skills in English and IT as poor or very poor; similarly, skilled workers rank English and IT skills as most needed



Source: Thailand PICS 2004 and 2007.



Source: ICS workers' modules 2004.

Figure 7 Firms provide training focusing on safety, quality and production technologies

Source: Thailand PICS 2007.

entrepreneurship and innovation; and (5) facilitating labor mobility and job matching. The StEP framework recognizes that social investment in services from early childhood interventions to active labor market policies not only promote productivity but also extend the working life and contribute to equity. Importantly, the framework helps assess institutions and policy that offer the highest returns in generating skills and transforming them into productivity and equity gains.

Step 1. Starting right: The damaging effect of iodine deficiency

Internationally, there is a growing recognition that early child development (ECD) establishes the foundation for skills development for a person's entire life. Nobel Laureate James Heckman and others have demonstrated that ECD is the most cost-effective form of human capital investment compared with any other subsequent schooling.²⁰ Three types of outcomes in early childhood are critical for future development in life: (a) physical growth and well-being; (b) cognitive development; and (c) socio-emotional development. ECD policies and programs can directly affect these outcomes and therefore benefit both individuals and societies.

Empirical evidence shows effective early childhood development programs have a very high payoff. Evidence has proven that interventions in the form of mother's health and knowledge, child nutrition (including nutrient supplementation and salt iodization), and activities to promote cognitive and socio-emotional development of young children (such as positive caring practices, rich language, and exploration opportunities) have a positive impact on school preparedness and learning performance throughout a person's lifespan with strong social and private returns on such investments.²¹ Conversely, international evidence shows that the handicaps built early in life are difficult, costly, and sometimes impossible to remedy later.

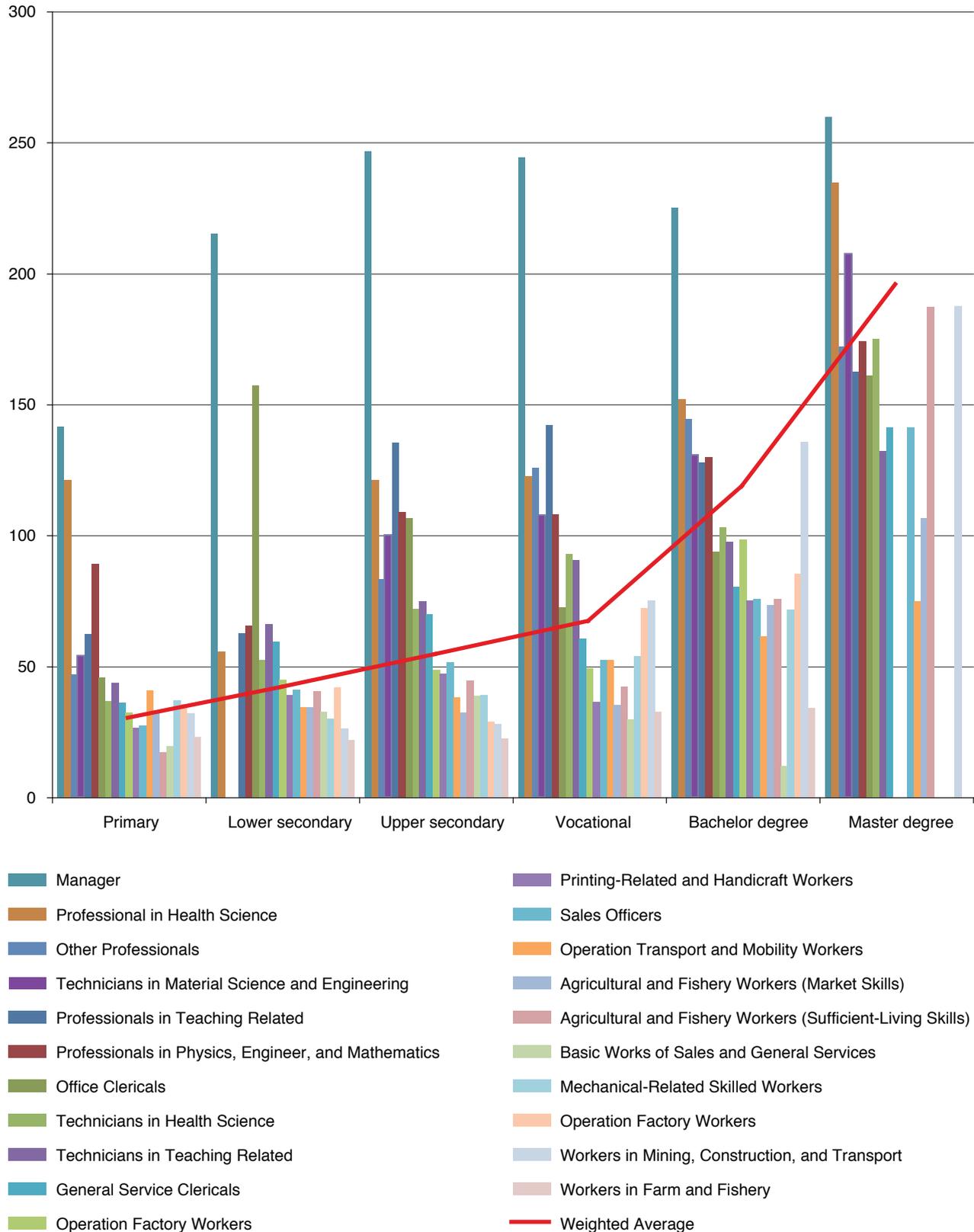
Thailand is quite advanced in reducing malnutrition and in promoting maternal and child health and in pre-primary education. The 2006 Multiple Indicator Cluster Survey (MICS)²² indicates that among children aged 0-4 years in Thailand, about 9 percent are underweight, 12 percent are stunted, and 4 percent are wasted (acutely malnourished). Although there is still capacity for improvement, these results are relatively good by regional standards. Households have universal access to essential health care for children and benefit from special programs such as Healthy Child Development

²⁰ See, for instance, Heckman, Stixrud, and Urzua (2005). Early childhood development is generally taken as the period from when a child is conceived to when that child is six to eight years of age.

²¹ For details, see for instance Alderman 2011, Nores and Barnett 2010, and Barnett 2008.

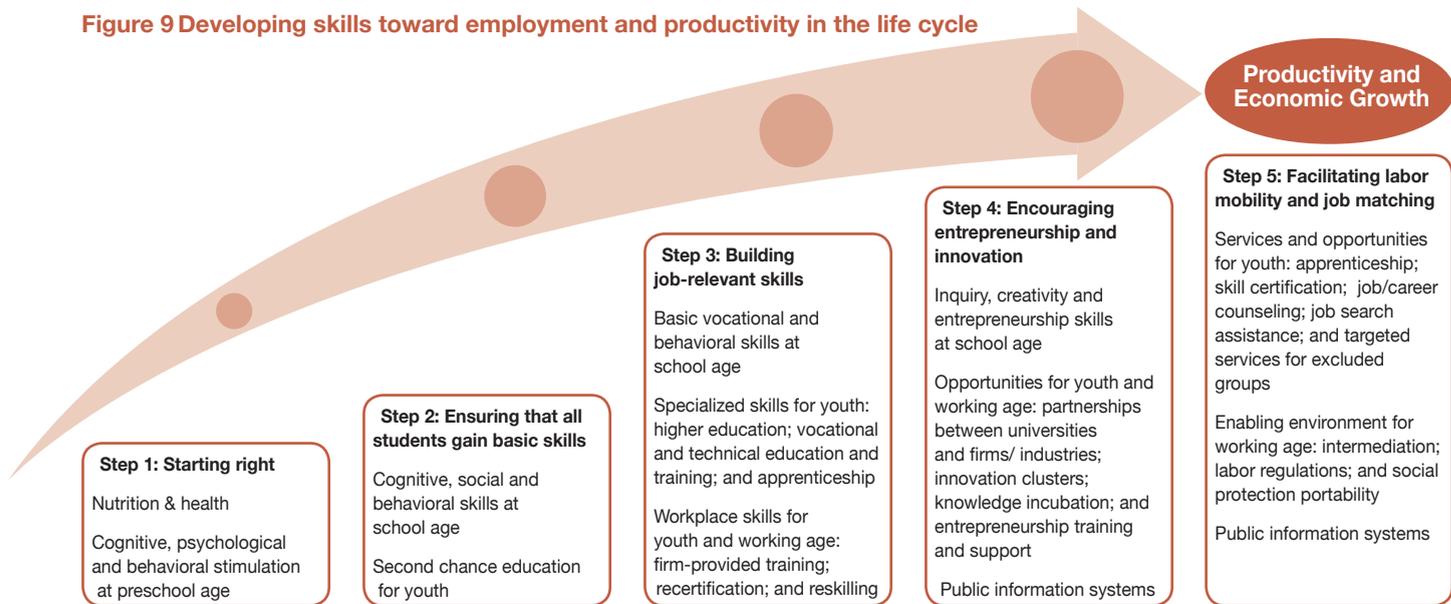
²² National Statistical Office (Ministry of Information and Communication Technology). Year 2006 is the most recent available.

Figure 8 Hourly wage by education and occupation (baht)



Source: Thailand labor force survey, 2008.

Figure 9 Developing skills toward employment and productivity in the life cycle



Source: Adapted from World Bank (2010b).

Corner, Nutrition Dental Development Corner, parenting education, and a special curriculum for stimulating early child development. About two-thirds of children 3–4 years of age attend pre-school or kindergarten²³ with a curriculum developed by the Ministry of Education and supervised by the Educational Service Area (ESA) offices across regions. Earlier survey analyses showed that participation in pre-primary education in Thailand has been associated with better performance in primary education.²⁴

A uniquely serious ECD problem in Thailand is iodine deficiency, which erodes intellectual capacity and negatively affects learning and productivity of children later in life. A survey conducted by the Ministry of Public Health in 2009 showed that the average IQ score among Thai children is 91 – low by international standards.²⁵ Among children in poor areas, such as Thailand’s north and northeast regions, children’s average IQ scores are about 85.²⁶ Recent studies indicate these low IQ scores may be associated with iodine deficiency.²⁷ For instance, the neonatal thyroid stimulating hormones screening program (which covered 94

percent of live births in Thailand in 2007–2008) found 20 percent of new-borns in Thailand were iodine deficient and at risk of brain damage and IQ loss. Internationally, the average IQ of an iodine deficient population is estimated to be 10 to 15 points lower than that of a population with adequate iodine. To illustrate this finding, Picture 1 demonstrates a much higher growth of interconnections among brain cells in iodine-sufficient people compared to people with an iodine-deficient brain.

The Thai government has not effectively addressed iodine deficiency disorders (IDD). The primary source of iodine in the human diet in Thailand (as well as most other countries) is iodized salt. The 2006 MICS data shows, however, that about only one-half of households in Thailand use iodized salt. The use of iodized salt in Thailand is much lower than in other countries, including countries at lower stages of economic development (Figure 10). The failure to use iodized salt is especially pervasive in the northeast, where only one-quarter of households use iodized salt, and among the lowest income quintile households of which less than one-third

²³ The Child and Youth Survey 2008, National Statistical Office (Ministry of Information and Communication Technology).

²⁴ See for instance, Raudenbush, Kidchanapanish and Kang (1991).

²⁵ In 2004, a similar survey in Thailand found child IQ scores even lower than in 2009. Internationally, the average child IQ score is 90–110 (104 in developed countries), correlated with economic development and disease prevention among others.

²⁶ In 2004, Ramathibodi Hospital conducted nationwide survey involving randomized sampling of 9,488 children aged one to 18 years, using the “Test of Non-Verbal Intelligence, 3rd Edition” methodology.

²⁷ See, for instance ICCIDD (2009) and UNICEF (2010). Iodine is essential for the development of thyroid hormones, which are needed for optimal mental and physical development and regulation of the body’s metabolism. From conception, an infant’s brain requires iodine to develop the dense network of interconnections among brain cells. Without enough iodine, this connective network is less dense, potentially compromising the child’s mental capacity for life. Internationally, iodine deficiency disorders are the leading cause of preventable intellectual disability, brain damage, and impaired psychomotor development in young children.

use iodized salt. In 2006, the Thailand National IDD Control Board confirmed the importance of IDD control for IQ development of the Thai population and launched a five-year master plan for IDD control (2006-2011). But the legal, regulatory, and policy implementation framework – particularly with respect to the production and use of iodized salt – have been relatively weak.²⁸

Step 2. Ensuring that all students gain basic skills: Basic education quality concern

Thailand has achieved a nearly universal coverage in basic education. In accordance with the National Education Act (NEA), nine years of basic education is compulsory and generally accessible to all children regardless of income, location, gender, and residence status. According to the Ministry of Education (MOE), gross enrollment rates have exceeded 100 percent for primary education since the 1990s. In the last decade, the rates for lower-secondary education have increased from 83 to 95 percent. School dropouts have averaged about 1.1 percent per year at the primary level and 2.4 percent per year at the lower-secondary level. Non-formal basic education programs, supervised by the MOE, aim at providing out-of-school young people and adults with basic literacy, numerical, problem solving, and IT skills at the primary and secondary level.²⁹

Ensuring that children learn in schools remains a challenge. The 2011 O-NET tests, administered by the National Institute of Educational Testing Service (NIETS), reported pass rates for grade 6 (*Prathom 6*) students of 31 percent and 35 percent in Thai language and mathematics, respectively, which is short of the 40 percent target set by the Office of Basic Education Commission. Similarly, the Program for International Student Assessment (PISA) results indicate a somewhat disappointing performance by the Thai 15-year old students during the past decade, barely meeting the average level in OECD countries (as shown in Figure 11) and comparator countries, such as Korea and Singapore. The Trends in International Math and Science Studies (TIMSS) exams given to fourth and eighth grade students show a similar pattern: for eighth graders, math scores on the TIMSS fell in Thailand from 467 in 1999 to 441 in 2007. Similarly, science scores fell from 482 to 471. The absence of

improvement in student performance contrasts with Thailand's public expenditure on education, which increased by 50 percent from 2000 to 2009, reaching 4 percent of GDP.³⁰ However, as Figure 12 illustrates, Thailand is not alone in experiencing the difficulty of translating resources into results.

Weaknesses in student performance may have negative implications for economic growth. International evidence suggests that the quality of education is more closely associated with economic growth than the amount of years of education. (Hanushek and Wößmann, 2007) Among students, the share of top performers appears low in Thailand (for instance, 5 percent compared to the OECD average of 9 percent of students in science, as illustrated by the PISA 2009 data in Annex 1). The low share of top performers graduating from secondary schools is likely to impede Thailand's performance in higher education, research, and innovation. More broadly, as the World Bank (2012) report summarized, students' academic performance today will determine the roles they will play in tomorrow's world. Furthermore, it will determine the competitiveness of Thailand's economy in the future. Low academic achievement can have negative consequences for the students' future work and income prospects and for their ability to participate fully in both the economy and society.

The uneven quality in secondary education in Thailand restricts upward social mobility. Thailand has a high proportion of students performing at the lowest proficiency level (43 percent compared to the OECD average of 18 percent of students, for instance, in science), which limits their life-time skills development and income potential. Student achievement appears correlated with household socioeconomic characteristics, school characteristics (such as governance structure), and the local economic conditions (weaker in rural areas).³¹ Figure 13 and Figure 14 show the disparity of O-NET language scores across provinces and across schools in regions of the country. The region with the lowest school-level O-NET scores (namely the northeast as shown in Figure 14) also had the lowest scores on all PISA tests.³² The northeast also has the highest poverty rate, the quickest rise in inequality, the lowest use of iodized salt, and the lowest public expenditure per capita on education in Thailand. (World Bank, 2011f)

²⁸ UNICEF (2010).

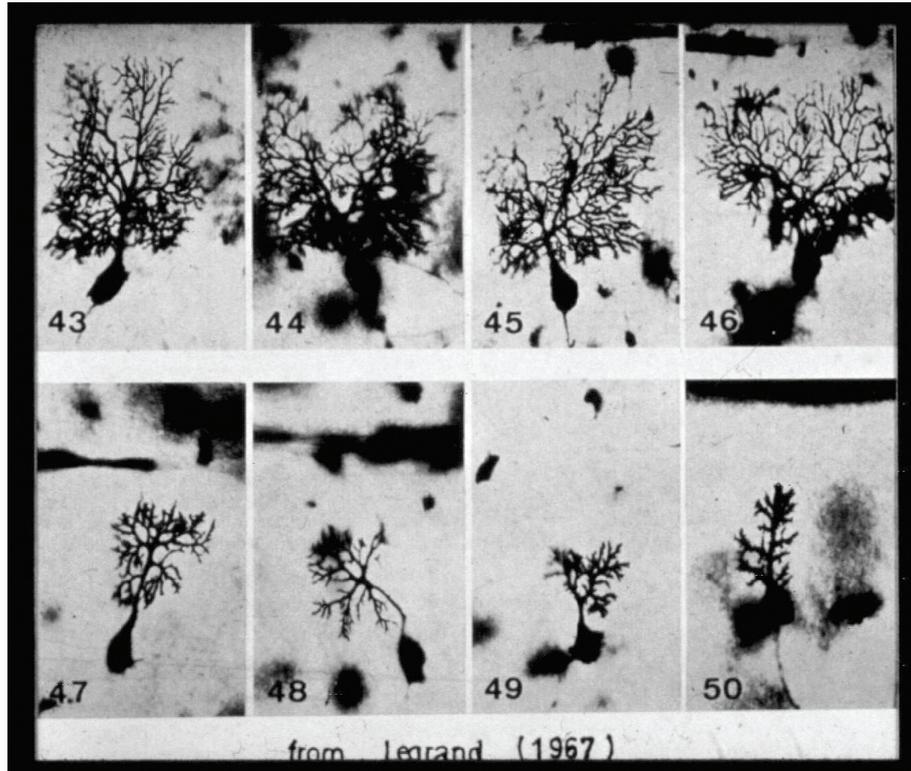
²⁹ The term "non-formal" training refers to the fact that those completing this training receive a skill qualification, but this generally does not open pathways to further formal education.

³⁰ Household education expenditure accounts for additional 1 percent of GDP. For discussion of Thailand's education expenditure, see World Bank (2011f and 2012) and Parandekar (2011) provide detailed analysis of Thailand's learning outcomes and lessons from international assessments.

³¹ See for instance World Bank (2012), Parandekar (2011), Patmasiriwat (2011), and World Bank (2009c).

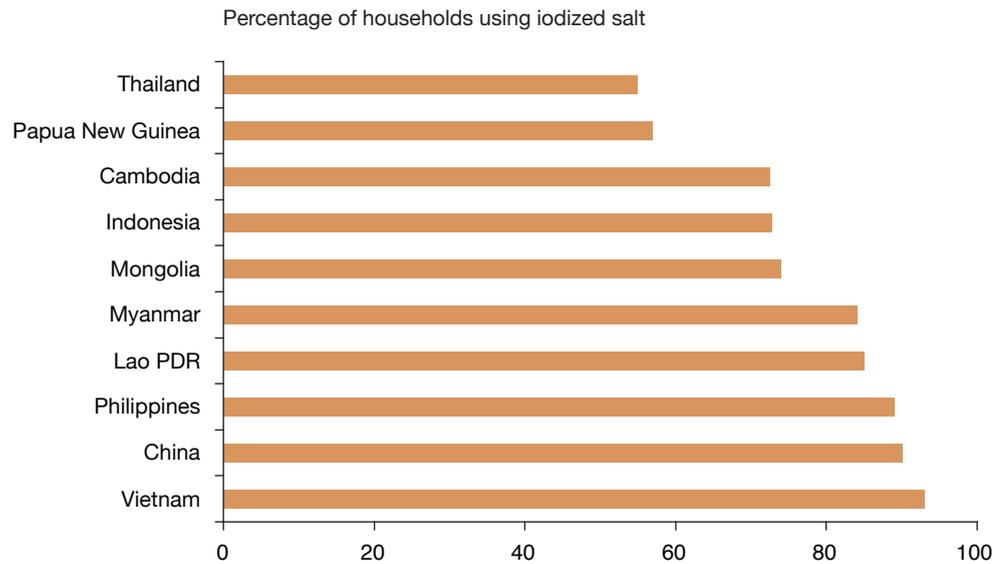
³² World Bank (2012).

Picture 1 Iodine-deficient brain fails to develop adequate interconnections among brain cells



Source: UNICEF 2010.

Figure 10 Thailand's use of iodized salt is among the lowest in the region



Source: UNICEF 2010 and MICS 2006 (National Statistical Office, Ministry of Information and Communication Technology).

The government is continuing to strengthen measures to ensure that students gain basic skills. The National Education Plan (2002-2016) promotes a balance between educational development toward economic competitiveness and cultural self-reliance. The government aims at ensuring minimum quality standards for basic education for all; it has also established a fast track for high-achieving students. New pilots, such as One District One Lab School, English Program Schools, and the Information and Communication Technology Schools, aspire to develop centers of educational quality countrywide. The Office for National Education Standards and Quality Assessment (ONESQA), established under the NEA, is gradually 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.

Step 3. Building job relevant skills: The relevance and equity challenge in higher education

Several channels of the education and training system contribute to developing employable skills. At the pre-employment stage, these channels include formal upper-secondary education, second-chance education, apprenticeships, technical and vocational education and training (TVET), and tertiary education. At the work and re-skilling stage, other providers outside schools and formal education help workers not only to upgrade their skills but also to acquire new skills for a changing labor market. Beyond the Ministry of Education (MOE), there is a diverse community of skill providers: they include non-formal training of employable skills offered by other government bodies such as the Ministry of Labor; in addition, employers and non-government providers also provide such skills – both for profit and non-profit.

The coverage of formal education in developing employable skills is relatively wide. At the upper-secondary education level (general and vocational), enrollment increased

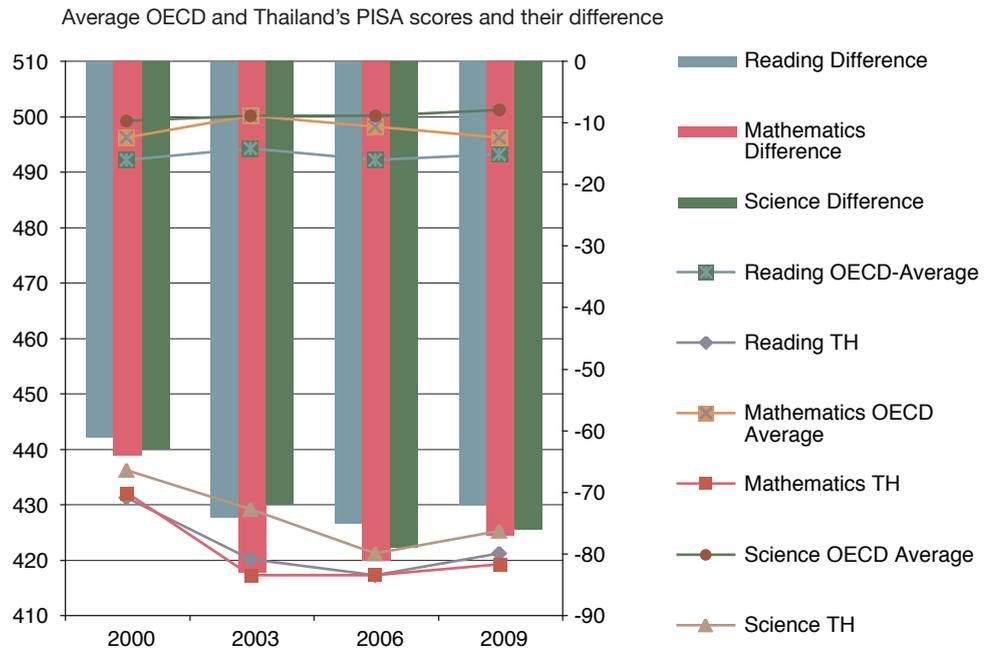
from 57 to 68 percent from 2000 to 2008, with dropout rates at about 2.2 percent per year. The share of 15-19 year old young people who completed secondary education increased from 16 percent in 1990, to 31 percent in 2000, and further to 41 percent in 2010.³³ According to the Ministry of Education (MOE), higher education enrolled over 60 percent of the tertiary age group in 2008 (45 percent according to EdStats, which excludes some distance learning in “open admissions universities”). Tertiary enrollment exceeds the expected level for Thailand’s per capita income (Figure 15) and compares favorably with countries like Brazil, China, and India.³⁴ The share of 20-24 year old young people who completed tertiary education increased from 5 percent in 1990, to 10 percent in 2000, and further to 29 percent 2010. Formal technical and vocational education offered by the MOE accounts for about one quarter of upper-secondary enrollment and one-fifth of tertiary enrollment. At the upper-secondary level, technical and vocational enrollment thus falls short of the government’s target of 60 percent for total enrollment. This partly reflects the poor image and perceived quality problems of technical and vocational education in Thailand. However, it contrasts with the evidence of favorable economic rates of return to upper-secondary vocational education compared to general education at the same level. (Moenjak and Worswick 2003)

Non-formal training for job relevant skills is especially suitable for those who have left the formal school system. Training centers under the Ministry of Labor provide pre-employment training, programs to upgrade skills of the employed, and retraining for those seeking job changes. This part of the non-formal training system, however, has a limited capacity. Moreover, it provides training of uneven quality as influenced by the disparity in its facilities, equipment, and instructors’ qualifications. Furthermore, it does not evaluate its labor market outcomes. Similarly, the performance of private providers that form a large part of the non-formal training system is uneven and subject to little evaluation. Larger and more capital-intensive employers, as shown in the preceding PICS data, are active trainers. Enterprise-based training is, however, not readily available to those in small firms or with limited education.

³³ EdStats database.

³⁴ At the beginning of the 1990s, with the exception of Cambodia, Thailand had the lowest educational attainment of the working population, as reflected in the average years of schooling as well as the proportion of workers with secondary or higher qualifications. Between 1990 and 2004 educational attainment in Thailand increased dramatically at all levels, especially at the upper secondary and tertiary levels with the proportion of workers with upper secondary and tertiary qualifications doubling during the same period. (Di Gropello and Sakellariou, 2010)

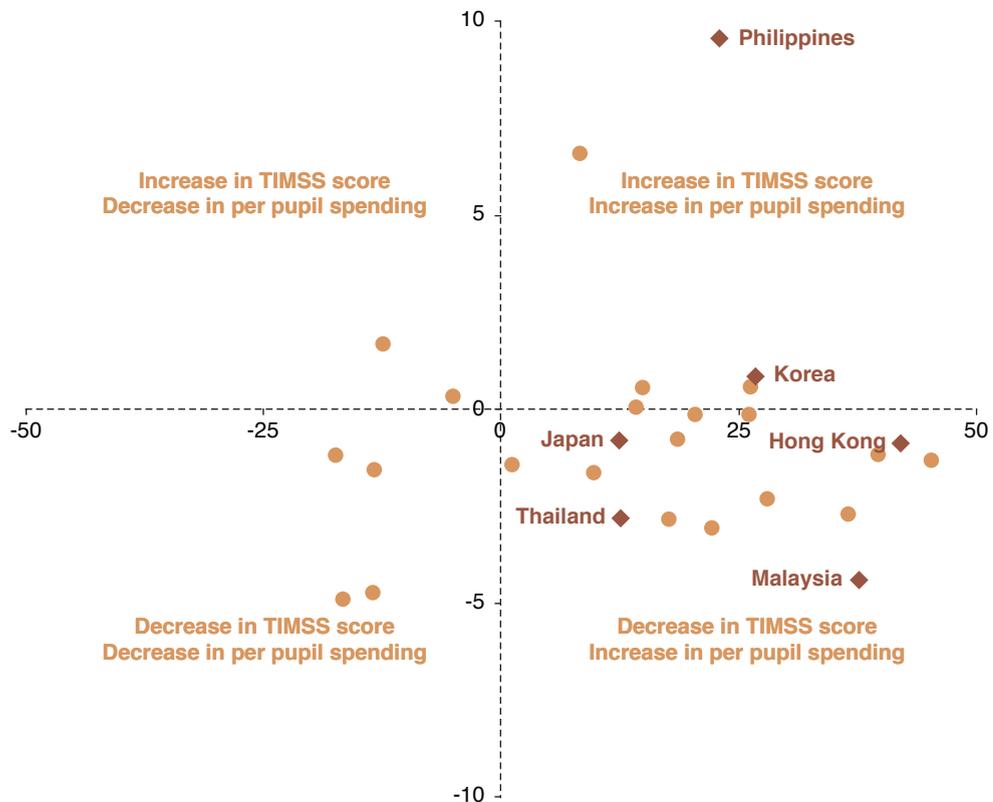
Figure 11 Thailand's basic education performance falls short of OECD standards



Note: Left axis: PISA scores, Right axis: Difference in PISA scores.

Source: PISA 2000-2009 Results (OECD database).

Figure 12 Increasing education expenditure does not automatically improve results



Note: Y-axis: Change in grade 8 mathematics score, 1999-2007, X-axis: Change in primary spending per student, 1999-2007. Source: Macdonald 2010.

Higher education enrollments seem driven more by social demand than economic demand. Although returns to disciplines that are critically important for innovation and productivity, such as science, engineering, and health science are high (as illustrated in Figure 8), enrollments in these fields are low (Figure 16). The total enrollment share in science and engineering in Thailand is 20 percent compared to about 40 percent in Singapore, Korea, and Malaysia, according to UNESCO statistics. On the other hand, social science, business, and law account for nearly 60 percent of all tertiary enrollment in Thailand, compared to 20-30 percent in Singapore, Korea, and Malaysia. Similarly, a World Bank study (2009c) of higher education revealed a mismatch of the skills produced by higher education institutions with those sought by industry.

The mismatch of skills sought and supplied at the tertiary level partly explains the existing job matching problems. While firms face difficulties in filling professional vacancies (discussed in Section 1.1), unemployment is concentrated in high-skill groups. Individuals with a higher education (above upper-secondary) account for 90 percent of those searching for longer than three months. (World Bank 2011c) Recent graduates indicate that their main problem in finding a job is a lack of practical experience, qualifications, and information about potential jobs and how to find one.³⁵ Moreover, labor force surveys of the National Statistical Office indicate that the percentage of university graduates aged 20-25, that are employed as professionals, has dropped from 40 percent in 2001 to 28 percent in 2009. Correspondingly the share of those doing clerical and service jobs has increased.

Inequality in access to higher education limits the pool of talent and exacerbates income inequality. Children from rural areas and low income households, regardless of their talent, are less likely to attain a college education. (Lathapipat 2010) Thailand's socioeconomic survey indicates that its higher education enrollment is even less equal than household consumption expenditures.³⁶ The skewed access to tertiary education appears to be associated with several factors other than student ability:

- a) uneven school quality at the secondary level with student performance significantly lower outside the Bangkok area (as illustrated in Figure 14);
- b) concentration of tertiary education institutions in the Bangkok area with those living in outlying regions having lower participation rates (five times lower in the northeast compared to Bangkok);³⁷
- c) household income (with households in the top income quintile accounting for one-half of tertiary students);³⁸
- d) parental education;³⁹ and
- e) ethnicity (the majority of ethnic Thais are twice as likely to enroll and three times more likely to complete tertiary education than Thai ethnic minorities).⁴⁰

This implies that some talented and capable youth may be left out, with a possible opportunity cost for technological progress and societal equity.

The government has tried to promote greater equity in access to employable skills. The 'One Province One University' project, for instance, aims at establishing at least one university in each province. This project provides easier access to higher learning, creates a local academic environment with community links, and develops academic services for provincial development. Sub-district learning centers promote non-formal education to improve the quality of life among grass-root communities with greater access to internet services and learning activities for community development. Creative academies provide training programs through local universities in fields relevant for the creative economy, identified by the government as arts and handicrafts, architecture, traditional medicine, cultural tourism, agro-industry, and software development. The government has also launched a variety of student-oriented programs (such as one-district-one-scholarship, scholarships for low-income students, Thai Government scholarships, a student loan program, and the Thailand income contingent and allowance loan) complementing the King scholarship and the Anandamahidol scholarship established by HM King Bhumibol Adulyadej.⁴¹

³⁵ National Statistics Office job seekers survey.

³⁶ World Bank (2011a) These calculations may, however, somewhat exaggerate the extent of inequality in higher education enrollment since the Thailand Socio-Economic Survey undercounts youth older than 15 not living at home, including students coming to study in Bangkok from outside areas.

³⁷ World Bank (2009c).

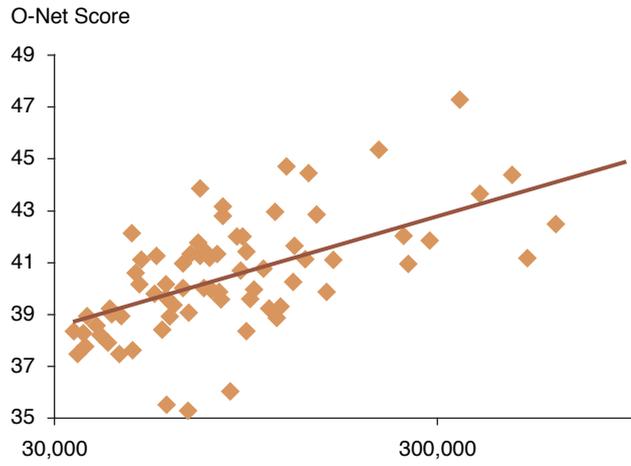
³⁸ Thailand Socio-Economic Survey 2009 and World Bank (2009c) indicate that tertiary education represents a burden for poor and low-income households due to the high cost of attendance and opportunity cost of lost earnings.

³⁹ Thailand Socio-Economic Survey 2009 and World Bank (2009c).

⁴⁰ World Bank (2011b).

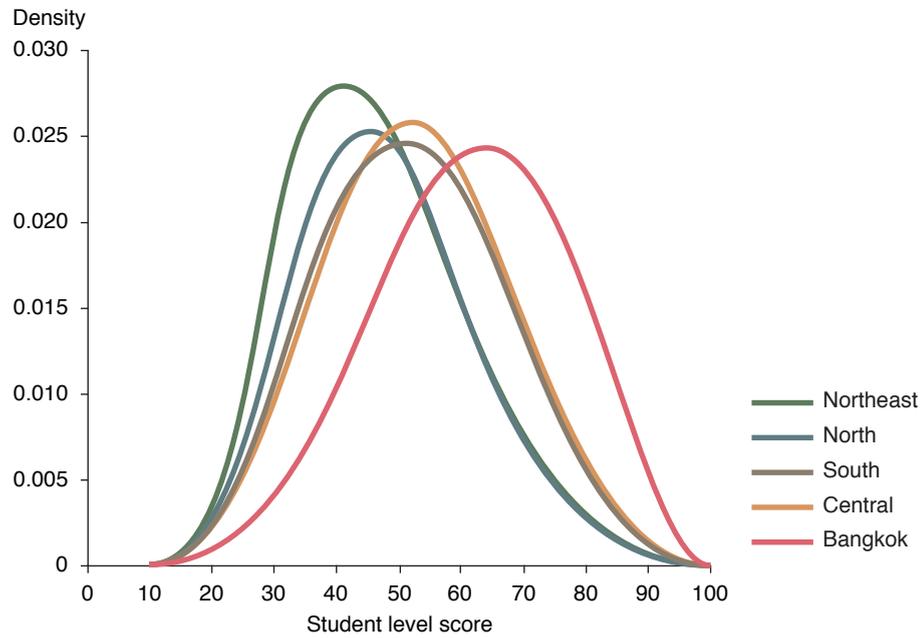
⁴¹ For discussion see World Bank (2009c).

Figure 13 O-NET scores appear correlated with income per capita by province



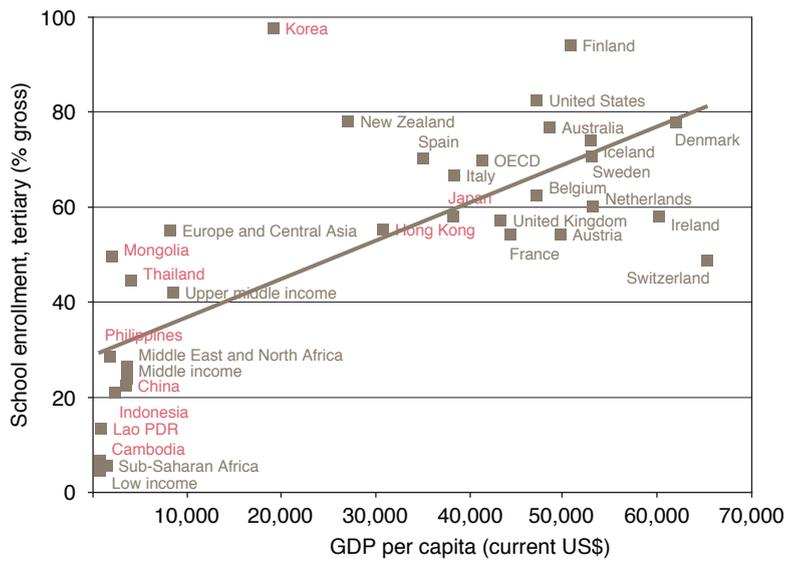
Source: Office of Basic Education Commission database, in Parandekar 2011.

Figure 14 School level O-NET scores vary by regions



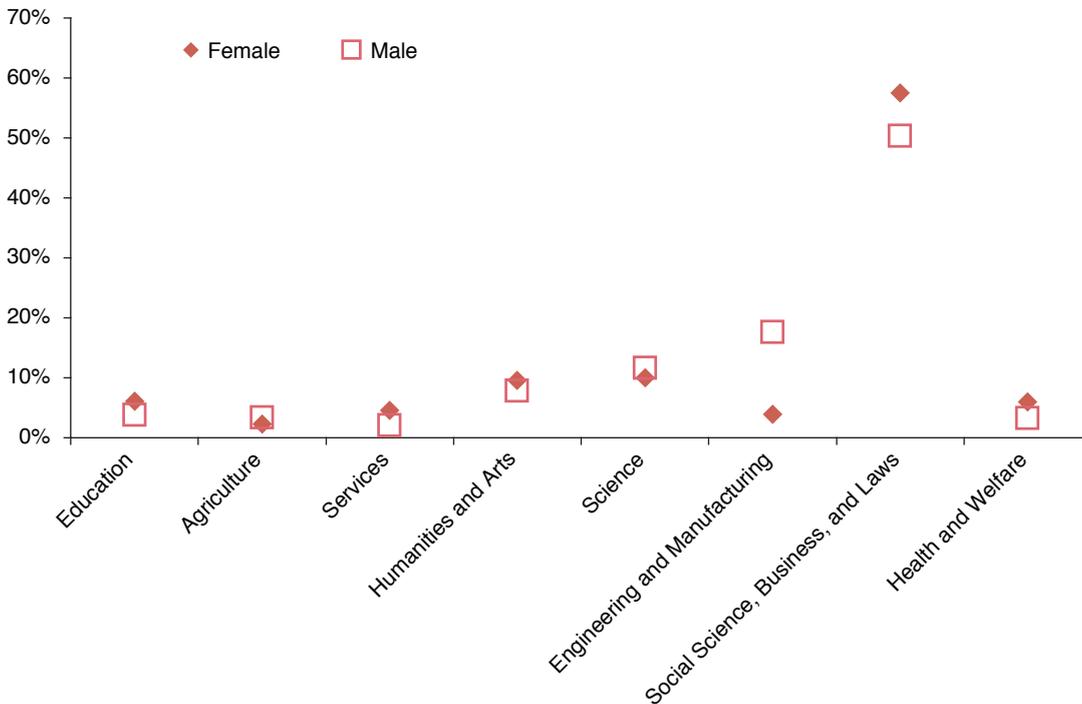
Source: Office of Basic Education Commission database, in Parandekar 2011.

Figure 15 Thailand's tertiary enrollment is higher than expected at its GDP per capita



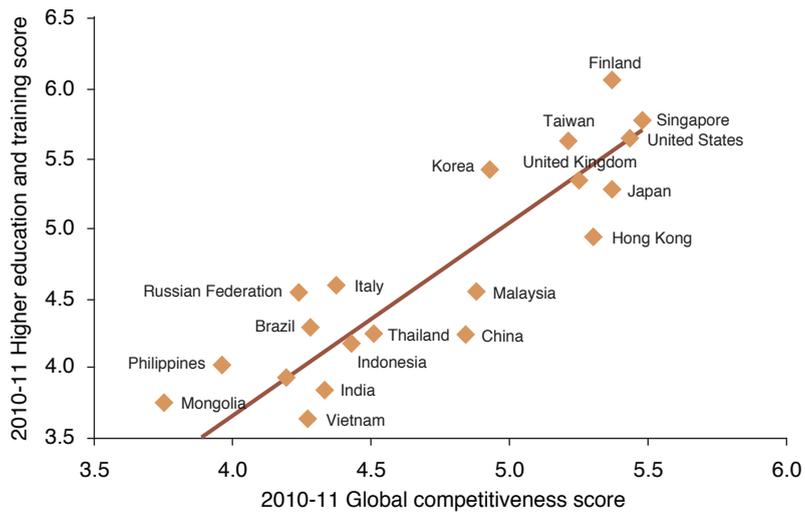
Source: EdStats 2010 (2008 data for most countries) in World Bank 2011b.

Figure 16 Tertiary enrollment by field may be driven by social demand



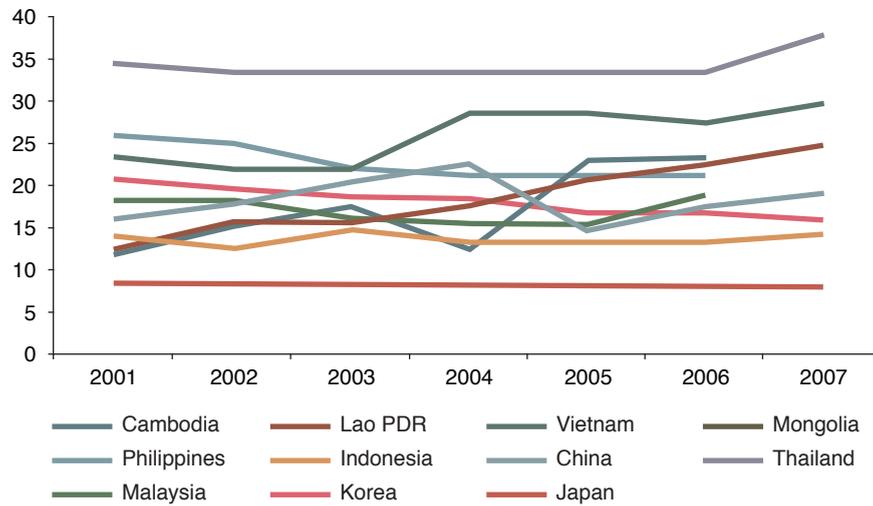
Note: Student enrollment in 2007 collected from 139 institutions of tertiary education.
Source: Office of Higher Education Commission.

Figure 17 Quality of higher education is associated with competitiveness



Source: World Economic Forum (2010).

Figure 18 Student-faculty ratio in tertiary education is unusually high in Thailand



Note: Most recent data as available.
Source: UNESCO and World Bank (2011b).

Step 4. Encouraging entrepreneurship and innovation: System disconnects

Effective education and training systems not only provide workers with the skills for innovation and technological mastery but also enable workers, entrepreneurs, and managers to perform well. Among skills for innovation, employers demand creativity and entrepreneurship skills, curiosity, a ‘big picture’ mindset, the ability to ‘think outside the box’, and leadership skills. But the teaching of these skills is limited throughout the Thai education system. Hence, as discussed in Section 2.1 and shown in Figure 6, employers cite such skills as a major weakness. Also, based on international evidence, Thailand does not innovate as much as its tertiary enrollment and per capita income suggests – with per capita patents below the average for its income group and far below Korea during the beginning of its rapid growth.⁴² (World Bank 2011a) Likewise, quality of higher education, as measured by the Global Competitiveness Report, appears somewhat lower than expected for Thailand’s level of competitiveness (Figure 17).

Higher education institutions fall short of assisting firms in assimilating and upgrading technology. Higher education institutions in many countries provide basic and applied research, consulting services, incubation facilities, and technology transfer. In Thailand, only 2 percent of firms covered in PICS in 2007 mentioned higher education institutions and public research institutions as a source of technological innovation (compared to 27 percent in the UK and over 10 percent in Singapore).⁴³ The contribution of higher education institutions to research is circumscribed by the low share of students at the post-graduate level (with only 0.3 percent of tertiary students enrolled in ISCED 6 programs in Thailand, compared to 5 percent in Western Europe and North America)⁴⁴ and the high student-faculty ratio (37:1) in tertiary education – the highest in the East Asia region⁴⁵ (Figure 18).

The education system suffers from disconnects, which restrict its contribution

to entrepreneurship and innovation. The framework presented in a World Bank study (2011b) helps identify five such disconnects. These are between the following:

- a) **Higher education institutions and skill users.** Pedagogy, curriculum, and degrees that may not suit the labor market as indicated by employer surveys in Thailand;
- b) **Higher education institutions and firms in the research and technology field.** Innovation surveys in Thailand point to limited cooperation of higher education institutions with industries overall, specifically for research and development activities;
- c) **Teaching and research.** Higher education institutions account for about only 30 percent of total research expenditure and only 20 percent of Thai academics conduct research continually;⁴⁶
- d) **Higher education and tertiary level non-formal or enterprise-based skills providers and higher education institutions.** A lack of formal links among various skills providers encumber student mobility across institutions in Thailand;⁴⁷ and
- e) **Higher and earlier levels of education.** Both misaligned curricula and primary and secondary school quality problems (as illustrated by the O-NET, PISA, and TIMSS scores) limit the quality and equity in tertiary education in Thailand.

These disconnects are associated with weaknesses in information, capacity, and incentives (Section 2.3).

The government is trying to address some of these disconnects and especially to promote collaboration between universities and industries. For example, the University Business Incubator Project aims at developing graduate students with entrepreneurial skills and providing them with the funds to start innovative, new businesses. But research-intensive and interactive forms of university-industry linkages are few. This is in a sharp contrast to the widely developed linkages observed in China, Brazil, and the United States (Section 3.4).

⁴² See World Bank (2010a).

⁴³ Main sources of technological innovation mentioned by firms in Thailand include: a) clients and suppliers, b) machinery, and c) within firms or from parent companies.

⁴⁴ The International Standard Classification of Education Level 6 (ISCED 6) programs prepare graduates for faculty and research posts (equivalent to a doctoral degree). For discussions, see World Bank 2011b.

⁴⁵ UNESCO Global Education Digest 2009.

⁴⁶ Yilmaz (2010).

⁴⁷ World Bank (2009b).

Step 5. Facilitating labor mobility and job matching: Emerging market institutions

Putting skills to productive use in the labor market and matching individuals with jobs cannot occur without well-functioning market institutions. The market interaction of supply and demand for skills is expected to function more efficiently where information is readily available to providers, firms, and individuals. Such information comprises not only the benefits and costs of skills but also their availability and quality. Specifically, market institutions involve five key functions to connect the supply and demand of skills:

- a) **Coordination.** This brings both sides of the labor market together: in Thailand, the Department of Employment in the Ministry of Labor and the Employer Federation try to link job seekers and industries through the Ministry's website: www.ejobs/doe.go.th.
- b) **Employment services.** This involves career counseling, job search assistance, apprenticeships, and targeted services for excluded groups to find job vacancies. It also includes the associated skills demand and provision: formal channels for career counseling and job search assistance are very limited in Thailand. But, in some fields, students are encouraged (or required) to participate in university credit apprenticeships and internships.
- c) **Quality assurance.** This is necessary to set, test, and certify skill standards. Under its Manpower Development Strategy (2009-2018) and the National Education Act (NEA), Thailand is launching the National Qualification Framework (NQF) for vocational and higher education. This will set competency standards and establish the Thai Vocational Qualifications Institute to certify vocational competencies. A number of stakeholders share this responsibility (including the Ministry of Education, the Ministry of Labor, the Ministry of Science and Technology, the Ministry of Industry, the National Research Council of Thailand, the Federation of Thai Industries, and the Thai Chamber of Commerce).
- d) **Licensing and regulation.** This is required to set minimum standards for private skills providers and to create opportunities for consumer protection. In Thailand, the Ministry of Education regulates private skills

providers. Care has to be given, however, to see that onerous regulations do not create barriers to entry and competition.

- e) **Accreditation.** This must be done to provide information on the quality of education and training offered by schools and training centers. Licensing provides minimal entry standards while accreditation offers a higher standard of quality as a guide for consumers.

Such market institutions are largely public goods and thus unlikely to fully arise in the private sector. Government can fill this gap and play a lead role in monitoring the performance of labor markets and developing appropriate policies and public information systems. Furthermore, government plays a leading role in enabling labor mobility through appropriate labor regulations and portability of social protection benefits.

Thailand's skills market suffers from weaknesses common in developing countries.

Tertiary graduate unemployment and the mismatch in the distribution of disciplines in higher education and the demand for skills (described in Sections 1.1 and 2.1) indicate that higher education institutions are not closely aligned with the labor market. Higher education institutions are especially weak in tracking job demand, providing counseling, engaging in joint initiatives with local businesses, and seeking feedback on job placements.⁴⁸ Information sharing and coordination appear difficult because many actors are involved in higher education, including several government ministries and agencies providing higher education services along with private institutions – all operating under the control of the Ministry of Education.

Young people have inadequate information about the labor market.

Young people lack reliable information on study and career opportunities. According to the job seekers survey,⁴⁹ they may not have a good understanding of the skills demanded by employers. Weak access to reliable information and formal support, along with a reliance on informal networks in making study and career choices are a common problem in developing countries with a proven adverse effect on the labor market.⁵⁰

Labor mobility for skilled workers is limited.

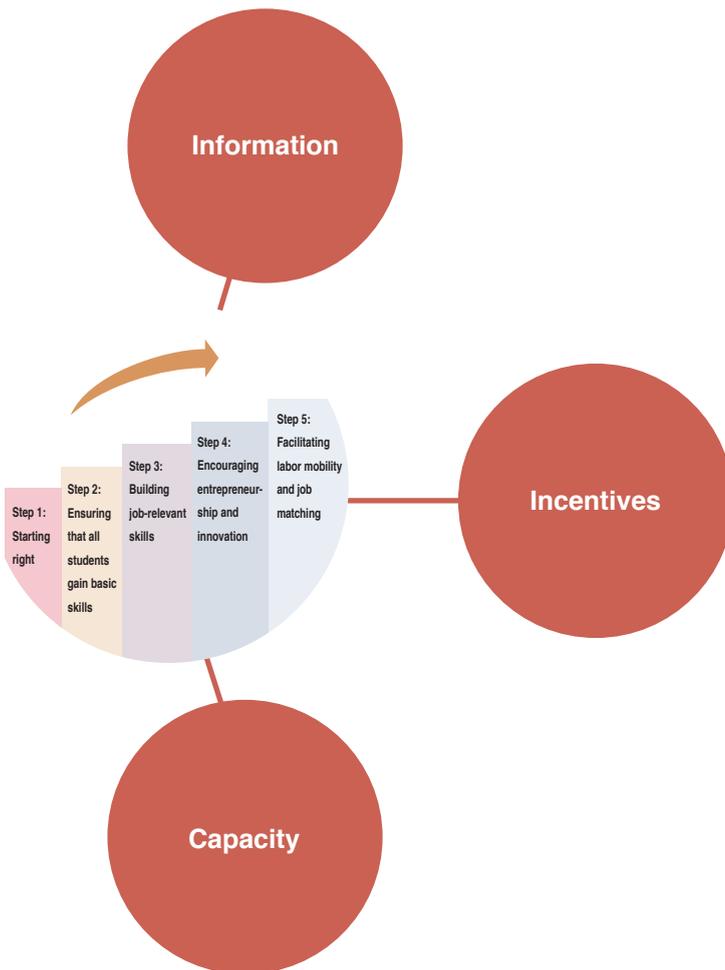
The wide disparity in the length of time required to fill professional vacancies across regions (Section 1.1) and the near absence of the

⁴⁸ For more information on Thailand and the East Asia region, see World Bank (2011b).

⁴⁹ For discussion of the National Statistics Office job seekers survey, see World Bank (2009c).

⁵⁰ World Bank Youth Employment Inventory at <http://www.youth-employment-inventory.org/>

Figure 19 Possible roots of skills gaps and mismatches relate to information, capacity and incentive problems



Source: Authors.

Information

- Skills providers on skills demand, R&D and technology needs and entrepreneurship opportunities
- Employers on engaging with higher education institutions
- Youth and adults on study and career choices, and on job search
- Households and communities on the causes and negative impact of iodine deficiency

Incentives

- Firms toward innovation, R&D, and collaboration with the education and training system
- Skills providers toward quality, relevance and results, including the provision of skills in demand, effective pedagogy and student support, information sharing, coordination of skills provision, research and collaboration with employers and career counseling services
- Students toward developing science and technology skills
- Salt producers toward salt iodization

Capacity

- Firms to signal demand for specific skills and influence skills development policies and education/training content
- Schools, training centers and teachers to provide skills in demand, teach science and technology, engage in R&D, ensure quality, and support disadvantaged students
- Government in policy implementation, including quality assurance and enforcement
- Students to acquire skills due to poverty and disadvantages

immigration of skilled workers to Thailand⁵¹ suggest the existence of significant barriers to labor mobility not only in ASEAN but also in Thailand. To facilitate the mobility of skilled workers within and across their borders, ASEAN countries are developing mutual recognition of professional accreditation and concluding mutual recognition agreements. Occupations (such as accounting) are offering much lower

compensation in Thailand than other ASEAN countries (such as Malaysia or Singapore). And this may result in greater mobility, which in turn, may result in a shortage of professional workers in Thailand. Language barriers (which are significant among skilled Thai workers, as discussed in Section 2.1) and the remaining national regulations may dampen the immediate effect of ASEAN labor market liberalization.⁵²

⁵¹ World Bank 2011e.

⁵² For discussion see for instance Economic Intelligence Center (2011).

2.3 What are the causes of the skills gaps and mismatches in Thailand?

The overview of Thailand's human resource base refers not only to the strengths on which Thailand has to build but also to the weaknesses in the supply and utilization of skills for employment and productivity.

Thailand's higher education is of particular concern because of the evidence of the structural mismatch between offered and needed skills. Evidence from other countries has shown that this must be remedied to move to a knowledge economy. Why are more students not pursuing the math, science, and engineering studies needed by a knowledge economy? Responding to this question and revealing the roots of the existing weaknesses in skills development, utilization, and matching involves all steps of the StEP framework described in Section 2.2 (Figure 9).

For each step in the life cycle, the possible roots of the existing skills gaps and mismatches may be divided into three types: information, capacity, and incentives.⁵³ They are summarized in Figure 19.

Step 1. The low use of iodized salt eroding the foundation for skills development among young children may relate to the following:

- a) limited capacity of government to enforce salt iodization and to implement the national plan for IDD control;
- b) failure of producers to iodize salt, which adds to production costs (albeit only slightly); and
- c) absence of information in communities about the negative irreversible impact of iodine deficiency on brain development and the future skills development and income prospects of children.

Step 2. The uneven and generally lower than expected quality of basic education may be associated with the following:⁵⁴

- a) insufficient capacity of teachers and the teachers' training and support systems;
- b) limited resources and incentives to achieve good performance in providing basic skills,

- c) limited capacity and incentives in the education system not only to promote equal opportunity for quality basic education across locations, socioeconomic groups, and ethnic groups, but also to provide special support across communities to ensure that all children acquire basic skills.

Step 3. The limited relevance and equity in developing employable skills may stem from the following:

- a) insufficient information on skills demand and gaps in the labor market, and insufficient information on the relevance of the provided skills for the workplace;
- b) weak incentives and capacity in the education and training systems to produce skills relevant to employers, to ensure quality across upper-secondary schools, higher education institutions, and training centers, and to maintain continuity across education levels; and
- c) weak incentives of students to commit to science and technology.

Step 4. The disconnects in the effort to encourage entrepreneurship and innovation may relate to the following:

- a) insufficient information in higher education institutions about the research, technology, and problem-solving needs of firms, about entrepreneurship opportunities in the market, and about how to develop effective university and industry links;
- b) weak incentives and capacity in firms to invest in R&D to improve products or to introduce process innovations (partly related to the insufficient supply of science and technology workers as a share of higher education graduates and deficiencies in their training⁵⁵), and insufficient information on how to engage with higher education and research institutions; and

⁵³ Understanding the causes of skills gaps and mismatches requires looking at potential market and governance failures that move the demand and supply of skills away from a "social optimum", and affect the matching between skills supply and demand in the labor market. Some of these failures are related to the structure of the education and training systems, others involve constraints facing individuals in terms of information and access to credit, yet others may simply reflect knowledge weaknesses at the household level. Certain characteristics of the labor and product markets can also affect the incentives of firms to pay for certain skills or train workers, and workers to invest in higher level skills.

⁵⁴ See for instance, Parandekar (2011) and World Bank (2006).

⁵⁵ World Bank and NESDB (2008).

- c) insufficient size and capacity of the academic faculty to both teach and engage in research.

Step 5. The weaknesses in market institutions for labor mobility and job matching may include the following:

- a) insufficient information among young people on study and career choices; among graduates and workers on job searching; and among employers – as well as students – on the quality of skills and skill providers, as well as their competencies;
- b) limited incentives and capacity of skills providers to share information and to coordinate the provision of skills among themselves and with employers, and to provide employment services; and
- c) inadequate capacity of the public and private sector to provide quality assurance and to enforce licensing, regulation, and accreditation.

Problems of information, incentives, and capacities often arise from weaknesses in service delivery, financing, and governance, which may undermine policy implementation.

Such problems are common when financing for education and training are detached from performance (such as test scores and the numbers of graduates in key fields) and accountability for results is weak. Weaknesses of this nature may prevent the alignment of resources and incentives with policy priorities and thus undermine the implementation of even strong strategic frameworks and plans, including the NESDP. Building on the above analysis, the next section highlights approaches for consideration during the implementation of the skills agenda outlined in the 11th NESDP.

3

IMPLEMENTING THE NESDP'S SKILLS AGENDA TOWARD IDEAS-LED GROWTH WITH EQUITY: APPROACHES FOR DISCUSSION

NESDP's emphasis on strengthening human resources implies further investment to achieve the goal of ideas-led growth with equity. This note has highlighted areas where progress has been made in strengthening human resources and other areas where challenges remain. It emphasizes that skills development is a broad concept that includes not only what happens in the education system but also what happens on the outside. Beyond schools, it has drawn attention to early childhood development representing the foundation for later learning and skills development, to training centers and the workplace as the sources of skills, and to the role of markets in intermediating supply and demand for skills. The StEP framework provides a guide for the timing of these investments and assurances that the approach taken will be comprehensive. How other countries have addressed skills development issues facing Thailand can contribute information to these needed investments.

Future investment needs to promote both quality and coverage in skills development toward employment and productivity. This note suggests that improving quality, relevance, and effective utilization of skills would help promote not only innovation but also the development of a creative knowledge economy. It can also help to develop stronger equity and coverage in skills development that would expand the country's talent pool and skills base. In the StEP framework, the emphasis on quality, relevance, and effective utilization of skills emerges mainly under Steps 3, 4, and 5. The emphasis on coverage and equity mainly relates to Steps 1, 2, and partly 3. Table 2 highlights specific priorities and possible approaches for consideration to support their implementation. The text below elaborates on the selected implementation approaches for discussion. Further analysis can help outline practical recommendations in areas of interest to the Royal Thai Government and provide details in important areas on which limited information has been available so far, such as TVET.⁵⁶

⁵⁶ For TVET, for instance, employing the Workforce Development domain of the System Assessment and Benchmarking for Education Results (SABER) developed by the World Bank would help assess the strategic framework (direction, planning, and coordination), system oversight (standards and quality assurance, programs and resources), and service delivery (content, incentives, and outcomes).

Table 2 Skills development toward ideas-led growth with equity in Thailand

Key Elements	Priorities	Possible Approaches for Discussion
Strategy: Strengthen human resource base toward developing a creative knowledge economy and promoting an ideas-led growth with equity		
Equity and coverage in skills development to expand Thailand's talent pool and skills base Quality, relevance, and effective utilization of skills to strengthen Thailand's creative knowledge economy	Step 1: Starting right: <i>IDD control</i> Step 2: Ensuring that all students obtain basic skills: <i>Basic education quality</i> Step 3: Building job-relevant skills: <i>Skills relevance and equity in higher education</i> Step 4: Encouraging entrepreneurship and innovation: <i>Education-training-R&D-industry links</i> Step 5: Facilitating labor mobility and job matching: <i>Market institutions</i>	1. Enforcing salt iodization 2. Supporting children and investing in teachers 3. Overcoming institutional fragmentation, adopting performance-oriented financing, and strengthening accountability 4. Linking higher education institutions and training centers with industry 5. Providing quality assurance

3.1 Enforcing salt iodization

What happens in the household – well before an individual enters school – has a major and lasting effect on the ability of young people to acquire the knowledge and skills needed for entry into productive employment later in life. International literature confirms this and emphasizes the importance assigned to early childhood development strategies. Empirical evidence shows that an investment in these strategies has very high payoffs. Among these investments, Thailand is quite advanced in reducing malnutrition, promoting maternal and child health, and in pre-primary education. This is a positive base on which Thailand can build with further investment. But Thailand is slow to address iodine deficiencies.

A simple, low cost investment requiring the iodization of salt can create quick returns in the potential for children to learn and acquire the foundation needed for later skills development. This investment can lead to the improved readiness of children to learn upon entering school. With the addition of early schooling investments, this can improve the foundation for later skills development. The benefits of addressing iodine deficiencies will emerge in improved indicators of learning

(such as scores on standardized tests) and the preparedness of youth for higher education and skills development throughout their working life. This investment can generate very high returns for Thailand in its effort to improve the outcomes of education and skills development.

International experience suggests that government intervention will be necessary in order to realize IDD control; such interventions can come in the form of appropriate laws and regulations, enforcement of those laws and regulations, and a public awareness campaign. Experience of other countries (including Cambodia, Mongolia, and the Philippines over the past 10 years) suggests that making salt iodization legally compulsory with proper quality assurance and enforcement mechanisms, and with an appropriate public awareness campaign to explain the cause and irreversible brain damage of iodine deficiency – can deliver fast results. (UNICEF 2010) As the StEP framework suggests, this investment must come with continued efforts to sustain the gains already made in overall early childhood development, access to pre-primary and basic education, and improvements in education quality.

3.2 Supporting children according to their needs and investing in teachers

Ensuring that all children attain good quality basic education may require a concerted action not only to support students who fall behind, but also to nurture top performers, and possibly to improve the capacity of teachers and schools. To improve student learning outcomes, school systems commonly employ broad range strategies. These strategies include teacher training, curriculum reform, providing textbooks, school lunches, libraries, infrastructure, and mechanisms to support teachers, students, and their communities. As recent evidence indicates, these tend to be effective – particularly if complemented by governance reforms (Section 3.3). (Bruns et al. 2011)

a) Supporting students according to their needs

The pedagogy and curriculum need to reflect the diversity of students. Similar to other countries that rapidly expanded enrollment in basic education, Thailand may consider adjusting the pedagogy and the curriculum. This expanded curriculum should account for children who are first generation learners, whose parents can neither follow what is happening in school nor react if their child falls behind. In recent years China has been moving in the direction of quantity to quality learning in school curriculums. Improving the curriculum must come with improvements in pedagogy. Introducing a pedagogy that is learner-centered rather than teacher-centered can help create a more flexible, innovative workforce. Teacher-centered instruction involves the teacher as a lecturer controlling the transmission of knowledge to students, whereas a learner-centered instruction model uses the teacher as a facilitator of learning, providing students with the tools to acquire new knowledge. This type of instruction enables students to solve problems associated with technological change on their own.

Furthermore, children in poor and disadvantaged communities and households may need special support programs.

International experience suggests that improving students' average test performance involves, to some extent, increasing the numbers of high performers and, to a larger extent, improving the performance of children at the lowest proficiency level. The above discussed improvements in the capacity of teachers and in the curriculum are likely to contribute to both. Separately, as in the case of Finland (the top performing country in international student tests see Box 1), Thailand

Box 1 Learning support at the core of the success of the Finnish schools

Finnish 15-year olds regularly outperform their peers in other countries in the PISA test of reading, mathematics, problem solving, and scientific knowledge. The influence of the parents' social and economic status on the test performance of children is smaller in Finland than anywhere else, explaining only about 5-7 percent of the outcome.

A significant part of the Finnish success in primary and secondary schooling rests in special education. About 30 percent of Finnish comprehensive school students receive special education services (a much higher fraction of the school population than in other countries). More than two-thirds of these students receive short-term special needs instruction in standard classroom settings, with the aim to address particular learning problems and continue with the normal course of study.

Others who receive these services have deeper and more pervasive cognitive or behavioral problems. They are diagnosed by a school psychologist and grouped for instruction in specialized classrooms. Special education teachers provide both kinds of services. These certified teachers must compete for the opportunity to complete rigorous courses on responding to a wide range of learning disorders.

Recently, the Philippines has adopted a similar approach in response to the country's earlier poor performance in the TIMSS. Special catch-up programs targeted low-performing students. Subsequently, the share of students performing at the lowest proficiency level in the Philippines has declined and the disparity in student performance has thus narrowed, raising the average scores.

can consider developing specific programs targeting the bottom 40 percent of students who perform at the lowest proficiency level as measured by the PISA tests. Such special programs could serve children with learning problems, children affected by iodine deficiency, children who are the first generation of learners and may not have sufficient learning support, and children with other disadvantages. Building on its existing initiatives, the Ministry of Education may consider establishing skills development support networks to offer catch-up programs for children and young people, particularly in math, science, English, IT, and general thinking and

behavioral skills. In addition, publicity campaigns and community-level investments may be effective in promoting reading, which generates a broader positive impact on student learning, as Korea's and Hong Kong SAR's (China) experience suggests.

In addition, support networks can indirectly enhance the performance of both students and schools through parents. International experience shows that the ability of parents to assist their children in homework enhances children's overall learning performance. Moreover, equipping parents with information enables them not only to monitor and promote child learning performance in school but also to increase their voice in the education system – particularly at the local level.⁵⁷

Equitable improvements in the quality of primary and secondary education can become a strong force toward greater equity in access to higher education. Equity challenges facing higher education in Thailand currently reflect the uneven quality of primary and secondary schools and the uneven opportunities of children to develop their potential. Investments in teachers, disadvantaged schools, communities, and children would not only enhance the overall students' performance but also expand Thailand's pool of strong performers and establish a wider and more equitable pool of candidates for higher education. Complementing the programs already in place, such as scholarships, student loans, and the establishment of universities in the outlying provinces, these investments can strengthen the pool of university applicants from outside the Bangkok area.

b) Investing in teachers

Complementing the possible adjustments in pedagogy and curriculum, the capacity of teachers and schools may need to improve – particularly in teaching key subjects, such as math, science, English, and IT. Teacher quality is a crucial factor contributing to student achievement among both the top and the bottom performing students. Toward this objective, the Office of the Teacher Civil Service Commission may need to further strengthen its effort to enhance teacher quality particularly in teaching math, science, English, IT, entrepreneurship, and general thinking and behavioral skills. Improved teacher skills would allow primary and secondary schools to shift emphasis to priority disciplines

and to modernize teaching methods as well as to offer individual approaches to students of special talents or needs. The good performance of Singaporean students in math and science is often credited to the ability of teachers to promote conceptual thinking and understanding of mathematical concepts from the beginning of basic education.

To strengthen pre-service teachers' training, the NESDP may consider reallocating public resources in higher education from oversubscribed disciplines such as social science, business, and law toward pedagogy and other key technical areas for teachers' training. The public sector should complement and further encourage the existing private higher education capacity in this area. Scholarships may help raise the volume of student applications. Moreover, public awareness campaigns to enhance the image of the teaching profession and career counseling services should accompany the investment. The objective would be to attract top performers among students to the teaching profession – as has been the practice and cornerstone of quality education systems such as in Korea.

On the job, teachers can benefit from responsive support and appropriate teaching resources. As part of innovative approaches to address the specific needs of teachers and to create opportunities for their knowledge sharing and training in service, ESAs could strengthen the existing mobile support teams, strengthen master teacher networks, and strengthen local learning resource centers. This would contribute to the availability of advice, mentoring, and adequate instructional resources and teaching aids to the teachers within their jurisdiction. The disparity in students' testing performance across schools suggests that initiatives – within, as well as across ESAs – could assist teachers in low-performing schools. To guide and complement ESA's engagement, the Ministry of Education can build on the many pilots under implementation. In particular, following their rigorous evaluation, it can scale up those pilots that have enhanced quality of educational services. If effective, the Ministry of Education could expand distance learning and computer assisted instruction to teachers to support their formal in-service training. Such initiatives can serve ESA staff and teachers nation-wide. Separately, the central-local allocation of public resources needs to enable schools in poor localities to offer acceptable learning environments and tools.

⁵⁷ Bruns et al (2011) provide evidence on the value of information for accountability.

3.3 Overcoming institutional fragmentation, adopting performance-oriented financing, and strengthening accountability

The effort to ensure that students attain good quality basic education and job-relevant skills requires attention to governance. Governance (including administration, financing mechanisms, and accountability relationships) influences the effectiveness of resource use in the education and training systems and thus shapes their outcomes. In this respect, Thailand has recently achieved an improvement through administrative decentralization, shifting power and resources to the ESAs. In addition, Thailand needs to define the roles of the public and private sectors, to review and revise the central level administration of the education and training systems, to adopt financing mechanisms for better performance, and to strengthen accountability relationships (including those involving the ESAs) toward quality and relevance of skills produced in the education and training system.

In most countries, the private sector and employers play an important role in skills development – mainly through financing and delivery of skills, but also through their participation in administration and coordination mechanisms. This includes for-profit and non-profit private providers of skills, as well as enterprises. Defining the roles of the public and private sectors in the NESDP can add clarity to implementation and minimize gaps in coverage and overlaps in responsibilities. There is a tendency in many countries for the public sector to take the lead in the provision and financing of skills. This may be true, particularly in the foundation building stage, but it is not necessarily the case in later stages – particularly during the work stage when employers are expected to play a larger role in the provision and financing of skills development.

a) Overcoming institutional fragmentation

In the formal education system, a detailed review and subsequent simplification of the administration appears necessary to support the drive toward the quality of education and the relevance of skills. Currently, the administration is excessively complex, as the Ministry of Education (MOE) includes five independent offices with overlapping

functions: (1) the Office of the Basic Education Commission; (2) the Office of the Higher Education Commission; (3) the Office of the Vocational Education Commission; (4) the Office of the Education Council; and (5) the Office of the Permanent Secretary – each relatively powerful with its own governing structure. Moreover, outside the MOE, nine additional independent agencies participate in administration. Overlaps and fragmentation in planning, financing, monitoring, evaluation, and other functions appear to generate functional incoherence and inefficiency. (Parandekar 2011) These, in turn, undermine the implementation of policies and plans, such as the NEA and NESDP.

In the training system, the diverse provider community for skills development may require stronger coordination. The MOE is joined by the Ministry of Labor (with 76 training centers providing non-formal job relevant skills), other technical ministries, and a large number of private and not-for-profit training providers, as well as employers as trainers. Apart from a clear policy framework to guide the functioning of the diverse providers of skills, some countries have also successfully established strong coordination bodies. This has been the experience of Singapore, Australia, South Africa, and Chile. Such governance frameworks include national and regional training authorities run by governing boards that include representatives from the public and private sectors with roles and responsibilities defined in legislation and decrees. The duties and powers of these authorities vary, but all have the overarching objective of creating a more coherent policy and operations framework for providers and consumers of education and training whose purpose is helping a workforce prepare for employment. The option exists for Thailand to establish its own coordination body and give it oversight and advisory responsibilities and possibly implementation responsibilities for some activities. The powers accorded these bodies in other countries vary. In some countries, they provide advice to policy makers, as in the case of the National Skills Authority in South Africa serving the Minister of Labor. But some countries have actual authority for the implementation of policies and delivery of training services, as

in the case of the National Industrial Training Service (SENAI) in Brazil.⁵⁸

Training authorities can serve as an umbrella for other market institutions that improve the operation of training markets. Training authorities are established with a board of governors. Their membership varies in number with members representing government, employers, and community and worker organizations. The board of governors meets on a regular basis to set strategic direction for skills development and to monitor and guide activities. It is supported by a permanent staff and a director carrying out the designated functions of the authority. The functions performed vary and may include such activities as: developing training strategies; reviewing and coordinating government budget allocations for skills development among ministries; monitoring labor market developments and trends; maintaining a quality assurance framework covering standards setting, accreditation, and certification systems; operating training funds; regulating private and non-government provision; and monitoring and evaluation.

b) Adopting financing mechanisms toward better performance

In addition to better coordination, changing how skills are financed is a powerful tool to get better results from public expenditure. While mobilizing more financing for education and training is a concern of governments, how money is spent can be even more important to meeting Thailand's objectives for skills development. Spending in many cases focuses on inputs, starting with the number of classrooms built or refurbished, equipment bought, instructors hired, and classes offered. Budgets are created based on plans for these inputs to education and training. But buying these inputs does not guarantee the provision of good quality education or marketable skills. Incentives have to be put in place to encourage

public and private providers to deliver education and training of good quality that is responsive to market demand. For private providers of education and training, such incentives are already in place because consumers who pay for services are not expected to continue enrolling in programs that do not produce results. The same type of incentives can be put in place for public providers by financing them in ways that hold them accountable for good performance.

(i) *Performance-based budgeting*

Shifting to performance-based budgeting (PBB) that holds public schools and training centers accountable for results would change the incentives for their performance.

Performance-based Budgeting has been used in many countries (India, Indonesia, and the United States) to shift the focus of service delivery away from budgeting for inputs to budgeting for outcomes. The objective of PBB is to make the budget process more policy-oriented by presenting information on the intended policy objectives, methods, and their cost.⁵⁹ Rather than combining inputs and their cost in a budget, PBB first calls for agreement on the results to be achieved. For example, the share of students who can pass national certification exams for the program, the share of students who can find work using their skills in a given period of time, or even targets such as raising the percentage of program completers. The budgeting process focuses on defining strategies and the resources needed to achieve results and the activities to produce those results. As part of budget evaluation, agencies and institutions are held accountable for spending resources effectively to and for the agreed results. Indonesia, for instance, has used the placement rate of trainees in jobs as one of the results indicators in its PBB to hold public training institutions accountable for performance (for meeting placement targets). The key to the success of this approach is in the incentives created for linking supply with demand and the accountability associated with failure.

⁵⁸ The placement in government of coordination bodies varies. In South Africa and Jordan, for instance, they are placed under the direction of the Minister of Labor. In other cases they may be under the direction of a MOE or function as parastatals independent of a ministry, such as found in many Latin American countries. Where more than one ministry is engaged in education and training, coordination is often made difficult when one of the ministries is chosen for placement of the coordination body. In Jordan, for example, three ministries are involved in training activities and the ability of the Ministry of Labor to coordinate the other ministries, including a MOE, has proven difficult. In such cases, the parastatal arrangement has proven more effective in coordination. Leadership of these bodies is also important. Chairing of the body by a senior minister, even a Prime Minister, can enhance the convening power of the body. Rotation with employers in this role can also enhance the commitment of the private sector.

⁵⁹ PBB represents a general approach to public management and is not specific to skills development, but can be readily adapted to public delivery of education and skills. Internationally, budget reforms have taken place gradually, shaped by the capacity of agencies. For background analysis of Thailand's public finance management see World Bank (2011f).

The key to PBB is holding those who deliver public services accountable for results. This is what “changing the incentives” for performance means. It is no longer sufficient to purchase the inputs and deliver the education or training program. Success is judged by whether the key performance outcomes are achieved. And if they are not, sanctions hold those responsible accountable. Sanctions require merit-based personnel systems. Namely, managers are rewarded for meeting agreed performance goals or sanctioned for a failure to do so. Sanctions come in the form of lower salary increases, fewer promotions, and even reassignments where failures persist. At the same time, school administrators, teachers, and instructors must be given the tools with which to succeed. This includes adequate training and operating resources to accomplish the agreed task and to achieve the key performance indicators. Some countries with PBB experience include the United Kingdom, the United States, Australia, France, Chile, Columbia, and Russia.⁶⁰ Chile has been on the cutting edge of performance-based budgeting for many years after introducing performance indicators in 1993 and a system of program evaluation in 1997.⁶¹

Strengthening capacity for program evaluation is essential to make PBB work. Evaluations can be kept simple with desk studies and reviews of program logical frameworks. Monitoring systems need to be established with performance indicators that initially focus on processes before moving to outputs and outcomes.

(ii) *Vouchers*

Using public finance and competition can also promote better outcomes for skills development. Rather than finance schools and training institutes for services delivered, Thailand can elect to provide financing to the end user, usually in the form of a voucher, and allow the user to shop for services. The rationale is that the user is better equipped to make decisions on the choice of providers and services needed by the market. By placing purchasing power in the user's hands, competition by service providers is expected to offer the user more choices at a lower cost. Information on the quality of different

providers is essential to promote good choices. Spending may be restricted to certain providers and classes of services, and targeted to those meeting criteria such as young people, displaced workers, rural migrants, or households in poverty. Some countries using vouchers for education and training services are Australia, Canada, Chile, Denmark, France, Germany, the United Kingdom, and the United States.⁶² China has its own version of vouchers providing rural migrants with support for training and personal expenses.

Vouchers have been used to encourage further education for both young people and young adults. In the United Kingdom, 16-18 year olds who have left or who are about to leave compulsory schooling can apply through the Learning and Skills Council for an Education Maintenance Allowance of up to US\$45 each week to cover books, tuition, travel, or anything useful to continue learning. For those 19 years old and over who are studying for their first full level 2 or level 3 qualifications, Adult Learning Grants are available for a similar amount. These voucher programs have increased the numbers of young people engaged in learning. In Australia, Work Skills Vouchers worth US\$2000 are available from the Department of Education, Employment, and Workplace Relations to those 25 years of age and over who lack a year 12 or equivalent qualification. The voucher may be used at accredited institutions for the cost of basic education, vocational courses, and accredited literacy and numeracy courses. Similarly, vouchers for US\$330 per year are available for the first two years of an apprenticeship program in an area of high demand. Critics of these vouchers in Australia argue the shift to demand-side financing has failed to offset the concurrent reduction in financing for training institutions. This is because these institutions have suffered a net loss of revenues. Balancing the scale of voucher financing and the reduction of budgetary allowances is important to making competition work.

There are pre-conditions that enable vouchers to meet their objectives. First, the approach is based on the assumption that the user has adequate information about the service to be bought: for example, the differences among

⁶⁰ For a review of PBB and lessons from experience of governments around the world explaining what works under what circumstances, see Robinson (2007).

⁶¹ In Chile today, every program identifies its clients, outputs, performance indicators and goals with evaluations conducted linked to the budget cycle. Recently, a representative of the Ministry of Finance offered lessons from Chile's experience with PBB. See “Performance management – the Chilean experience”, posted by Theo Thomas to the International Monetary Fund's Public Financial Management Blog at <http://blog-pfm.imf.org/pfmblog/2008/12/performance-man.html#more>

⁶² See, for example, Bruttel (2005); Gasskov (2000); West, et al (2000); Finkelstein, Neal, Grubb (2000).

providers in cost and quality. This may be difficult to satisfy in the case of training where the service is heterogeneous and quality is difficult for the individual user to ascertain. Quality assurance frameworks are important for providing this information. Second, there has to be an adequate number of providers to promote competition. Where government is the only provider, this condition is unlikely to be met. Certain markets, for example rural areas, may not be attractive to sustain enough providers to promote competition. Collusion among providers on services offered and prices cannot be allowed. Governments can mitigate these risks by providing information to consumers, pre-qualifying providers as meeting a standard of service, and using bidding competitions to establish market prices for services. The potential scale of the market created by the purchasing power of the vouchers may attract new entrants and providers and enhance competition.

(iii) *Training funds*

In the training system, training funds provide an intermediate step to vouchers using financing and competition to promote better outcomes for skills development. Training funds are a popular financing tool used by countries world-wide to encourage more enterprises not only to train but also to buy training services competitively on the open market from public and other providers for target groups.⁶³ Singapore and Malaysia are two countries that offer examples of well-run training funds. Financing for training funds often comes from a tax on employer payrolls of 1 - 2 percent, but also from government funds provided by general taxation and, in some countries, from donors and financing agencies like the World Bank. In turn, the training fund buys training services for target groups like rural migrants and low-income households using competitive procedures or levy-grant arrangements where it disburses funds to enterprises to carry out approved training programs. In Brazil, employer tax proceeds flow directly to a national training service administered by employers (SENAI). In South Africa, 27 Sector Education and Training Authorities (SETAs) administer a levy-grant scheme providing employers with financing for training.

Training funds offer a convenient vehicle for consolidating government spending on training and administering these resources in a strategic manner. Training funds tend to be

administered by a governing board that includes government and employer representatives – thus linking decisions on spending to the demand side of the market and improving the relevance of training purchased. Training funds and their technical staff are often in a better position than individuals to assess training by virtue of seeing providers and their services on a frequent basis. The scale of a training fund's activities also places it in a better competitive position than individuals to purchase training services and to hold the provider accountable for quality and relevance. A fund could be useful in Thailand to focus government training initiatives for young people, women, low-income households, and migrants. Where financed by payroll taxes, the fund ensures a more equitable distribution of training costs among enterprises, avoiding the “free-rider” problem by all eligible firms paying their share of training costs. Training funds are more often used for in-service training rather than pre-service training; but they can support both.

Recent innovative approaches include the use of training funds and government funding to procure training for target groups of individuals from public and private providers.

In Indonesia, the Ministry of Education (MOE) is financing non-formal training by private training providers. To qualify for this financing, private providers must be accredited by the MOE, meeting a specified level of quality in their delivery. Proposals for financing also require that there must be jobs waiting with employers for the training offered. This has the advantage of compelling training institutions to consult with employers about their skills needs and adapt the training offered to meet these needs. It creates a competitive market for employers of training organizations willing to supply skilled workers and it ensures that the public expenditure on training will actually lead to employment. The program at this stage has not been rigorously evaluated, but it shows considerable potential.

c) *Strengthening accountability relationships toward quality and relevance of skills*

Several possible strategies to strengthen accountability in education and training exist. A growing body of evidence shows that accountability reforms have an impact on student learning.⁶⁴ In addition to decentralization already adopted by Thailand, such reforms emphasize performance-oriented financing

⁶³ Dar et al (2003).

⁶⁴ Bruns et al (2011) summarize recent available evidence on the impact of selected accountability reform strategies.

(such as Performance-based Budgeting), competition (through vouchers), and information for accountability. Generating and disseminating information about quality and outcomes as well as inputs, outputs, and responsibilities of schools and training centers have been found effective in increasing choice, participation, and voices of both students and their parents. In Thailand, available information about education results (such as testing scores) is not easily connected to individual schools and training centers, which represents an acute constraint in the effort to promote the quality and relevance of education and training. As a guide to future reforms, Thailand's schools and training centers need to develop a learning culture that monitors performance and learns from past reforms.

In the education system, internal and external school quality assessments need to be used more effectively to create opportunities for improvements in school performance.

Although the Thai Ministry of Education (MOE) has created good initiatives across the country, institutionalizing internal assessment of schools and improving the viability of external assessment (conducted by ONESQA and NIETS) remains a challenge. In this context, the ESA support network can assist schools in conducting self-assessment, in responding to ONESQA's and NIETS' feedback, and in school development planning. Furthermore, the MOE and other ministries responsible for schools need to have channels for following on ONESQA's and NIETS' feedback at the ESA and school level. As the starting point, it would be useful to introduce school identification codes and to match facilities with the evaluation results, as done as part of the World Bank (2011f) analysis.

ESAs' results in addressing quality problems in low-performing schools may improve with stronger accountability relationships. ESAs have the official mandate to direct resources to resolve quality problems within their jurisdiction. To motivate and empower ESA staff in this direction, the MOE could provide systematic performance rewards for quality improvements. Similarly, the MOE could reward ESAs and schools outside Bangkok for increasing the numbers of their graduates enrolling in TVET and in math, science, and engineering fields at the tertiary level. Such performance-oriented incentives could support appropriate

administrative and behavioral changes and stimulate the introduction of needed services such as learning support and career counseling. In addition, the MOE can further promote the ESA's authority over curricula, personnel, and finance; enhance citizen participation in the management of ESAs; and strengthen school boards and administrations. Rigorous evaluation can help in discerning the contribution of the different initiatives to enhancing accountability and thus incentives of ESA staff, as well as teachers, toward education quality and the responsiveness of service delivery to local needs. System-wide, evaluation of policy reforms is essential. However, the NESDP, as well as policies in the education and training systems, should recognize that evaluation needs to be built into the implementation of reforms rather than afterward.⁶⁵

In the training system, training centers can adjust according to the performance of their graduates in the labor market.

For example, following graduates into the market to assess how many are able to find employment in a reasonable period of time can help identify trades for which there is a growing demand and others for which there is excess supply. Engaging with employers to learn whether graduates have the requisite skills can help inform the curriculum and instruction.

Skills providers and their administrators (such as the Ministry of Education and Ministry of Labor) need information on the operation of markets and the useful tools for assessing and improving school performance.

Curricula need to be updated along with instructional materials to reflect competencies sought by industry. Instructor skills need to be upgraded to use the curricula. Workshops and equipment also need to be upgraded consistently with technologies used in the workplace. While it is important to develop policies for financing that encourage the efficient use of public expenditure; promote non-governmental provision to expand the base of resources available for skills development; ensure equitable access to education and training for all; and develop effective training markets, it is ultimately important that schools themselves engage in reforms that lead to improvements in their quality and relevance.

⁶⁵ In 2010, Germany wanted to evaluate its dual training pilot in Egypt, but found that it had not developed a baseline for comparison, nor had it identified a control group against which to compare graduates of the program. Korea is an example of a country that over time has carefully evaluated its various policy initiatives in skills development and has been willing to change course when the results have proven unfavorable.

In this respect, curriculum reforms can also offer greater accountability. The introduction of a modular competency-based training (CBT) curriculum, already found in Thailand, shifts attention away from training inputs to outcomes and promotes greater accountability by schools and training centers. Outcomes are defined in terms of competencies established with advice from industry. Schools and training centers are measured by their success in helping students attain these competencies. The modularity of the curriculum provides a more flexible training system, contributing to lifelong learning by providing easy entry to, and exit from, the training once competencies have been achieved. The curriculum accommodates new entrants to the labor market and workers seeking to upgrade their skills. It provides just-in-time training, allowing workers the flexibility to enter and acquire skills required by the introduction of new technologies and changing labor market requirements. A number of countries such as

Korea, Singapore, Australia, Sweden, and the United Kingdom have had positive experience with CBT curricula.

Finally, in higher education, addressing the existing structural imbalances may require more time, as well as extensive governance reforms. Raising the output in science, technology, and research will require the expansion of qualified faculties and improvement in the quality of instruction in primary and secondary schools preparing young people to pursue advanced studies. It will also require the revision of how priorities are set in allocating resources in higher education and in accountability for performance, including graduate placements. Like other countries, Thailand will need time and more extensive governance reforms to address such constraints. Meanwhile, the Ministry of Education can continue to support stronger links in both teaching and research in collaboration with local communities and industries, discussed below.

3.4 Linking higher education institutions and training centers with industry

Stronger linkages between higher education institutions and industry can encourage relevance of curriculum and focus research on industry needs for innovation and competitiveness. Actions in this direction can also link higher education more closely with national development planning, with employment generation, and with labor market demand. Collaboration with employers should cover curriculum development to better balance the provision of skills with their demand. Specifically, higher education institutions may consider appointing industrial practitioners on their staff, establishing consultation mechanisms with industry, prioritizing student internships to encourage on-the-job learning, and including firm representatives on the boards of higher education institutions. The activities of the Tertiary Education Commission in New Zealand offer successful examples.

Collaboration can take different forms. For instance, higher education institutions can provide short-term training to upgrade workers and to benefit firms, students, and curricula. This has been the experience of the University of the Philippines partnering with the Department of Science and Technology. Other higher education institutions, including the National University of

Singapore, offer successful entrepreneurship training. China, Brazil, the United States and other countries have set up university incubators to help budding entrepreneurs commercialize ideas that are produced in higher education institutions. In the United States, a majority of incubators are run as government or university-supported non-profit entities. They operate under a business model that generates additional revenue from rental income and consulting services. In the few cases where university-industry linkages have been closely studied, the evidence suggests the following: the university's contributions to firms' activities in incubators usually takes the form of providing information that complements the technological endeavors of the firm, rather than creating innovations that are ready for market.⁶⁶ In yet another initiative, Hong Kong SAR (China) and mainland China have established technology licensing offices and spin-offs to commercialize research and to transfer technology and knowledge. Furthermore, developing extension and product development services can reinforce research and education policies; in addition, it provides students with opportunities to acquire practical experience. Examples to consider include the Fraunhofer Institutes in Germany, the Technology Transfer from Research Institutes

⁶⁶ Marques et al (2010).

to Small and Medium enterprises program in Sweden, the Advanced Technology Program in the United States, and the Technology Transfer Initiative in Ireland. (World Bank 2011b)

Thailand's Commission on Higher Education has already launched a number of initiatives with similar objectives, including the higher education development network and the cooperative research network project. In this respect, it may be appropriate to consider a stronger engagement of appropriate intermediaries (such as the local TAMA Association in Japan, or a knowledge-integrating community supported by the Cambridge-MIT Institute as a model of government-industry-university collaboration) to bridge the information gaps between higher education institutions and industry. In addition, in the areas of strategic priority, Thailand needs to consider the possible use of matching funds to support research-intensive and interactive university-industry linkages and collaboration in adapting or developing technology. Gradually, these initiatives can help generate local "centers of excellence" and mainstream programs supporting industry-specific skills across Thailand.

Similarly, Thailand may consider enhancing the linkages between industry and training centers. Training institutions can establish advisory bodies of employers to guide their training activities, or they can include employer representatives in their governing bodies to both advise and approve budgets for training – with an awareness of linking the training to employer needs. Enabling training instructors to spend time in factories and workplaces helps build a connection between the training offered and employers. Japanese schools are often closely connected with groups of enterprises and teachers. This helps employers identify qualified students for employment. School counselors can advise students on where to look for jobs and what skills are needed for those job – additional emphasis on such counselors may improve supply and demand. Industry may also become involved through partnerships to help set occupational standards, validate testing and certification instruments, and share technology and expectations for skilled workers. These information sharing and quality assurance activities are discussed next.

3.5 Providing quality assurance

Access to information and quality assurance are needed for a skills market to work efficiently. This includes the production of labor market information, the regulation of labor markets and protection of consumers, and the instruments for quality assurance training. Markets may be found where the private sector offers job placement services, develops accreditation systems for groups of trainers, and promotes industry standards for training such as done in the IT sector by Microsoft, Cisco, and so forth. But in many cases, the private sector is unable to capture sufficient private benefits to justify delivery of these services. Public investments in labor market information about job vacancies, wages, skill requirements, and sources of training, and in its dissemination to training providers, counselors, parents, and trainees is needed to improve the link between skills and employment to job matching. Both public and private employment services may need to be encouraged to play a role in providing this information. Beyond access to information, quality assurance is of particular concern in Thailand.

To improve quality assurance, Thailand is considering the introduction of the NQFs for higher and vocational education. Connecting

this framework with other countries in the region to provide a regional framework similar to those found in SADC countries and in the European Union can help promote labor mobility. In countries that have successfully introduced NQF (Scotland, Ireland, and New Zealand), NQF authorities play a role in defining qualifications, setting competency standards, and testing individuals and certifying skills. With governments providing these services, employers are able to identify workers with relevant skills, variances in wages for specific skills can be reduced, and individuals can make better choices among education and training institutions. These choices are facilitated according to their performance in helping students meet certification requirements. Authorities of NQF also play a role in assessing past learning and qualifications – enabling individuals to qualify for further education regardless of the source of their skills. This improves articulation and mobility between education and training while supporting lifelong learning. While the benefits of qualification authorities are potentially large, countries like South Africa have encountered considerable difficulty and expense in implementing such a system. A recent study by the ILO of the

experiences with NQF in 16 countries has further highlighted these difficulties; although the study itself has been subjected to criticism by the European Union on methodological grounds. (Allais 2010) Areas where there are agreements on the benefits of these frameworks are in the success of the NQF institutions in bringing together the diverse stakeholders in education and training, which leads to the reform of these systems. They are also considered to be successful in promoting lifelong learning.

NQFs are in part an extension of testing and certification systems that already exist in Thailand. Simply by making improvements in these existing systems, Thailand can achieve gains and provide better information to consumers about the quality of training offered. It can also offer better information to employers for hiring and wage setting. Engaging employers in setting occupational standards can improve the relevance of the skills developed. Standards set by training providers alone may not connect with what employers expect. By engaging the demand side of the market in setting training standards, the relevance of training can be improved. These standards are used in developing curricula, which in turn, guide the choice of equipment used in workshops and the training of instructors. Testing and certification is often centralized and removed from the purview of training institutions to preserve impartiality of the system. But this can be costly and can discourage trainees from seeking certification. An example of this is found in Indonesia – only a

small share of trainees seek certification because of the cost. Malaysia offers an alternative: certification can be left in the hands of the training institutions whose procedures are subject to periodic audits.

The variance in quality among public and private training providers can be reduced by other instruments, such as accreditation.

Information on accreditation can help consumers sort between good and bad training – both public and private. Unlike licensing, that establishes a minimum set of standards for providers, accreditation establishes a higher standard for quality and relevance that is met voluntarily by providers. Both public and private providers can become accredited. Consumers can use information on accredited training organizations to identify good training. Public financing and support for training, like that offered by a voucher program or a training fund, can be restricted to accredited providers; therefore, it becomes an incentive for providers to meet accreditation standards. By being accredited, this information helps open markets to private education and training. Accreditation can be done by the government, by international bodies, by industry groups, and by voluntary associations of providers. The United Kingdom offers an example of an international accreditation body in APMG-Australasia, which has offices in Australia. A regional accreditation body, the New South Wales Vocational Education and Training Accreditation Board also provides its services in Australia.

3.6 Way forward

This note aims at contributing to the discussion on the NESDP's skills policy agenda toward ideas-led growth with equity. It provides a brief summary analysis of skills development issues and outlines possible approaches for consideration in key policy areas such as improving student performance in basic education and addressing skills mismatches within the economy.

Further discussion will help prioritize the issues and the policy options for Thailand's skills development agenda. In priority areas, immediate follow-up work can develop practical recommendations. This this can be built on not only Thailand's reform experience but also on international reform experience in a manner that best suits Thailand's institutions, policies, and ongoing initiatives.

REFERENCES

- Adams, Arvil V. 2009. *Economic Growth, Spatial Income Inequality, and the Role of Education and Training in China*. Report No. 29. South Asia Human Development Sector, Washington, D.C., World Bank.
- _____. 2007. *The Role of Youth Skills Development in the Transition to Work: A Global Review*. Report HDNCY No. 5, Children & Youth Department, Washington, D.C., World Bank.
- Alderman, Harold. 2011. *No small matter: the impact of poverty, shocks, and human capital investments in early childhood development*. World Bank.
- Allais, Stephanie. 2010. "The Implementation and Impact of National Qualification Frameworks: Report of a study of 16 countries," Skills and Employability Department, ILO http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/meeting_document/wcms_126589.pdf.
- Almeida, Rita K. 2009a. "Does the Workforce in East Asia Have the Right Skills? Evidence from Firm Level Surveys." HDNSP, World Bank, Mimeo.
- Almeida, Rita K. 2009b. "Innovation and Openness in East Asia: Have they Increased the Demand for Educated Workers?" Unpublished. World Bank.
- Audretsch, David B and Maryann P. Feldman. 2004. "Knowledge Spillovers and the Geography of Innovation." In *Handbook of Regional and Urban Economics*, vol. 4, V. Henderson and J. F. Thisse, eds. Amsterdam: Elsevier.
- Barnett, W. Steven. 2008. "Why governments should invest in early education". *CESifo-DICE report, Journal for Institutional Comparisons, Early Childhood Education and Care*. 6(2), 9-14. Summer.
- Bruns, Barbara, Deon Filmer, and Harry Patrinos. 2011. *Making Schools Work: New Evidence on Accountability Reforms*. World Bank.
- Bruttel, Oliver. 2005. "Delivering active labour market policy through vouchers: experiences with training vouchers in Germany," *International Review of Administrative Sciences* Vol. 71(3): 391-404.
- Carnoy, Martin and Patrick J. McEwan. 2001. "Privatization through vouchers in developing countries: the cases of Chile and Columbia," in Henry M. Levin (ed.). *Privatizing Education: Can the marketplace deliver choice, efficiency, equity, and social cohesion?*. Westview Press, Cambridge, MA.
- Dar, Amit, Sudharshan Canagarajah, Paud Murphy. 2003. "Training Levies: Rationale and Evidence from Evaluations." World Bank, Washington, D.C. (processed).
- Di Gropello, Emanuela and Chris Sakellariou. 2010. "Industry and Skill Wage Premiums in East Asia". World Bank.
- Economic Intelligence Center. 2011. "Moving forward with the AEC." SCB Insight. Bangkok, Thailand.
- Finkelstein, Neal D. and W. Norton Grubb. 2000. "Making sense of education and training markets: lessons from England," *American Educational Research Journal*. Vol. 37(3): 601-631.
- Gasskov, Vladimir. 2000. *Managing Vocational Training Systems*. International Labour Organization. Geneva.

- Hanushek and Wößmann. 2007. "Education Quality and Economic Growth." The World Bank, Washington, D.C.
- Heckman, James, Jora Stixrud, and Sergio Urzua. 2005. "The Effects of Cognitive and Non-cognitive Abilities on Labor Market Outcomes and Social Behavior." *Journal of Labor Economics* 24 (3): 411–82.
- ICCIDD. 2009. "Tracking progress Towards Sustainable Elimination of Iodine Deficiency Disorders in Thailand: 2009 External Review of the IDD Elimination Programme in Thailand." Bangkok, Thailand.
- Lathapipat, Dilaka. 2010. "Schooling Access Inequality and Educational Wage Trends in Thailand, 1986-2009, Thailand Development Research Institute, Bangkok, Thailand.
- Macdonald. 2010. "Strengthening Education Quality in East Asia: Benchmarking Education Systems for Results." World Bank, Washington, D.C.
- Marques, João Paulo Coelho, J.M.G. Caraça, H. Diz. 2010. "Do Business Incubators Function as a Transfer Technology Mechanism from University to Industry: Evidence from Portugal," *The Open Business Journal*, Vol. 3, pp. 15-29.
- Moenjak, Thammarak and Christopher Worswick. 2003. "Vocational Education in Thailand: a study of choice and returns," *Economics of Education Review*, Vol. 22: 99-107.
- National Economic and Social Development Board. 2010a. "11th National Economic and Social Development Plan," Bangkok, Thailand.
- _____. 2010b "Developing Thailand's Creative Economy." Bangkok, Thailand.
- _____ and World Bank. 2008 "Measuring Output and Productivity in Thailand's Service-Producing Industries."
- Nores, Milagros and W. Steven Barnett. 2010. "Benefits of early childhood interventions across the world: (Under)investing in the very young." *Economics of Education Review*, 29 (2010): 271-282.
- Parandekar, Suhas D. 2011. "Thailand: Analysis of Efficiency of Educational Expenditures." Discussion Paper for Public Finance Management Report. World Bank, Washington, D.C.
- Patmasiriwat, Direk. 2011. "Analysis of the Returns to Education in Thailand." Background Paper. The World Bank Office Bangkok. Thailand.
- Pholphirul, Piriya. 2011. "Skill Development in Workplace: Evidence from Thai Manufacturers." Background Paper. World Bank Office Bangkok. Thailand.
- Ramathibodi Hospital. 2004. "Holistic Development of Thai Children." Bangkok, Thailand.
- Raudenbush, W. Stephen, Kidchanapanish, Somsri, and Kang, Sang Jin (1991) "The Effects of Preprimary Access and Quality on Education Achievement in Thailand", *Comparative Education Review*, 35(2): 255-273.
- Robinson, Marc (ed). 2007. *Performance budgeting: Linking funding and results*. Palgrave Macmillan, England.
- Thailand Development Research Institute. 2008. "Survey of Training by Small and Medium-sized Firms in Thailand," processed.
- UNICEF. 2010. "Iodine Deficiency Disorders in Thailand." Background Note. UNICEF Office Bangkok. Thailand.
- Warunsiri, Sasiwimon and Robert McKown. 2009. "The Return to Education in Thailand: a Pseudo Panel Approach," Department of Economics, University of Colorado, Boulder, CO.

West, Anne, Jo Sparkers, Todor Balabanov, and Sarah Elson-Rogers. 2000. *Demand-side financing: a focus on vouchers in post-compulsory education and training : discussion and case studies*. CEDEFOP dossier. Thessaloniki.

World Bank and National Economic and Social Development Board. 2008. "Towards a Knowledge Economy in Thailand," Washington, D.C. and Bangkok, Thailand.

_____. 2012. "Learning Outcomes in Thailand. What Can We Learn from International Assessments?" World Bank, Washington, D.C. Report No. 64801-TH.

World Bank. 2011a. "Securing the Present, Shaping the Future," Washington, D.C.

_____. 2011b. "Skills and Research for Productivity and Growth: Higher Education in East Asia," Washington, D.C. (forthcoming).

_____. 2011c. "Thailand Economic Monitor, April 2011." World Bank Office Bangkok, Thailand.

_____. 2011d. *Enterprise Surveys database; EdStats database; World Development Indicators database*. Washington DC: World Bank, <http://data.worldbank.org/data-catalog>

_____. 2011e. East Asia and the Pacific regional flagship study on migration. (forthcoming).

_____. 2011f. "Thailand: Public Finance Management Report." Washington, D.C. (forthcoming).

_____. 2010a. "Thailand Economic Monitor, November 2010." World Bank Office Bangkok, Thailand.

_____. 2010b. "Stepping up for More Jobs and Higher Productivity." Washington, D.C.

_____. 2009a. "Measuring Knowledge in the World's Economies," World Bank Institute Report No. 56161. Washington, D.C.

_____. 2009b. "Thailand Socioeconomic Survey." World Bank Office Bangkok, Thailand.

_____. 2009c. "Thailand Social Monitor: Towards a Competitive Higher Education System in a Global Economy." World Bank Office Bangkok, Thailand.

_____. 2008. "Thailand Investment Climate Assessment Update," Report No. 44248-TH, Washington, D.C.

_____. 2006. "Secondary Education has the potential to serve as a pathway for students' progress and advancement," World Bank Discussion Paper, Washington, D.C.

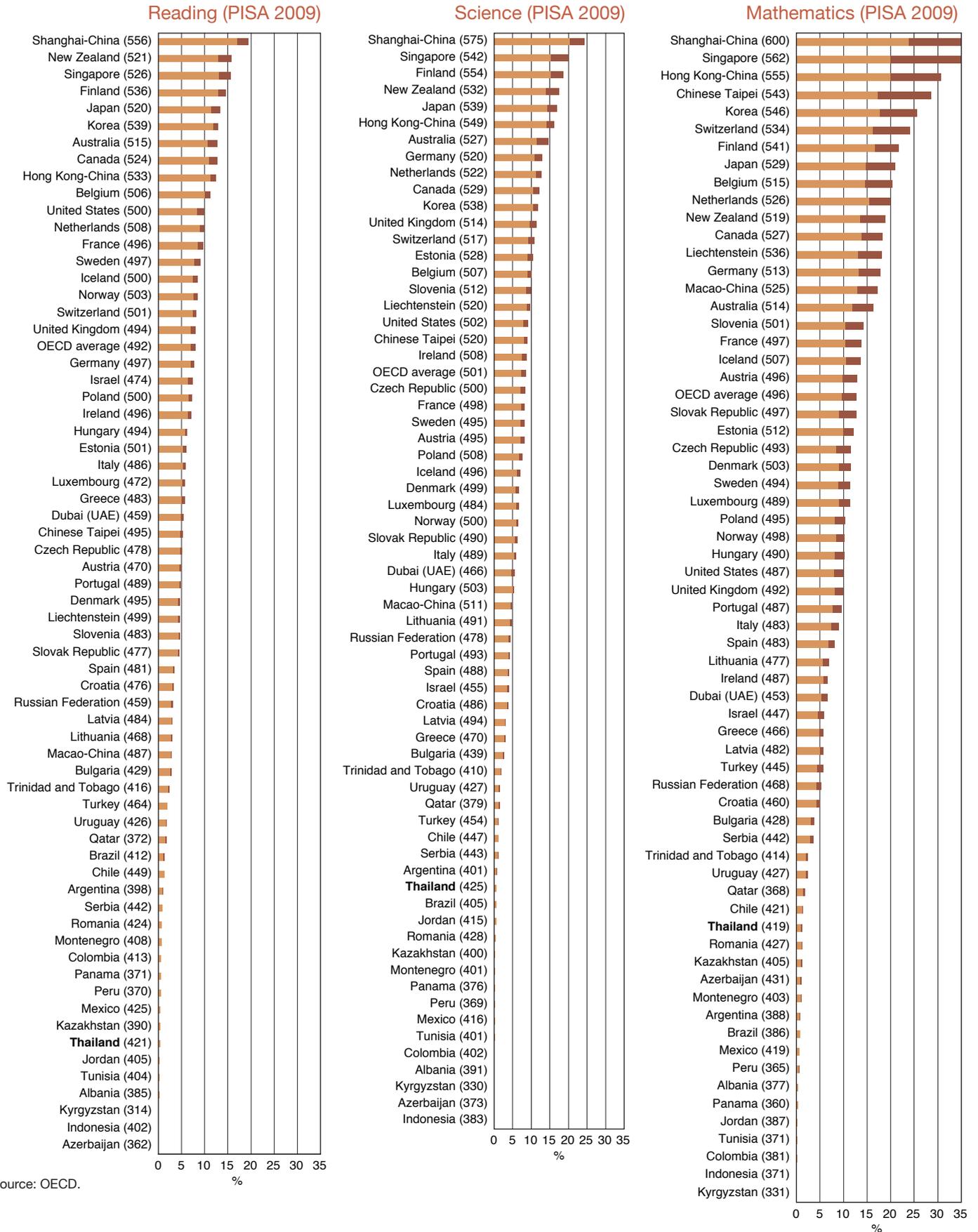
World Economic Forum. 2010. *Global Competitiveness Report 2010-2011*, Geneva, Switzerland.

Yamauchi, Futoshi, Nipon Poapongsakorn, and Nipa Sriant. 2009. "Technical Change and the Returns and Investments in Firm-level Training: Evidence from Thailand." *Journal of Development Studies*, Vol. 45, No. 10, 1633-1650, November.

Yilmaz, Yesim. 2010. "Higher Education Institutions in Thailand and Malaysia: Can They Deliver?" World Bank, Washington, D.C.

ANNEX

Thailand has relatively few high performers in basic education



Source: OECD.



THE WORLD BANK

30th Floor, Siam Tower

989 Rama 1 Road, Pathumwan

Bangkok 10330

Tel: (66) 0-2686-8300

Fax: (66) 0-2686-8301

E-mail: thailand@worldbank.org

www.worldbank.org/th