Jobs and productivity

Productivity growth happens as jobs become more productive, as new high-productivity jobs are created, and as low-productivity jobs disappear. In the medium term, trends in employment align closely with trends in the labor force, so there is no such a thing as jobless growth. But the short-term relationship between employment and growth is more complex. Large numbers of jobs are being created and destroyed simultaneously, leading to structural change and spatial labor reallocation. Underneath these sectoral and spatial changes are firm dynamics that result in a constant restructuring and reallocation of resources, including labor.

In developing countries, many people work in very small and not so dynamic economic units. Family farms, which often predominate in agriculture, average only 1.2 hectares in Asia, and 1.8 hectares in Sub-Saharan Africa. Outside of agriculture, microenterprises and household businesses account for a large share of employment in a majority of developing countries. These businesses make a significant contribution to gross job creation and destruction, although not necessarily to net job creation and productivity growth.

In agriculture, the Green Revolution has led to higher cereal yields and to employment growth because the new technologies are labor intensive. The progress has been uneven across regions, however. In Sub-Saharan Africa, the Green Revolution has not taken place on a large scale.

Outside of agriculture, productivity varies substantially across enterprises, implying potentially large productivity gains from job reallocation. The speed at which productivity grows also varies. Large firms are more innovative, provided that they are exposed to competition. At the other end, microenterprises are a diverse group. A vast majority of them, more prone to churning than to growth, are a means of survival for the poor. Yet some are entrepreneurial, and their success could boost wage employment.

Employment turbulence, not jobless growth

Jobless growth is a popular notion, often believed to be grounded on data. However, unemployment rates neither explode nor vanish over time, so employment trends align closely with trends in the size of the labor force. The growth of gross domestic product (GDP) certainly matters for employment growth, but in the medium term it matters less than demographics and participation rates. Data from 97 countries over the past decade confirm that a positive relationship exists between the growth of GDP per capita and the growth of employment per capita (figure...
BOX 3.1  What drives economic growth?

At the risk of simplifying, four main forces lie behind increases in an economy’s per capita output. The first is the use of more capital per unit of labor. The second is an increase in the number of people working, relative to the total population. This happens when fertility declines and the share of adults in the total population increases; it is also happens when women shift their work from household chores to income-generating activities. The third mechanism through which output can grow is by making people themselves more productive. The acquisition of skills, also known as human capital accumulation, allows a person to do more using the same amount of capital. The fourth mechanism is technological progress, measured as changes in total factor productivity. Technological progress amounts to combining capital, labor, and skills more efficiently, while applying new knowledge.

Growth decomposition quantifies the contribution of each of these four forces to economic growth. It can be done for any particular country given sufficient data on gross domestic product, capital, employment, and human capital. Some of these variables may need to be constructed or approximated; for instance, the stock of capital in an economy is estimated based on accumulated investments, while human capital is approximated by the educational attainment of its population, corrected for the quality of education.

3.1a). The relationship is not very strong, but only in very few cases was growth truly jobless.

On the other hand, the short-term relationship between growth and employment is not so straightforward. Growth happens partly through the disappearance of low-productivity jobs as well as through the creation of more productive jobs. So for the same sample of countries over the same decade, surges in total factor productivity (TFP) in one year were indeed associated with a decline in employment in the same year (figure 3.1b). Only in subsequent years did this negative employment effect wane.

Productivity growth is a turbulent process. Analyses covering economies as different as Ethiopia and the United States in different periods over the past three decades reveal the magnitude of gross job creation and gross job destruction (figure 3.2). In the manufacturing sector of developing countries, between 7 and
20 percent of jobs are created every year, while a similar proportion disappear.\footnote{Simultaneous job creation and destruction characterize all economies} Even when aggregate employment was declining, as in the 1990s in Romania and Slovenia and in the manufacturing sector of República Bolivariana de Venezuela, many new jobs were being created. Conversely, when aggregate employment was growing by 6 percent in Mexico, jobs were disappearing at almost twice that rate.

Job flows may be associated with profound transformations in the sectoral structure of the economy. Technological change often occurs for specific products and processes, causing productivity to grow at different paces in different sectors. However, the relative weight of different sectors in the economy is determined not only by technological progress, but also by market demand and nonmarket forces. When there is an expansion of the most productive sectors, aggregate productivity increases. This composition effect, called productivity-enhancing structural change, is well documented in the case of labor shifts from agriculture to industry and services. Analysis based on more disaggregated data suggests that reallocation of labor across sectors has also been an important driver of productivity growth in several fast-growing East Asian countries. In China, it contributed 4.1 percentage points of the 7.3 percent annual growth in aggregate labor productivity over the past decade; in Vietnam, it accounted for 2.6 points out of 4.2 (figure 3.3).\footnote{Simultaneous job creation and destruction characterize all economies}

Job flows are also associated with changes in the spatial distribution of employment. The structural shift from agriculture in rural areas to industry and services in towns and cities may be the most visible example of spatial labor reallocation, but it is not the only one.\footnote{Simultaneous job creation and destruction characterize all economies} Even within sectors, job flows often have a strong spatial dimension. New plants associated with more innovative activities tend to start in large, diversified cities—incubators—with a higher density of suppliers and labor, and more fluent exchanges of information. As they mature and become more self-sufficient in information, these plants move to smaller cities, where land and wage costs are lower. As a result, many medium and small cities tend to be more specialized.\footnote{Simultaneous job creation and destruction characterize all economies}

The extent of spatial relocation varies across sectors and countries. For instance, in the Republic of Korea, manufacturing dominance in


**FIGURE 3.2 Simultaneous job creation and destruction characterize all economies**

<table>
<thead>
<tr>
<th>Country</th>
<th>Share of total employment, %</th>
<th>Net job creation</th>
<th>Gross job creation</th>
<th>Gross job destruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latvia</td>
<td>-7.0</td>
<td>5.0</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>5.0</td>
<td>10.0</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>-2.0</td>
<td>2.0</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>-5.0</td>
<td>5.0</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>-5.0</td>
<td>5.0</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>5.0</td>
<td>10.0</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>-2.0</td>
<td>2.0</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Industrial economies (average)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing sector only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td>-3.0</td>
<td>3.0</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>-4.0</td>
<td>4.0</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>-1.0</td>
<td>1.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>-2.0</td>
<td>2.0</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Taiwan, China</td>
<td>-1.0</td>
<td>1.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td>-3.0</td>
<td>3.0</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Venezuela, RB</td>
<td>-2.0</td>
<td>2.0</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Industrial economies (average)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The main driver of aggregate productivity growth is firms becoming better at what they do (figure 3.4). Entry and exit also contribute, which indicates that new firms are more productive than those exiting. In general, exiting firms see their productivity decline before they close, whereas new firms tend to attain the average levels of productivity of their industry within five years. These complex dynamics imply that at any point in time, firms with very different productivity levels coexist, even within narrowly defined industries.

The popular perception that productivity grows through downsizing at the firm level is partially supported by these analyses. Indeed, in many cases, employment tends to shrink in firms experiencing rapid productivity growth. But downsizing is only part of the story. There are also many successful upsizing firms, achieving both productivity growth and employment growth. For instance, one-fourth of manufac-
MAP 3.1 Manufacturing activities are sprawling out of the main urban centers in the Republic of Korea

Source: Park et al. 2011.
Note: The maps show employment shares of manufacturing industries at the city or county level for 1960, 1985, and 2005.

FIGURE 3.4 Efficiency gains at the firm level are the main driver of productivity growth

Source: Based on Bartelsman, Haltiwanger, and Scarpetta 2009b.
be successful upsizers. Recent evidence based on 26,000 manufacturers from 71 countries further shows that firms that innovated in products or processes were more likely to be successful upsizers; they not only attained higher total factor productivity than noninnovative firms; they also exhibited higher employment growth.

Transition economies in Europe illustrate the links between job reallocation and productivity growth. Before reforms were implemented, these economies suffered from large distortions caused by a rigid planning system, which prevented resources from flowing to more efficient uses. Liberalization led to massive downsizing and job losses. Eventually, it also strengthened incentives, mobility, and markets, opening up space for more productive private companies. The entry of these dynamic players contributed between 20 and 50 percent of total labor productivity growth in the late 1990s. The exit of obsolete firms released resources that could be used more effectively by new or existing firms. Although lack of experience and small
size often made the new firms less productive than the average firms of more advanced countries, these new firms were more efficient than domestic incumbents. They played a strong role in boosting productivity in medium- and high-technology industries and in exerting competitive pressure on existing firms.\textsuperscript{15}

China’s rapid productivity growth was also underpinned by large-scale reallocation. Beginning in 1978, economic reform efforts gradually expanded the influence of markets and deepened global integration. All of this created unprecedented opportunities for the formation of private entities, including township and village enterprises, and the entry of foreign companies. During the first decade of reform (1978–88), reallocation from agriculture to nonagriculture activities was the source of almost half of all productivity growth. In the following decades, however, the main drivers of productivity growth were labor reallocation out of the state sector, private sector vibrancy, and state sector restructuring. The scale of business entry was startling: the number of industrial firms rose from 377,000 in 1980 to nearly 8 million in 1996. The 2004 economic census reported 1.33 million manufacturing firms with annual sales above RMB 5 million.\textsuperscript{16} Most of them were private. The entry of these new businesses and the closure of nonviable state-owned enterprises (SOEs) accounted for two-thirds of TFP growth in manufacturing sectors over 1998–2006.\textsuperscript{17}

\textbf{Most jobs are in very small farms and firms}

Many people in developing countries work in very small and not very dynamic economic units—family farms, microenterprises, and household businesses. Although microenterprises are often defined as firms employing ten or fewer workers, many among them are actually one-person businesses. Given their contribution to total employment, these small economic units cannot be ignored. Understanding their dynamics is crucial to deciphering the relationship between jobs and productivity.

In family farms, hired labor is usually employed in simple tasks such as weeding and harvesting, whereas family labor usually carries out care-intensive activities such as water management, land preparation, and fertilizer application. Limited reliance on hired labor is due to the difficulty to monitor effort, and without machinery, farms cannot be expanded beyond the size manageable by the family’s labor, which is typically 1 to 2 hectares.\textsuperscript{18} Family farms dominate even in high-income countries, and owner cultivation is the most common form of land tenure, especially in Asia (figure 3.6).

At 1.2 and 1.8 hectares, respectively, average farm size is small in both Asia and Sub-Saharan Africa.\textsuperscript{19} In Asia, farmers typically own land plots, which they supplement through tenancy contracts that facilitate transfers from relatively land-abundant to relatively labor-abundant households. Farms in Sub-Saharan Africa are slightly larger than in Asia, but size and the importance of owner farming are becoming similar in both regions.\textsuperscript{20} There are some exceptions to this pattern. Colonial governments created large farms in some developing countries, such as estates in southern Africa, haciendas in Latin America and the Caribbean, and plantations in the Caribbean. In Sub-Saharan Africa, large areas are also held as customary land—owned collectively by extended families, clans, or lineage.\textsuperscript{21}
Outside of agriculture, microenterprises and household businesses are dominant. More than 80 percent of registered manufacturing establishments in Argentina, Bolivia, El Salvador, and Mexico have fewer than 10 workers. About 90 percent of manufacturing establishments employ 5 to 49 workers in China; India; Indonesia; Korea; the Philippines; and Taiwan, China. The share of microenterprises is even higher outside manufacturing, reaching 94 percent in the services sector of Mexico and 98 percent in all modern sectors in Tunisia. In several African and Latin American countries, the majority of informal enterprises consist of 1- to 3-person businesses.

It is often claimed that most employment, and most job creation, is associated with small and medium enterprises, but that is generally not true in developing countries. In reality, micro- and small enterprises account for the bulk of employment, even in middle-income countries (figure 3.7). Their share is often underestimated, because economic censuses and plant-level surveys rarely cover the informal segment of the economy, where businesses are especially small. But data from household and labor force surveys that are representative of the entire population provide a different picture. These small enterprises play significant role in employment in manufacturing. They account for 97 percent of employment.
in the manufacturing sector in Ethiopia and 39 percent in Chile. In services sectors, their role is often more important. Even in Eastern European countries, where private sector entry is only two decades old, microenterprises account for 10 to 20 percent of employment in manufacturing and for 30 to 50 percent of employment in services. Micro- and small enterprises also play a critical role in job creation and destruction (box 3.2).

**In farms, uneven technological progress**

It is generally assumed that large farms are more productive. In low-income countries, however, yields per hectare tend to be higher in smaller farms, because family farms apply more labor per unit of land, even though they apply fewer purchased inputs. This inverse relationship between farm size and productivity was first observed in South Asia. But it has also emerged in Sub-Saharan Africa as population pressure on the land has led to agricultural intensification. In Kenya, Malawi, Tanzania, and Uganda, a 1 percent increase in farm size is associated with a 0.1 to 0.2 percent reduction in yield. The use of family labor per hectare is also inversely correlated with farm size.

The relationship between crop yields and farm size emerges, because the larger, more mechanized farms have higher productivity. But
The agricultural growth associated with the Green Revolution not only creates jobs in farming but also facilitates the development of the nonfarm sectors. The adoption of modern technology stimulates the production and marketing of fertilizer and other purchased inputs. Increased supply of cereals stimulates the development of food markets and keeps the cost of living low for those who migrate to the cities. In addition to these backward and forward links, the increase in farmers’ incomes heightens the demand for goods and services. Cross-country analyses show that agricultural growth has resulted in the expansion of nonfarm sectors, particularly where the agricultural sector is large.

Among firms, much churning and few gazelles

Outside of agriculture, productivity varies substantially across enterprises, implying that job reallocation could lead to large gains in aggregate productivity. In India, within a narrowly defined manufacturing industry, a plant at the 90th percentile of the TFP distribution gener-
For a given size, young firms are also more likely than old firms to engage in innovative activities. They also have better growth prospects, a finding consistent with evidence from industrial countries (figure 3.11). For example, in the 1990s, when China was in the early stages of reform, human and financial resources were concentrated in SOEs. However, the incentive structure in these enterprises hindered innovation. In contrast, the new township and village enterprises lacked the resources to adopt new technology and import new equipment, but they were more flexible in their decision making. As a result, these younger firms were more dynamic than large SOEs, although they were less productive than large and medium private companies.

In developing countries, the dispersion of productivity and growth prospects across firms is further widened by the large number of microenterprises, many of which are barely more than a means of subsistence for the poor. A majority of these microenterprises have limited capital and often even lack a fixed address.
**Figure 3.10** Large firms tend to perform better and to pay better than small ones

*a. Large firms are more productive and innovative*

- Labor productivity
- Wage
- Being exporter
- Export as share of sales
- Added new product line
- Incorporated new technology
- Upgraded existing product line
- Opened a new plant
- Discontinued at least one product
- Entered new joint venture with foreign partner
- Entered new licensing agreement
- Closed at least one existing plant
- Outsourced a major activity
- Brought in-house a previously outsourced activity

*b. Larger firms pay higher wages*


Note: Panel a uses World Bank enterprise surveys covering more than 54,000 firms across 102 developing countries over 2006–10 for overall performance, and 19,000 firms across 47 developing countries over 2002–05 for innovative activities. The analysis controls for firm characteristics, industry, and country. In this panel, large firms employ 100 or more workers and small firms fewer than 20 workers. Panel b uses 138 household and labor force surveys spanning 33 countries over 1991–2010 and controls for worker characteristics. In this panel, large firms are those employing more than 50 workers and small firms 10 to 50 workers.

**Figure 3.11** Young firms are more likely than old ones to engage in innovative activities

- Incorporated new technology
- Added new product line
- Opened a new plant
- Upgraded existing product line
- Brought in-house a previously outsourced activity
- Entered new joint venture with foreign partner
- Outsourced a major activity
- Entered new licensing agreement
- Closed at least one existing plant
- Discontinued at least one product


Note: The figure uses World Bank enterprise surveys covering 19,000 firms across 47 developing countries over 2002–05, controlling for firm characteristics, industry, and country. Statistically insignificant estimates are reported as zeroes.
Many are located in rural areas, absorbing some labor slack during the low agricultural season (box 3.3). Across 18 developing countries, 44 percent of the people living on less than US$1 a day in urban areas, and 24 percent of those in rural areas, work in a nonagricultural business. On average, they do not earn much.

Nonetheless, these nonfarm activities provide an important channel to diversify income for the poor. In nine Sub-Saharan African countries, most nonfarm jobs were generated by households starting businesses, rather than entering the rapidly expanding private wage sector. Despite being modest, earnings from household enterprises contribute to consumption much the same as earnings from wage employment do. And these small businesses offer an avenue for poor households to engage in gradually more productive activities.

While microenterprises have a lackluster performance as a group, they are also very diverse. In middle-income countries, a significant share of the owners of micro- and small enterprises are as entrepreneurial as their peers in industrial countries. Their weak performance may be driven more by contextual factors such as limited access to credit and policy-induced barriers to access technologies and markets, than by limited capacity. In several Latin American countries, for example, entrants into self-employment tend to be workers who have accumulated human and physical capital while working for a wage or a salary. Operating microenterprises is a choice for them. Those who achieve higher productivity levels are more likely to stay in business, grow, and create job opportunities for others.

A very small group of microenterprises actually displays a strong performance. This group bears similarities with the so-called “gazelles” of industrial countries—high-growth companies whose revenues increase by at least 20 percent annually for four years or more. In industrial countries, the term “gazelle” is used for companies starting from a revenue base of at least US$1 million, which makes them very big by developing-country standards. Nonetheless, the same dynamism can be found at a much smaller scale. Data from seven Sub-Saharan African countries show that 25 to 45 percent of these microfirms use home as primary point of operation, and 10 to 40 percent of them simply work on the street.

The dynamism of microenterprises matters not only for livelihoods but also for productivity growth. Large firms innovate more, but they are...
not all born large. In industrial countries, some of the more resounding successes, from Honda to Microsoft, started in garages. And many successful companies in developing countries also grew out of small household businesses. Thailand’s Charoen Pokphand Group, founded in 1921 as a small seed shop in Bangkok by two brothers, has grown into one of the world’s largest multinational conglomerates in agribusiness, operating in 15 countries and encompassing close to 100 companies. India’s Tata Group transformed from a Mumbai-based, family-owned trading firm in the late 19th century to a multinational conglomerate comprising 114 companies and subsidiaries across 8 business sectors on several continents. Many of China’s successful clusters, such as the footwear and electric appliance industry in Wenzhou, also started from small family businesses working close to each other.49

A vibrant firm life cycle is often missing, however. Larger and older firms tend to be stagnant, while smaller enterprises are prone to churning. In Ghana, for example, many firms are born large and show little growth over 15 years (figure 3.12). In Portugal, by contrast,
many more firms are born as microenterprises and grow substantially in 7 years. The majority of firms are born small in India too, but they tend to stay small, without displaying much variation in employment over their life cycle. A revealing comparison involves the size of 35-year old firms relative to their size at birth. In India, the size declines by a fourth. In Mexico, it doubles. In the United States, it is 10 times larger (figure 3.13a). Productivity growth over a firm’s life cycle follows similar patterns in these countries (figure 3.13b).

Churning—entering and exiting at a relatively high rate—is much more common than growth among the micro- and small enterprises of developing countries. In several Sub-Saharan African and Latin American countries, about 20 percent of micro- and small enterprises enter and leave the market in the same year. A majority of closures occur within three years of starting up. Among the survivors, less than 3 percent expand by four employees or more. In Vietnam, 20 to 30 percent of household enterprises leave the market over a two-year period, while the total number of household enterprises remains about the same. In Sub-Saharan Africa, few household enterprises expand into employment beyond the household, as shown by the experiences of Ethiopia, Tanzania, and Madagascar. In Mexico, individuals starting microenterprises are more likely to remain the sole worker than to increase the firm size (table 3.1).

The wide dispersion of productivity among businesses, the large number of unsustainable microenterprises, and the stagnation of larger firms all suggest that the process of market selection and creative destruction that has underpinned the rapid growth of transition economies and East Asian countries in the past decades is weak in most developing countries. This weakness impedes labor and other resources from moving toward their most productive uses and undermines both job creation and productivity growth. Gains from tackling the difficulties faced...
by the start-ups and removing constraints to the growth of incumbents could be sizable, but the task is daunting (question 3).57

* * *

Jobs can have an impact on the productivity of others, beyond the jobholder and the economic unit where they belong. Jobs that have these additional impacts do more (or less) for development. These additional impacts arise because jobs differ in the way they connect with each other, and some of the connections do not occur through markets. In functional cities, ideas are exchanged among people more effectively, making everybody more productive. In clusters, similar firms that locate next to each other tend to benefit from a broader pool of qualified workers and common support services. Firms also connect with foreign businesses through trade and investment, and, in integrating with global value chains, they can acquire more advanced knowledge, technology, and management know-how. In all these ways, specific jobs can contribute to productivity gains of others and elsewhere in the economy. But effects can be negative as well if jobs overuse natural resources or damage the environment, thus reducing aggregate productivity.

---

**TABLE 3.1 Few small firms grew in Mexico**

<table>
<thead>
<tr>
<th>Firms by size in 1987, %</th>
<th>Own account</th>
<th>1–4 workers</th>
<th>5–9 workers</th>
<th>10 or more workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own account</td>
<td>51.9</td>
<td>12.4</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>1–4 workers</td>
<td>22.1</td>
<td>49.2</td>
<td>3.9</td>
<td>1.5</td>
</tr>
<tr>
<td>5–9 workers</td>
<td>7.8</td>
<td>35.1</td>
<td>22.6</td>
<td>13.1</td>
</tr>
<tr>
<td>10 or more workers</td>
<td>4.1</td>
<td>15.2</td>
<td>14.4</td>
<td>44.6</td>
</tr>
</tbody>
</table>

Source: Fajnzylber, Maloney, and Rojas 2006.
Note: Rows do not add up to 100 percent because the owners of some of these firms may become salary workers or unemployed.
Self-employment is prevalent in developing countries, and micro- and small enterprises are a major source of livelihood for low-skilled workers. Even if only a small fraction of these tiny economic units succeeded in building a viable business, with the potential to hire others, the aggregate effect on living standards would be substantial. Their success would also matter for productivity reasons. Quite a few currently large enterprises in industrial countries started out as micro- and small family businesses. By contrast, in developing countries many large enterprises are born large, often the result of government support or privileged access to finance and information. Breaking privileges is one more reason why the success of microenterprises is so important.

Views differ on whether there is scope to help the self-employed succeed. At one time almost every self-employed person or owner of a microenterprise was seen as a potential entrepreneur, held back only by regulatory zeal and corruption. Substantial rates of return on capital for micro- and small enterprises were viewed as evidence of a potential to thrive. But the pendulum has swung, and the conventional wisdom is now rather pessimistic. The large numbers of unregistered self-employed in developing countries are viewed as subsistence entrepreneurs who are trying to make ends meet, not thriving. Evidence on the growth of micro- and small enterprises in several countries in Latin America and West Africa shows that most microenterprises with at least two years of operations remain at their start-up employment levels. Embedded in the pessimism of the conventional wisdom is the idea that entrepreneurial ability and skills cannot be easily transferred, especially not to adults with limited formal education. In this view, entrepreneurs are born, not made. If this view is correct, attempts to convert survivorship into entrepreneurship are bound to fail. The wide dispersion of productivity across firms, including across microenterprises, suggests, however, that reality is somewhere in between the optimistic and the pessimistic view: survivorship may be dominant, but entrepreneurship is unlikely to be missing altogether.

Who is an entrepreneur?

Entrepreneurship combines innovative capacity to put new ideas into effect with managerial capacity to increase a firm’s efficiency within the limits of known technology. Specific psychological traits are associated with entrepreneurship, such as a personal need for achievement, a belief in the effect of personal effort on outcomes, self-confidence, and a positive attitude toward risk. These traits are difficult to observe or measure. But surveys comparing entrepreneurs with other workers in places as diverse as China and the Russian Federation show that observable individual characteristics such as education, experience, gender, location, and age are good predictors of entrepreneurship. Among microenterprises, rates of return on capital tend to be higher when their owners are more educated and experienced.

Observable characteristics of the self-employed can thus be used to identify individuals who have potential to become successful entrepreneurs. To illustrate the point, a successful entrepreneur is defined as someone who employs others and is not living in poverty. The share of this group in total employment is small and relatively stable across countries at different levels of development. The share of self-employed workers without paid employees, on the other hand, initially increases and then declines with GDP per capita (figure 3.14a). At its peak, which corresponds to low-income countries, the share of self-employed workers without paid employees reaches almost three-fifths of total employment. Among this group, a majority are individuals with relatively low potential to succeed. Their characteristics are closer to those of wage workers than of employers. However, if each of the self-employed workers with high potential were to create a single additional job, total employment would increase substantially, somewhat more so in low-income countries (figure 3.14b). As a share of the work-
Removing obstacles to firm growth is thus a prerequisite to foster entrepreneurship. Obstacles notwithstanding, entrepreneurial capacity varies substantially across microenterprises and small firms. A distinction is often made between innovative or transformative entrepreneurs and replicative or subsistence entrepreneurs. The former correspond to Schumpeterian type of entrepreneurs, while the latter, who generally manage micro- and small enterprises, are followers. Such a distinction, however, does not capture the broader gradation of managerial performance that lies between the transformative and subsistence extremes. A study of the number of management practices adopted by the owners of micro- and small enterprises in Sub-Saharan Africa reveals a large variation of management scores (figure 3.15). These scores are closely associated with business performance. A broad dispersion of management scores is also found among relatively larger firms in India.

What constrains entrepreneurship?

Even potentially skilled entrepreneurs would have difficulty succeeding without access to basic infrastructure and financial resources. In their absence, managerial capacity alone may not be enough to realize productivity gains and employment expansion. The investment climate matters for business performance as well.

**FIGURE 3.14** Some among the self-employed have the potential to become successful entrepreneurs

![Graph showing employment share and per capita GDP](image)


Note: GDP = gross domestic product. PPP = purchasing power parity. In panel b, each dot represents a country.
up an offer of a wage subsidy covering 50 percent of the cost of hiring a worker for six months and 25 percent of the cost for another two months. Overall, these results suggest that lack of access to finance is not the only constraint.

Entrepreneurial skills, measured by the education of business owners and their participation in training, explain a large share of the differences in productivity across firms and regions in developing countries. Yet markets fail to nurture entrepreneurship, because knowledge spillovers imply that some of the returns to acquiring or developing new managerial ideas are appropriated by others. More important perhaps, entrepreneurs themselves do not recognize the relevance of management expertise. Only 3 percent of Brazil’s owners of micro- and small enterprises, for instance, see management as a binding business constraint. This may be an area where information and knowledge failures matter, leading to a vicious circle of low productivity, low living standards, and insufficient job creation.

The capacity to acquire skills and to apply them to business seems to be one of the most important characteristics of successful entrepreneurs. Success also depends on having core skills

---

**FIGURE 3.15 Management scores vary widely across small enterprises in Sub-Saharan Africa**

Source: Fafchamps and Woodruff 2012.

Note: The management score measures the degree to which firm owners use and master core management and business techniques. Scores are based on an evaluation of 26 techniques (26 is the highest possible score).
such as numeracy and literacy, as well as social skills. A vast literature highlights the importance of entrepreneurs’ schooling as a determinant of firm growth, employment, and efficiency. Russian and Chinese business owners have more entrepreneurs in their families and among childhood friends than otherwise similar individuals, suggesting that social environment also matters.

Learning can also happen through jobs. Nearly half of entrepreneurs managing the 50 largest manufacturing firms in Ethiopia began their careers in trading companies, thereby learning about the market and what it takes to meet demand. A large number of founders and leading entrepreneurs in the light manufacturing industries in Asia and Sub-Saharan Africa were initially traders or employees in the marketing division of large enterprises.

Integration in supply chains with larger, often foreign, firms, is receiving much attention as a potential source of knowledge transfers. Indian entrepreneurs returning from Silicon Valley made Bangalore a hub of the information technology industry. Perhaps the most dramatic evidence attesting to the importance of learning from abroad can be found in the case of the garment industry in Bangladesh (box 3.4).

**The case for targeted management training**

Managerial practices are linked to differences in productivity, profitability, firm growth, and survival. The development experience of the garment industry in Bangladesh suggests that entrepreneurship can be fostered by exposure to advanced management practices and technologies. But whether managerial capacity can be improved through management training is more debatable. Creativity, foresight, and risk taking are key elements of any innovative process, but the question is whether they can be diffused and nurtured.

A substantial number of experiments have been conducted in recent years, providing evidence of both successes and failures of management training interventions. Some patterns emerge from a systematic review of the available evidence. To be successful, management training must be kept simple, appropriate teaching materials must be available, and the training must contributed to the proliferation of garment manufacturers by providing a variety of valuable services including international procurement and marketing, sample making, and design reengineering.

Observing Desh’s good start in exporting, and subsequently the success of ex-Desh workers, highly educated people started their own garment businesses, and wealthy families actively invested in the industry. As a result, the size of garment firms has been quite large since the beginning; their average size was 300 workers in 1983–84 and 700 in 2010–11. As of 2005, owners of garment firms had 15 years of schooling on average, and about 60 percent of them had completed college or university education.

Learning from abroad continued. Some entrepreneurs participated in training programs in Singapore, Japan, and Europe. Beyond garment enterprises in Korea, other newly industrial countries in East Asia followed Daewoo into operation in Bangladesh and invested in training Bangladeshi workers and managers. Thus, many Bangladeshi traders and manufacturers had work experience in garment trading and production, including the experience of working at joint ventures, before starting their current businesses.

**BOX 3.4 What explains the boom in the garment industry in Bangladesh?**

The garment industry in Bangladesh illustrates how important it is to learn advanced management practices, marketing, and technologies from abroad. When Daewoo Corporation of Korea teamed up with Bangladesh’s Desh Ltd. to produce garments for export in Bangladesh in 1979, the South Asian country had no modern industry. Little more than 20 years later, the industry was generating more than US$12.5 billion in export revenue. Women accounted for 80 percent of its 3.6 million workers.

Arguably, a wide set of factors, from financial innovation to policy support, contributed to this development success. But it began in 1979, when Desh sent 130 newly recruited, educated employees to Daewoo’s garment factory in Korea, where they participated in an eight-month intensive training course covering topics from sewing skills to factory management, quality control, and international procurement and marketing—skills that they then applied in the Desh factories in Bangladesh. Within a few years, almost all the trainees had left Desh to start their own garment businesses. Some of the ex-Desh workers joined new garment factories established by affluent businessmen, while others founded trading houses, which then contributed to the proliferation of garment manufacturers by providing a variety of valuable services including international procurement and marketing, sample making, and design reengineering.

Observing Desh’s good start in exporting, and subsequently the success of ex-Desh workers, highly educated people started their own garment businesses, and wealthy families actively invested in the industry. As a result, the size of garment firms has been quite large since the beginning; their average size was 300 workers in 1983–84 and 700 in 2010–11. As of 2005, owners of garment firms had 15 years of schooling on average, and about 60 percent of them had completed college or university education.

Learning from abroad continued. Some entrepreneurs participated in training programs in Singapore, Japan, and Europe. Beyond garment enterprises in Korea, other newly industrial countries in East Asia followed Daewoo into operation in Bangladesh and invested in training Bangladeshi workers and managers. Thus, many Bangladeshi traders and manufacturers had work experience in garment trading and production, including the experience of working at joint ventures, before starting their current businesses.

Sources: Bangladesh Knitwear Manufacturers and Exporters Association 2012; Easterly 2002; Mottaleb and Sonobe 2011; Rhee 1990.
identify those business owners with the highest potential to benefit from management training. Expert panels may be used to identify and rank micro- and small enterprises on their potential to grow, but such methods are expensive and difficult to apply on a large scale. An effective alternative is a survey questionnaire designed to capture abilities, attitudes, and management scores of potential trainees. Management training itself can be used as a screening device. Trainees with high potential often undertake new investments and expand employment as a result of their training. Financial institutions could view such activity as an indication of potentially high investment returns. Programs that combine management training with financial support yield better firm performance in developing countries.

Training programs can be implemented by private providers and financed by private investors with a significant interest in the success of the entrepreneurs in whom they have invested. But as long as there are knowledge spillovers and the importance of management expertise is undervalued, governments have a role to play. Given the differing capabilities among business owners, proper targeting is crucial to ensure positive returns to publicly funded programs. Randomized experiments in Ghana, Tanzania, and Vietnam indicate that the benefit of such programs generally outweighs the cost, even though the costs of implementing training programs vary greatly. If the overall investment climate is not conducive to private sector growth, however, targeted training programs for better business skills will most likely return meager results.
Notes

1. Labor force is used instead of employment in figure 3.1. Over a long term (10-year period), changes in unemployment rates are small, in general, and employment in an economy is driven by the size of its labor force.
2. Haltiwanger 2011; Schumpeter 1934.
3. Gross job creation is the sum of all additions to total employment. It occurs when expanding economic units hire workers and when new economic units are created. In principle, economic units can be as small as a one-person microenterprise, but most quantitative analyses refer to establishments employing several workers. Gross job destruction is the sum of all employment losses. It occurs when economic units close or contract in size. Net job creation is the difference between these two gross flows. Job creation and destruction rates measure how many employment positions emerge or disappear in a specific period (typically one year) relative to the number of existing positions. See Bartelsman, Haltiwanger, and Scarpetta 2009b; Davis, Haltiwanger, and Schuh 1996.
9. For a discussion on how to decompose productivity growth by firm dynamics, see Foster, Haltiwanger, and Krizan (2001) and Griliches and Regev (1992).
13. WDR 2013 team estimation based on Amadeus Database, the Annual National Industrial Survey of Chile, and Ethiopia Large and Medium Scale Manufacturing and Electricity Industries Survey.
19. South Africa is excluded from this figure because it is an outlier, with an average farm size of 288 hectares.
23. ADB 2009. The analysis is based on data from India (2004–05); Indonesia (2006); the Republic of Korea (2004); the Philippines (2005); and Taiwan, China (2006).
26. See also Ayyagari, Demirgüç-Kunt, and Maksimovic (2011b) for analysis based on World Bank enterprise surveys; the analysis suggests that small firms contribute significantly to employment and job creation.
27. The body of literature on this subject is enormous. See Barrett, Bellemare, and Hou 2010; Carletto, Savastano, and Zezza 2011; and Larson and others 2012 for the World Development Report 2013.
29. For example, in Kenya in 2007, the family labor input per hectare in maize production was 418 hours for the top quartile of farms (measured by size), but that input reached 1,032 hours for the bottom quartile.
30. The positive relationship is found not only in such high-wage economies as Japan but also in India recently. See Foster and Rosenzweig 2011; Hayami and Kawagoe 1989.
32. World Bank 2007. Improvement in agriculture technology can lead to fast growth in productivity in the sector and convergence in aggregate productivity. On the basis of data from 50 countries over 1967–92, Martin and Mitra (2001) found that productivity growth in agriculture was faster than in manufacturing in these countries over the period.
33. However, TFP has been increasing since the early 1980s, suggesting that the Green Revolution has taken place in some areas of Sub-Saharan Africa. See Block 2012.
40. Pagés 2010. Figures are based on physical productivity (or TFPQ), as defined by Foster, Haltiwanger, and Syverson (2008). This factor is a measure of real output per unit of input, which is computed using plant-level price deflators. TFPQ is more precise than TFPR—a revenue proxy for TFPQ that is computed using industry-level price deflators. TFPQ is a preferred measure because TFPR combines the effects of quantities and prices. Quantities and prices are affected by demand factors, quality differences, mark-ups, and potential distortions. A survey of earlier studies based on TFPR did not find a higher dispersion of productivity in developing countries, but those studies are not very informative because they are based on outdated methodologies. See Tybout 2000.
42. Ayyagari, Demirgüç-Kunt, and Maksimovic 2011a; Haltiwanger, Jarmin, and Miranda 2010.
44. Banerjee and Duflo 2011; Fox and Sohnesen 2012; Schoar 2010; Sutton and Kellow 2010.
45. Fox and Sohnesen 2012.
47. Grimm, Kruger, and Lay 2011; McKenzie and Woodruff 2008.
54. Results from 1-2-3 Survey.
58. Banerjee and Duflo 2004; Banerjee and others 2009; de Mel, McKenzie, and Woodruff 2008a; Göbel, Grimm, and Lay 2011; Grimm, Kruger, and Lay 2011; McKenzie and Woodruff 2008.
60. Fajnzylber, Maloney, and Rojas 2006; results from World Bank’s informal enterprise surveys conducted between 2009 and 2010.
61. Djankov and others 2005, 2006b. See also Viva-relli (2012) on the importance of disentangling entrepreneurship drivers to craft policies targeting high potential entrepreneurs.
64. de Mel, McKenzie, and Woodruff 2008b.
65. de Mel, McKenzie, and Woodruff 2009; Sonobe and Otsuka 2006; Sonobe and Otsuka 2011.
68. Fafchamps and Woodruff 2012.
69. Bloom and others 2011.
70. de Mel, McKenzie, and Woodruff 2010; Fafchamps and others 2011; McKenzie 2010.
72. Bloom and others 2011; Mano and others 2011.
73. Estimate from Brazil’s ECINF 2003 survey.
76. Otsuka and Sonobe 2011; Sonobe and Otsuka 2006.
77. Djankov and others 2006a, 2006b.
78. See the initiative by the Inter-American Development Bank, “Bringing Market-Based Solutions to Latin America and the Caribbean to Promote Social Change,” http://browndigital.bpc.com/publication/?i=92819.
79. Bennedsen and others 2007; Bloom and others 2011; Bloom, Schweiger, and van Reenen 2011; Bloom and van Reenen 2007, 2010.
82. Karlan, Knight, and Udry 2012. In Ghana, the intervention included only a 10-hour consultancy treatment, in contrast to 700 hours provided in a successful Indian program for larger firms that was implemented by Bloom and others (2011).
83. Bloom and van Reenen 2010; Bruhn, Karlan, and Schoar 2010; Bruhn and Zia 2011; de Mel, McKenzie, and Woodruff 2009.
85. Valdivia 2011.
87. Fafchamps and Woodruff 2012. Alternatively, see the work done by the Entrepreneurial Finance Lab at the Kennedy School (http://www.efinlab.com) on psychometrics tools to uncover successful entrepreneurs.

References

The word processed describes informally reproduced works that may not be commonly available through libraries.


FAO (Food and Agriculture Organization). 2010. *2000 World Census of Agriculture: Main Results*.


Karlan, Dean, Ryan Knight, and Christopher Udry. 2012. “Hoping to Win, Expected to Lose: Theory


Rijker, Bob, Hassen Arouni, Caroline Freund, and Antonio Nucifora. 2012. “Which Firms Create
Jobs in Tunisia?” Background paper for the WDR 2013.