



## Step 3

### Building job-relevant skills

#### Problem: Skills bottlenecks strangle productivity

Enterprise surveys by the World Bank since 2000 in some 90 countries—several covered by repeated surveys—suggest that skills constraints impede firm performance, particularly in more dynamic environments. The share of firms worried about inadequate worker education and skills averages about 25% in the Organization for Economic Cooperation and Development and in Europe and Central Asia, 40% in Sub-Saharan Africa, and 50% in East Asia and the Pacific. Even in Europe and Central Asia, where the countries have enjoyed a legacy of high skill endowments, the great majority of firms surveyed in 2008 considered deficits in education and skills to be a major or severe constraint.<sup>36</sup>

Skills bottlenecks are likely to worsen in the coming years. According to the enterprise surveys, employer complaints about skills are more often voiced by firms that are newer, faster-growing, more outwardly oriented, and more eager to move up the technology ladder. In Turkey, employers in small and medium enterprises—even in the more labor-intensive sectors such as furniture, food processing, textiles, and clothing—cite the inadequacy of skills at all levels as a key constraint on their capacity to acquire and use new and more advanced technology.<sup>37</sup> In Vietnam a sustained shift in employment from agriculture to manufacturing, coupled with capital accumulation and skills-biased technological change, fueled a strong demand for workers with higher skills—those produced through a university education—and raised the return to tertiary education to 10% in 2004, far above that at all other levels of education.<sup>38</sup>

In low-income countries—where agriculture and the informal economy dominate the economic landscape—skill constraints are one reason for persistent low productivity and earnings.<sup>39</sup> The situation is especially dire in Sub-Saharan Africa as rapid population growth pushes farmers into less productive lands and accelerates migration to the cities, where new arrivals outpace new jobs.

In agriculture, Ethiopia, Kenya, Uganda, and Rwanda are trying to raise productivity through higher value exports, such as cut flowers, horticultural produce, processed fish, and specialized coffees. But inadequacies in a range of skills—technical, scientific, managerial, and entrepreneurial—impede progress up the value chain and reduce the potential for pursuing newer and more lucrative opportunities (such as biofuels, medicinal plants, green technology).

In urban areas, the majority of people in low-income countries and sizable shares in lower middle-income countries, particularly in the Middle East, make a living in low-skilled and low-paid jobs, if they have one.<sup>40</sup> Many of them find themselves in precarious situations, with few opportunities to upgrade or expand their competencies. Their skill deficit adds to other constraints that keep productivity low and incomes low and unpredictable.

#### The payoffs to training in job-relevant skills

Addressing skills bottlenecks can raise firm productivity and workers' wages. In Britain, Mexico, and Malaysia longitudinal surveys of firms have established a causal link between investing in training and firm productivity. Moreover, firms in Malaysia and Mexico that trained their employees repeatedly enjoyed faster productivity growth than firms that either did not train or invested only in one-off training, particularly when the firms also invested in new technology.<sup>41</sup> Evidence from cross-sectional data for a larger set of countries is consistent with these findings (table 1), though the estimates are less robust because the better firms are also more likely to train, which makes it difficult to isolate the impact of training.

Evidence of the impact of training on individuals' employability and productivity is also encouraging, if somewhat tentative because of data limitations. Even so, data from various labor force surveys reveal that the returns to training can be positive and statistically significant, averaging

**Table 1. Impact of in-service training on firm productivity in selected countries**

	(% increase in value added)
China (2001)	<b>32</b>
Guatemala (1999)	<b>49</b>
India (2000)	<b>27</b>
India (2004)	<b>16</b>
Malaysia (1994)	<b>28</b>
Mexico (1992)	<b>44</b>
Morocco (2002)	<b>29</b>
Nicaragua (2000)	<b>56</b>
Pakistan (2004)	<b>67</b>
Russia (2005)	<b>22</b>
Sri Lanka (2002)	<b>36</b>

Source: Data for China, Guatemala, Malaysia, Mexico, Morocco, and Nicaragua from Tan 2006; for Russia from Tan and others 2007; and for Pakistan, India, and Sri Lanka from Riboud 2007.

about 8% in India (2004) and Pakistan (2004), 17% in Sri Lanka (2002), 10–13% in Singapore (1998), about 12.5% in Rwanda (1999–2001), and 8–14% in Tanzania (1997–2000).<sup>42</sup> A 2005 survey in India demonstrates that being fluent in English, a business language, increased men’s hourly wages by 34% relative to those who speak no English, as high as the return to completing secondary school and half the return to completing an undergraduate degree. Being able to speak a little English raised wages by 13%.<sup>43</sup>

Elsewhere, youth training and employment programs are being launched in several African countries, among them the Uganda Youth Opportunities Program. Groups of 15–30 youths were selected through a random process with input from community leaders and given grants for each group to purchase vocational training and equipment to operate in their chosen trade. The early results suggest that the approach has, among other positive outcomes, led to a 150% increase in the probability of working in the trade, a 135% increase in hours worked, and an 18% increase in last week’s and last month’s income.

### Challenges in building job-relevant skills through training

Market failures in skill formation are common, and many governments intervene to minimize the risk of

### Box 1. What are job-relevant skills?

Job-relevant skills refer to a set of competencies valued by employers and useful for self-employment. They include skills relevant to the specific job of the worker as well as other skills that enhance his or her productivity. These other skills include:

- *Problem-solving skills* or the capacity to think critically and analyze.
- *Learning skills* or the ability to acquire new knowledge (“learning to learn”), distill lessons from experience, and apply them in search of innovations.
- *Communication skills*, including reading and writing, collecting and using information to communicate with others, and using a foreign language and information and communication technologies (ICTs) as communication tools.
- *Personal skills* for self-management, making sound judgments, and managing risks.
- *Social skills* to collaborate with and motivate others in a team, manage client relations, exercise leadership, resolve conflicts, and develop social networks.

underinvestments in training. The instruments typically involve the governance of training provision, the public financing of training, and the way information about training services and their outcomes is generated and packaged to inform trainees, employers, and other key stakeholders. These aspects of policy design influence the incentives of individuals and firms to invest in skills and shape those of training providers to deliver effective and responsive services.

There are basically two junctures when the training occurs: before employment and on-the-job. The training includes instruction in classrooms, laboratories, workshops, apprenticeship arrangements, and internships. Country conditions and the occupation influence the choice of these options, but the contribution of both pre-employment and on-the-job training can be improved to promote job-relevant skills and align them more closely to demand signals from the labor market.

*Pre-employment skills development.* Perhaps the most frequent complaint, especially about public institutions that offer TVET, is that the system produces the same graduates

## Box 2. The diverse field of technical and vocational education and training

Technical and vocational education and training (TVET) programs are highly diverse in the competencies they impart. Their entry requirements also vary greatly, from the fairly modest (courses on simple welding jobs), to the moderately demanding (courses for tool and die makers, aerospace-certified welders, air traffic controllers, high voltage technicians), to the highly demanding (courses for engineers, designers, scientists, neurosurgeons). The diversity implies that training occurs in a correspondingly wide variety of settings: in schools that offer TVET courses and in post-secondary institutions such as community colleges, polytechnics, universities and other specialized institutes (and indeed in overseas institutions in esoteric fields).

The courses offered at universities are generally viewed as professional training rather than TVET; the training of teachers (and sometimes that of health workers, including doctors) is treated likewise. The term TVET is thus often used tacitly to refer to the training of other workers, with vocational training typically assumed to be geared to trainees expecting jobs as skilled workers at the lower to mid-level, and technical training mostly directed at those aiming for skilled jobs at higher levels of responsibility.

year after year with little regard to labor market signals and the skills listed in box 1. In addition, costs are high, public support is weak for what is considered a poor route to jobs, and the curriculum is often narrowly geared toward jobs in the formal sector, which in most low-income countries is tiny and not growing fast enough to offer many new jobs.

Because country conditions differ, there is no ideal reform package to balance the supply of skills imparted through pre-employment training programs and the employer demand for skills. The challenge is creating the environment for providers of training to have the incentives to respond to the needs of the labor market.

In Singapore, sustained effort over the years has shaped a well-functioning system of pre-employment training adapted to the country's needs.<sup>44</sup> The Institute of Technical Education (ITE), established in 1992 as a statutory board under the Ministry of Education, caters to 25% of each cohort of 10th-grade completers with weaker academic abilities (about 25,000 students in 2007). The ministry holds ITE accountable for graduates' employment, among

other agreed results, but grants it substantial autonomy under guidance from a board of governors, whose members include business leaders. This governance arrangement has prompted ITE to use business-like practices to ensure efficient services and effective pedagogical approaches, forge and sustain productive ties with industry, routinely report on graduates' and employers' satisfaction with its services through surveys, and "brand" ITE skills through a certification system that employers trust and use.

In some countries, the reforms may be more recent or less comprehensive, but the headway is no less impressive. Botswana, Lesotho, and Vietnam have allowed new tertiary level institutions under public-private partnerships to emerge in response to the demand for high-quality employment-oriented training. To expand training opportunities for those working in the informal economy, Benin, Tunisia, Egypt, and Morocco have set up modern apprenticeship schemes and achieved some progress, albeit not yet on a systemwide scale.<sup>45</sup>

A notable innovation in Latin America is the spread of demand-driven training models. Chile's Joven program, which started in 1992 based on youth training experiences in Great Britain and the United States, has been particularly influential. It inspired similar programs in at least eight other countries in the region, many of them mainstreamed into national training systems. The Joven's three defining features are targeting disadvantaged youth, enhancing participants' social skills to prepare them for jobs, including a requirement for participating providers to arrange for work internships, and relying on a competitive process to select training providers.

*On-the-job training.* OJT contributes much to the stock of human capital, with estimates ranging from a quarter to half of all human capital formation in the United States.<sup>46</sup> It tends to favor workers with higher levels of educational attainment and occurs more frequently in larger firms and in more dynamic, export-oriented sectors. The bias often puts countries in a paradox, with firms complaining about skill shortages while also being unwilling or unable to upgrade their own workers' skills through OJT. The problem is particularly prevalent in South Asia and the Middle East and North Africa, and to a lesser extent in Sub-Saharan Africa.

### Box 3. Tertiary education, a critical part of a skills building system

Tertiary education helps countries become more globally competitive by developing a skilled, productive, and flexible labor force and by creating, applying, and spreading new ideas and technologies. Yet in many low- and middle-income countries, tertiary education systems intended to bring about these benefits are often dysfunctional, inequitable, and inefficient, generating low-quality learning outcomes.

Public expenditure on tertiary education relative to other levels of education remains disproportionately high, with about 20–30% of the education budget. While tertiary education is generally more costly to produce, the expenditure is still largely inefficient and regressive. Enrollments are often low and in most countries largely confined to individuals of higher socioeconomic status. Completion rates are low too, with only a fraction of entrants completing their program of studies, making for inefficient and wasteful systems. Quality, measured by research output and by international rankings of universities, also tends to be low relative to industrial countries. In many countries, the private sector is emerging rapidly to absorb demand, but such growth often occurs with too little check on the quality and relevance of outcomes.

Problems of poor management abound. Many tertiary education institutions are autonomous on paper. But they lack the range of management capacities to behave autonomously—incapable of modifying their institutional practices to improve results and accountability to stakeholders. Inappropriate governance and financing mechanisms are pervasive in tertiary education worldwide, preventing institutions and systems from being agile enough to respond rapidly and appropriately to stakeholder needs or to reform practices for greater efficiency, equity, and quality.

Reforming the higher education system, a critical part of efforts to improve the production of job-relevant skills, typically involves actions on many fronts, including changes in financing and governance and closer coordination with other parts of the education system.

Smaller firms in most countries are reluctant to provide training on the job, for fear of losing trained workers to other firms and for lack of access to credit and information about training. An unfavorable business environment acts as a further impediment by weakening firm incentives to compete, innovate, and train workers. But even under more favorable environments, firms and workers may still underinvest in skills. In such cases, financial incentives

can foster OJT. In low-income settings or for the informal sector, traditional apprenticeships can be an option. In Benin, Kenya, Ghana, and other countries in Africa, they are a significant source of skills for employment in both the formal and informal sectors.

To ensure OJT in smaller firms, Brazil, Chile, Malaysia, Mexico, and Singapore collect payroll levies and use the funds to encourage small and medium-sized enterprises to invest in worker training. A common design challenge is to avoid subsidizing OJT that enterprises would have conducted without the financial incentives and to ensure that OJT investments are cost-effective in producing the desired training outcomes. Mexico's Integral Quality and Modernization (CIMO) Program, established in 1988, has been particularly successful. By 2000 it was helping 80,000 enterprises each year with a package of training and industrial extension services and training 200,000 employees. And more than 300 business associations were participating in CIMO, up from 72 when it started. Evaluations found that companies that received CIMO services invested more than others in training their workers, used their production capacity more fully, adopted quality control practices more frequently, and raised their productivity and profitability. CIMO had a particularly large impact among very small firms.<sup>47</sup>

For most large and well-established firms, OJT is often so productive that they invest in it with little government intervention. Examples of such initiatives can be found in India's leading companies. Infosys, a software technology giant, completed a new 300-faculty Global Education Center in 2009 with a training capacity of 14,000 seats, dedicated to enhancing the competency of its staff.<sup>48</sup> In Malaysia, the Penang Skills Development Center is a partnership of several enterprises coming together to benefit from industry-specified training services financed through membership subscriptions, fees, and a government subsidy. Its 17-year success has inspired the setting up of the Chittagong Skills Development Center in Bangladesh. The Ghana Industrial Skills Development Center, yet another industry-led training example, was formed through a partnership of private firms, government, and donors to support the country's budding manufacturing sector.

*Skills certification systems.* One important aspect of a strategy to facilitate and promote the acquisition of job-

relevant skills involves a framework for workers and firms to have clear information on those skills and on acceptable standards. Skills certification has become important to employers as a quality assurance mechanism that recognizes and certifies an individual's skills and competencies.

Skills certification is often referred to as competency-based certification. As modes and pathways of learning become more diverse, skills certification fulfills many objectives. First, it recognizes skills and competencies regardless of the way in which they were acquired or of the job-seekers' educational background. Second, it allows employers to compare individuals' skills across the labor market. Third, it is a way to match the skills acquired through training or other means with the skills required to perform a job. Fourth, its less immediate objectives are to increase occupational mobility, promote lifelong learning, and enable international and intergenerational comparative analysis.

Often, skills certification can be organized in a national qualification framework, which defines a single set of criteria for specified levels of learning and thus increases

transparency and eases recognition of qualifications by labor market participants.

An example of an integrated approach to skills certification is Chile's Califica, which helped build a flexible and dynamic system of lifelong learning and training, one that meets industry needs and also serves disadvantaged groups. Today the system, regulated under the Chilean Quality Assurance Standard, boasts a catalogue of some 1,000 competencies for 315 occupational profiles in 12 sectors of the economy, as defined by the relevant industry players. Since 2003, more than 29,000 workers have been certified according to these competency standards. The National System for Certification of Labor Competences was established in 2008, creating an institutional umbrella for the different types of education (academic, vocational, technical) and training modes (formal, informal, non-formal, pre-employment, enterprise-based). Through a second-chance program under Chile Califica, 145,000 individuals have been served, with 92,000 completing their basic or secondary education.