Part 2
Creative Destruction

Part 1 of this Report highlights the need for middle-income countries to undergo not one but two transitions. In the first, these countries transition from a “1i” strategy for accelerating investment to a “2i” strategy focusing on both investment and infusion in which a country brings technologies from abroad and diffuses them domestically. Once a country has successfully undertaken this effort, it can switch to a “3i” strategy in which it pays greater attention to innovation—beginning to not just borrow ideas from the global frontiers of technology but also to push the frontiers outward. Part 2 of this Report provides a diagnostic framework based on advances in Schumpeterian economic theory to examine what hinders and what helps countries engineer shifts in growth strategies (box P2.1). Economic analysis using a Schumpeterian creative destruction framework provides more reliable diagnoses because it draws on the microeconomic foundations of growth. But like most new technologies, it requires greater expertise in assessing the evidence, higher-quality data for informing the analysis, and greater care in interpreting the results.

Underpinning the Schumpeterian framework are three sets of forces: creation, preservation, and destruction (figure P2.1). These unruly forces have to be domesticated. To advance technological progress, the forces of creation need to be amplified, the forces of preservation weakened, and the forces of destruction managed. Policy makers thus need to understand and account for

- **Creation.** Incumbents and entrants compete by creating economic value (see chapter 4). The forces of creation are strengthened by fostering openness in the exchange of goods, services, and ideas. The same forces are weakened by excessive government regulation and macroeconomic uncertainty.

- **Preservation.** Economic, social, and political structures are susceptible to being captured by powerful incumbents (see chapter 5). The forces of preservation must be reined in and prevented from smothering creation. Where institutions are weak, incumbents often capture them to preserve the status quo.

- **Destruction.** The forces of preservation are weakened only when crises arise (see chapter 6). The vital forces of destruction place tremendous pressure on governments to act because a growing economy needs to shed outdated arrangements (in capital, labor, and energy markets) as much as it needs to invent new ones. Where the forces of destruction are constrained by misguided policies, creation struggles and advances slowly.
Box P2.1  Joseph Schumpeter and creative destruction

The concept of *creative destruction* was featured in the early writings of many influential political economists such as Werner Sombart (1863–1941) and Friedrich von Wieser (1851–1926). However, it became the trademark of Joseph A. Schumpeter (1883–1950), an Austrian economist, who widely popularized the term and made it accessible through his book *Capitalism, Socialism and Democracy*. Schumpeter’s view was that *creative talents* with vision would create new products and technologies to change the way we live. According to Schumpeter, “Railroads did not emerge because some consumers took the initiative in displaying an effective demand for their service in preference to the services of mail coaches. Nor did consumers exhibit the wish to have electric lamps or rayon stockings, or to travel by motorcar or airplane, or to listen to radios, or to chew gum.” What leads to economic growth is the “change” that is ultimately generated by an entrepreneur’s desire and leadership. Without change, a society is doomed.

Schumpeterian growth theory provides sharper instruments for diagnosing the economic health of economies because it features

- **Heterogeneous agents.** The theory is premised on differentiation among firms (such as small and large; new and old) and workers (such as unskilled and skilled; rural and urban). It can usefully be extended to distinguish between energy sources (such as renewable and carbon-intensive; reliable and risky).
- **Continuous dynamics.** The theory recognizes the importance of both creation (start-ups, investment, new skills, and innovation) and destruction (firm closures, skill obsolescence, and stranded assets) in the process of structural change and economic development.
- **Institutional inertia.** The theory provides insights into the forces of preservation of societal arrangements and status quo biases in industrial organization and public policy.
- **Constructive crises.** Related to inertia, the theory recognizes that economic and environmental crises present opportunities for improvements; with the right policies, creation can emerge from destruction.


b. Schumpeter (1942, 73).

The forces of creation, preservation, and destruction appear in each transition of middle-income economic growth—first, in adding *infusion* to *investment*, and, second, in adding *innovation* to the mix.

Chapter 4 focuses on enterprise dynamics to illustrate the forces of creation, chapter 5 on talent to illustrate the forces of preservation, and chapter 6 on energy to highlight how new technologies and climate crises generate both the need and the potential to destroy current arrangements in energy markets. Firms, talent, and energy are closely connected, and their interactions shape the forces of creative destruction.
Figure P2.1  Rebalancing the forces of creation, preservation, and destruction to advance infusion and innovation

Source: WDR 2024 team.

References


Key messages

- In an economy, both entrants and incumbents can add value. Entrants bring change in the form of enterprises with new products or production processes, workers with new skills and ideas, or energy sources such as renewables that embody new technologies. Incumbents bring scale—and can compete with entrants in the market to jointly expand a country’s technological capabilities—moving the country closer to the global technology frontier.
- In most middle-income countries, too few entrants disrupt because the majority of entrepreneurs start businesses driven by necessity, not business opportunity. And too few incumbents infuse global technologies and know-how. Instead, they abuse their dominance to block entry, resist innovation, and capture political institutions.
- Government policies in middle-income countries are often based on the size of firms rather than their ability to create value. As a result, policies tend to favor small firms and reduce the incentives of firms to grow.
- Governments will need more reliable diagnostics to implement effective policies, including microlevel data on firms, a more comprehensive approach to examining business dynamism, and greater analytical expertise.

Creation: The protagonist of economic growth, where incumbents create value alongside entrants

In the 1960s, the Tata Business Group, a major conglomerate based in India, needed computers for its various businesses, but they were difficult to purchase and import because the government had enacted import restrictions to protect state-owned enterprises (SOEs). To allow foreign hardware to be imported, the government required Indian companies to commit to exporting products or services. This challenge inspired the conglomerate to create a new business, Tata Consultancy Services (TCS). Tapping into talent from its various businesses and India’s elite technical institutions, TCS became the first Indian exporter of computing services to the United States. As part of a large conglomerate, TCS could have stifled creativity and misused its import allowance. In practice, however, TCS opened the world’s eyes to the high-quality, lower-cost talent that India’s software development had to offer. Many entrants took advantage of this opportunity. Among them, Infosys, a company founded by former IBM engineers and financed by their own savings, dramatically increasing the value it created, has become a global leader in information technology consulting (figure 4.1).
The gales of *creative destruction* carry new ideas, products, processes, and practices to the shores of middle-income economies. The term *creative destruction* was popularized by Austrian economist Joseph A. Schumpeter in his book *Capitalism, Socialism and Democracy* (1942). Schumpeter was concerned by the growing concentration of wealth in market economies where dominant incumbents colluded to preserve the status quo. He argued that economic and social improvements arise from new products and technologies introduced by entrepreneurs with talent and vision.

The forces of creation, preservation, and destruction interact to shape the growth of nations through technological advancement. This chapter examines how the forces of creation play out in middle-income countries to create value. Chapters 5 and 6 examine the forces of preservation and destruction. To shed light on the potency of creation in middle-income countries, this chapter examines three questions:

1. **Who creates value?** Schumpeter highlighted that entrants bring change, and incumbents collude to preserve their dominance (figure 4.2, panel a) in the form of enterprises with new products or production processes, workers with new skills and ideas, or energy sources, such as renewables, that embody new technologies. In the process, they expand a country’s technology frontier. Interactions among firms, workers, and energy/technology underpin creative destruction (see box P2.1). In the current environment, Schumpeter’s view is reflected in the competition between high- and low-carbon energy. Fossil fuels have been the dominant incumbent technology for over 300 years. Technical progress, complementary public and private investment, individual preferences, and powerful interest groups interact to preserve a high-carbon status quo.

Schumpeter’s ideas inspired the formal models of creative destruction developed by Philippe Aghion and Peter Howitt, who make a strong case that the entirety of growth stems from entrants and that incumbents assume the primary task of
producing goods until they are replaced by these new players (figure 4.2, panel b). Their approach is particularly useful in highlighting the value added by investing in the talents of women and enabling women to seek the most rewarding opportunities.

But must a new entrant always drive creation and displace incumbents? Although Schumpeter and his immediate followers celebrated entrants and downplayed the role of incumbents, Tata Consultancy Services’ journey reveals that incumbents can also create value (figure 4.2, panel c). Incumbents bring scale, which enables them to invest in upgrading products, hire and reward skilled workers, and effectively use large amounts of capital. They can compete with entrants in the market jointly to expand a country’s technological capabilities, advancing the country closer to the global frontier.

The symbiotic view is most applicable to the modern enterprise. Regardless of whether they are entrants or established companies, firms that create value must be able to expand their operations, hire more workers, and displace enterprises that fail to generate additional value. This approach ensures that capital and labor are not held captive by unproductive firms but are utilized more efficiently by growing enterprises. In fact, 50–70 percent of productivity growth stems from successful resource reallocation among firms—whether incumbents or entrants.1

2. Are entrants and incumbents creating value in middle-income countries? Too few entrants disrupt, and too few incumbents infuse global technologies and know-how. The majority of entrepreneurs start businesses driven by necessity, not business opportunity. Incumbents that create value are unable to expand, limiting their potential for infusing technologies. Dominant incumbents can be vanguards for infusing global technologies and exporting globally. But, too often, they abuse their dominance to capture political institutions.

3. Are middle-income country governments strengthening the forces of creation? Governments often use outdated rules of

**Figure 4.2** The interactions between entrants and incumbents set the pace of creative destruction

a. Schumpeter’s view: Dominant incumbents can collude to block competition

b. Aghion and Howitt’s view: Entrants create value and displace incumbents

c. Akcigit and Kerr’s view: Incumbents and entrants add value

Source: WDR 2024 team based on Schumpeter (1942); Aghion and Howitt (1992); Akcigit and Kerr (2018).
thumb to regulate and lack the information and capabilities needed to identify key constraints impeding the growth of firms. Over the last three decades, economists have developed modern techniques to provide calibrated assessments of what is enabling or suppressing the growth of firms. These techniques include better measurement of business dynamics that includes market concentration, markups, productivity dispersion, firm entry and exit rates, and job reallocation.

This chapter examines the forces of creation from the perspective of firms with an emphasis on the process in middle-income countries. A broader treatment that includes talent and energy sources appears in part 3 of this Report.

Creative destruction: Three decades of increasingly refined analysis

A first look: Entrants create value

When Canadian economist Peter Howitt visited the Massachusetts Institute of Technology (MIT) in the summer of 1987, he crossed paths with Philippe Aghion, an assistant professor at MIT. Their collaboration gave birth to the formal theory of creative destruction, and their paper “A Model of Growth through Creative Destruction,” published in *Econometrica* in 1992, became one of the most influential papers in economics. Their main insight was that economies expand organically through innovation driven by new entrants. Aghion and Howitt attributed innovation and growth exclusively to newcomers (figure 4.3).

Such models of creative destruction, that is, quality ladder models, depict a hierarchical structure with multiple rungs in which each innovation adds a new rung to the ladder and elevates the prospects for all future producers—a phenomenon known as *intertemporal spillovers*. This hierarchy suggests that there may be *underinvestment* in innovation because innovators often fail to consider the height of each rung, which determines the long-term benefits of their creative endeavors for society. On the other hand, there may be an *overinvestment* in entry. Entrants primarily focus on displacing incumbents, so more entry is associated with shorter durations of monopoly for incumbents, discouraging innovations by future entrants.

determines the long-term benefits of their creative endeavors for society. On the other hand, there may be an *overinvestment* in entry. Entrants primarily focus on displacing incumbents, and so more entry is associated with shorter durations of monopoly for incumbents, discouraging innovations by future entrants. This motive—called “business stealing”—carries the risk that a society could end up overinvesting in research and development (R&D) and creating too much entry. Whether equilibrium results in an excess or deficiency of R&D depends on the varying magnitudes of spillovers and business stealing, which

![Figure 4.3 Entrants drive growth: Insights from Aghion and Howitt’s seminal paper on creative destruction](source: WDR 2024 team.

Note: The figure depicts a quality ladder based on the Aghion-Howitt model of creative destruction. *IN* represents a new firm entering the market and *OUT* represents a firm exiting the market. Each innovation adds a new rung to the ladder and elevates the prospects for all future producers. This hierarchy suggests that there may be underinvestment in innovation because innovators often fail to consider the height of each rung, which determines the long-term benefits of their creative endeavors for society. On the other hand, there may be an overinvestment in entry. Entrants primarily focus on displacing incumbents, so more entry is associated with shorter durations of monopoly for incumbents, discouraging innovations by future entrants.

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**Source:** WDR 2024 team.

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can differ significantly from one sector to another and from one country to another. This novel framework has opened the door to a more nuanced and realistic discourse on innovation policy.

**A recent view: Incumbents also create value**

Schumpeter’s ideas, as well as the framework presented in Aghion and Howitt’s seminal 1992 paper, focused predominantly on entrants and small businesses, downplaying the role of incumbents (often larger firms) in fostering infusion and innovation. In fact, the theory of creative destruction highlights an important tension between the incumbent currently in production and the new entrant that endeavors to replace the incumbent with a superior product or technology.

In 2004, Tor Klette and Sam Kortum refined the framework by reimagining each firm as a conglomerate of production units in different sectors.\(^3\) Within this framework, firms are able to expand their products or services into new markets and compete with other incumbents, but not scale up their existing products or services. In essence, this framework indicated that, within each narrow sector, all innovations originate from external sources and never from incumbents within the production unit.

In 2018, Ufuk Akcigit and William Kerr further advanced the framework to enable a more accurate description of innovation and growth.\(^4\) In their framework, incumbents not only expand into new markets through external R&D, but also enhance their existing products through internal R&D without directly displacing other producers. In fact, upon venturing into new markets, many established incumbents allocate a significant portion of their resources to refining and elevating their current products and technologies. The significant insight is that creative destruction can be instigated not only by entrants but also by incumbents. Moreover, not every innovation introduced by incumbents inevitably results in creative destruction through the dismantling of others in their “ecosystem” (figure 4.4).

The United States and Germany are contrasting cases of creative destruction. In Germany,

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**Figure 4.4** Entrants and incumbents drive growth through turnover and upgrading: Insights from Akcigit and Kerr’s refined approach to creative destruction

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*Source: Akcigit and Kerr 2018.*

*Note: R&D = research and development.*
companies established before 1950 constitute a substantial 70 percent of publicly traded companies—a figure that diverges markedly from that for the United States, where the equivalent proportion is approximately 50 percent. Furthermore, although the annual rate of new firm creation is about 8 percent in the United States, it is 3 percent in Germany. Despite these pronounced disparities in terms of incumbent longevity and the pace of firm entry, there is a striking symmetry in the number of patents per capita between the two economies. This convergence in patent output underscores a noteworthy distinction: innovation in Germany is primarily championed by long-standing incumbents, whereas in the United States it is shouldered to a greater extent by emerging young entrants (figure 4.5).

A more nuanced view of incumbents: Incumbents’ power can drive or suppress creation

The turn of the twentieth century witnessed a rapid transformation in the typical manufacturing enterprise in the United States. Characterized until the early 1900s by single-unit firms with one or a small number of owners, the modern multiunit enterprise, administered by salaried middle and top managers overseeing complex layers of production, became the typical business model by World War I. Recordkeeping, accounting, and inventory control were all tasks required by the “visible hand” managing a firm.⁵

This transformation of business proved to be fertile ground for the emergence of what became a powerhouse of corporate innovation, the Computing-Tabulating-Recording-Company, later IBM. In 1939, when William Hewlett and David Packard created their company in a rented garage in Palo Alto, California, IBM was already a well-established company with more than 10,000 employees. Herman Hollerith, founder of one of the companies consolidated into IBM in 1911, could not anticipate that his invention, the electromechanical tabulation of punched card data, would become the backbone of a computer hardware and software company.

**Figure 4.5** Contrasting examples of innovation: Growth is driven by entrants in the United States and by incumbents in Germany

![Figure 4.5](image)

Source: Akcigit et al. 2024.
Similarly, Hewlett and Packard did not envision that their frequency oscillator would pave the way for their small firm to become a leading manufacturer of personal computers that would compete with a giant like IBM. Yet both companies found themselves competing against each other for decades. It was only later that many others, such as Dell and Microsoft, entered the market to compete.

On the surface, the forces of creation are more apparent than the forces of destruction in the Schumpeterian view of forces of innovation. In the US business services industry, as HP, Dell, Microsoft, and Oracle entered various branches of the hardware, software, and computing services markets, the pace of growth of IBM (as the incumbent) slowed—but not to the level of shutting down the company (figure 4.6). Destruction still occurs within firms as they replace older products and tap into newer markets.

But dominant firms can also use their incumbency advantage to block entry and resist innovation. They can collude, with the most significant players coordinating price-setting to outbid smaller competitors, while avoiding price wars against one another. For example, in 2013 the US Department of Justice uncovered a decade-long cartel of Japanese auto part makers conspiring against the United States car industry (figure 4.7). Mitsuba Corporation, a prominent cartel member, increased its sales relative to the average performance of publicly listed companies in the same industry. However, this growth was not fueled by innovation but rather by suppressing competition, partly reflected in the decline in the number of public firms in the same industry.

When incumbents respond to competition by upgrading technologies and business practices either to defend existing market positions or to tap into newer ones, they drive progress, as in the United States (box 4.1). When incumbents resist competition by enacting barriers to entry, it not only stalls infusion and innovation but also can entirely prevent them.

Figure 4.6 Entrants and incumbents can reinforce one another’s growth: The case of the US business services industry

Source: Luttmer 2011.

Note: The figure reports the number of employees for a selected group of US business services firms: Dell, Hewlett Packard (HP), IBM, Microsoft, and Oracle.

In middle-income countries, too few small entrants disrupt, and too few large incumbents innovate or infuse global technologies

Although large incumbent firms can spur as well as block the forces of creation, large incumbents do not capture the broader economic landscape in middle-income countries. Most establishments are microenterprises that neither grow nor exit, and therefore they do not contribute to growth in productivity. Furthermore, many medium and large firms that have the potential to leverage the incumbency advantage to lead infusion and innovation often achieve scale by benefiting from distortions rather than from merit (see next section for that discussion).

“Flat and stay” and “up or out” describe entrepreneurial dynamics. One reason for the
Figure 4.7 A cartelized industry suppresses innovation and dynamism: Evidence from the Japanese auto parts sector


Note: The figure reports a series of sales (panel a) and shares of research and development (R&D) expenditures relative to total investment (panel b) for Mitsuba Corporation and the average across listed firms in Japan’s stock exchange within the same two-digit industry. Panel c shows the number of listed companies in Japan’s stock exchange in the same two-digit industry. Sales are presented in logarithms and reported as a difference from their value in 1990, the first year in the sample. The share of R&D expenditures to total investment, R&D intensity, is also reported as a difference from the share in 1990. “Two-digit” refers to NAICS (North American Industry Classification System) (database), US Census Bureau, Suitland, MD, https://www.census.gov/naics/.
Box 4.1 Vibrant corporate R&D, connected places, mobile people, and successful markets for patents: How the United States nurtured an innovation ecosystem

The US economy has fostered innovation for centuries, inspiring numerous inventors to generate brilliant ideas that have, subsequently, been harnessed by businesses to create consumer products or production technologies that have had a widespread impact. Four dimensions have been important:

- **Who “creates” has shifted from small, independent inventors to corporate research and development (R&D) and innovation.** Over the last 150 years, there has been a remarkable transition from the realm of “garage inventors” to the corporate R&D facilities of modern corporations (figure B4.1.1). The transition has coincided with the growing sophistication of the US economy.

- **Connected places are more inventive.** Connectivity enhances the market size for innovation and the flow of knowledge. Inventive activity in the early nineteenth century accelerated in US locations that were near navigable waterways and had developed railroads.\(^a\)

- **The migration of people is critical to innovation.** Technology sectors in the United States with a higher concentration of immigrant inventors between 1880 and 1940 experienced accelerated growth from 1940 to 2000.\(^b\) Furthermore, immigrant inventors exhibited greater productivity throughout their careers than their native-born counterparts. Unfortunately, despite their heightened productivity, immigrant innovators found that their earnings were much lower.

![Figure B4.1.1](image)

**Figure B4.1.1** The number of patents filed by corporations with the US Patent and Trademark Office has skyrocketed since 1880

Source: Akcigit, Grigsby, and Nicholas 2017b.
Box 4.1  Vibrant corporate R&D, connected places, mobile people, and successful markets for patents: How the United States nurtured an innovation ecosystem (continued)

- The secondary market for innovations (such as patent resale or licensing) is as important as innovation itself. This secondary market has played an outsize role in the United States. Between 1870 and 1910, inventors increasingly sought the services of the more than 500 specialized registered patent agents nationwide to navigate the intricacies of patent-related transactions. For example, Edward Van Winkle, a mechanical engineer who pursued a law degree via correspondence courses, possessed the ideal skill set to provide clients on both sides of the market with expert advice on the legal and technical aspects of inventions. He established a network of businessmen, inventors, and fellow lawyers to broker patent deals between buyers and sellers.

a. For waterways, see Sokoloff (1988); for railroads, see Donaldson and Hornbeck (2016) and Perlman (2015).
b. Akcigit, Grigsby, and Nicholas (2017a).
c. For historical markets for technologies, see Lamoreaux and Sokoloff (2002). For more contemporary markets, see Akcigit, Celik, and Greenwood (2016).

lack of business dynamism in the economies of middle-income countries can be traced to the typical life cycle of a firm’s growth (figure 4.8, panel a). In the United States, a celebrated feature of the economy is the selectivity of its markets. Start-ups and young businesses are confronted by pressure to move up or out. The average young US firm grows by a factor of 7 by age 40, assuming it is still in business. Failing entrepreneurs either move up to newer ventures, or out to find wage-earning opportunities by means of the rising labor demand in flourishing firms. By contrast, in middle-income countries flat and stay is a more accurate description of entrepreneurial dynamics. The growth rates of firms in India, Mexico, and Peru are far lower than those of firms in the United States, with firms expanding by less than a factor of 3 (figure 4.8, panel a). Conversely, when firms with growth potential lack dynamism, they fall short of displacing unproductive small firms from the market. This absence of creative destruction results in a stark contrast: although the share of small firms with at most four workers declines by 60 percent by the age of 25 in the United States, the decrease is only about 10 percent in India (figure 4.8, panel b). Consequently, the Indian economy lacks the mechanism for effective selection among firms, hindering the reallocation of resources to more productive users.

The life cycle dynamics of firms exhibits a similar flatness when expanding the sample to include a few East European and East Asian economies (figure 4.8, panel a). Serbia and Malaysia seem to have stabilized at a notably lower level of life cycle growth than the United States, comparable with the dynamics of the other middle-income economies in the figure. Viet Nam seems to be at a critical point at which it either continues its promising trend and accompanies a similar degree of dynamism as observed in the United States, or it succumbs to the lackluster performance characteristic of the middle-income trap.

The weakness of firm dynamics in middle-income countries translates into stark differences in the distribution of firms across sizes (figure 4.9).
In the United States, microenterprises are the dominant form of production in terms of share of firms, but firms are distributed more uniformly across the size spectrum. Start-ups enter small and proceed to grow up or get out, which explains the prominence of medium and large firms. In India, Mexico, and Peru, the flat and stay behavior translates into a market in which more than 80 percent of firms employ fewer than five workers each. Informal establishments account for most of the microenterprises in the firm size distribution in India, Mexico, and many other countries. Although informal entrepreneurs may have had greater success at growing and becoming formal if the costs of business entry were lower, attempts to reduce the costs of business entry for firms in developing countries have had modest results at best. Instead, the large informal sectors in many middle-income countries reflect a misallocation in jobs whereby distortions in firm growth reduce wages and wage-earning opportunities in the formal sector. Such distortions misallocate resources from their best use and discourage incentives to adopt and innovate technologies. This vicious cycle, in turn, reduces higher-paying formal wage jobs and further fuels informality.

Middle-income countries are not benefiting from technological disruption by their smaller firms. This outcome challenges the commonly perceived notion that micro- and small enterprises are the drivers of job creation and economic dynamism. That misconception is compounded by the fact that start-ups are primarily small. However, age, not size, should be the measure used to assess dynamism. In fact, in the United States small firms are the net destroyers of jobs, except for start-ups

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**Figure 4.8** In middle-income countries, the growth rate of firms across their life cycles is much lower than in the United States

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<thead>
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<th>Panel a: Firm size over time</th>
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<tr>
<td>Employment relative to firms &lt;5 years of age</td>
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<tr>
<td>Age of firms (years)</td>
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<tr>
<td>&lt;5</td>
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<td>0</td>
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<th>Panel b: Share of small firms over time, India and the United States</th>
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<tr>
<td>Share of small firms (%)</td>
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<td>Age of firms (years)</td>
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<td>0−5</td>
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<td>0</td>
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<td>60</td>
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**Note:** Panel a illustrates the average employment across a cohort of firms of different ages in the cross-section of firms. The number of employees serves as a proxy for firm size. The vertical axis reports the average employment of each cohort relative to the average employment across firms under five years of age.
How governments stifle firms’ incentives to grow, infuse global technologies, and innovate

Most firms in middle-income countries are small, do not grow, and do not exit the economy. This lackluster performance is due, in large part, to government policies that interfere with the forces of creative destruction. Governments often use outdated rules of thumb to identify who creates value, and they lack the information and capabilities to identify key constraints to the growth of productive firms. When size is used to target larger firms to advance social objectives, the incentives to grow are dampened. As a consequence, an economy produces far below its potential.

Adopting and developing technologies are costly endeavors, and so entrepreneurs will incur these costs only if rewarded with a sufficient rate of return. When governments effectively lower the rate of return to adopting and developing technologies, they undermine the whole economy’s production possibilities relative to the potential frontier, locally and globally.

Screening firms by size—not by their ability to create value—often ends up being misguided. Talented entrepreneurs are not able to attract more capital and labor, jobs shift from high-productivity firms to low-productivity ones, and value creation declines. Compounding this effect is the more consequential one of reduced upgrading, which lowers the number of firms that have the ability to grow.

Outdated rules of thumb stifle progress

The goals of protecting small businesses and preventing the concentration of economic power have motivated many countries to implement policies based on firm size (size-dependent policies). By using size to screen which firms should be protected and which firms should be penalized, policy makers end up taxing firms that create value (box 4.2). A firm that creates value attracts capital and workers—it grows in size. Thus a policy that screens by size is effectively a policy that curtails productivity and value creation. Such policies keep productive firms smaller and less productive firms larger than they should be based on their technical capabilities.

An example is the Small-Scale Reservation Laws implemented in India between the 1960s and early 2000s. The laws stipulated that most manufactured goods could be produced only by small-scale
Figure 4.10 Young firms—not small firms—create the most jobs (net) in the United States


Note: The figure reports the net number of jobs created by firms of different sizes and ages in the United States.

Box 4.2 Examples of size-dependent policies

In some countries, smaller firms below a specific size are exempt from regulations or taxation. In other countries, once the firm exceeds a specified size threshold, it faces higher taxes and more regulations. In extreme versions, such policies restrict the production of certain items to firms of a given size.

Many other policies and market frictions may also result in a size-dependent distortion based on the abilities of firms of different sizes, productivity levels, and internal wealth to circumvent such policies. For example, stringent collateral requirements for business loans disproportionately affect young, productive firms with strong borrowing needs but little history of retaining enough earnings to accumulate internal wealth.

Some examples of explicit size-dependent policies in various middle- and high-income countries follow. Although individual policies like these, in isolation, may have only a minor effect on the full extent of misallocation and lack of innovation in middle-income economies, explicit size-dependent policies may interact with implicit size-dependent distortions and reinforce one another. For example, a regulation that increases the fixed and variable costs of labor for firms with 50 or more workers (an explicit size-dependent distortion) may coexist with a financial market that imposes tighter credit standards on young businesses and for loans aimed at financing intangible capital investments such as research and development (an implicit size-dependent distortion). The overall degree
of resource misallocation and underinvestment in innovation is the outcome of multiple distortions interacting and reinforcing one another.

Mexico. Mexico’s income tax law created REPECO (Régimen de Pequeños Contribuyentes), a special provision for small businesses based on their level of sales. For ordinary firms whose sales exceed the threshold, the tax on capital income amounts to 38 percent (28 percent for the government and 10 percent for profit-sharing with employees). Firms with annual sales below US$163,000 (Mex$2 million) do not have to pay the capital tax, but instead pay a 2 percent sales tax, with 7.5 percent of the 2 percent sales tax directed to the profit-sharing scheme. Once the sales of a REPECO firm exceed the threshold, it cannot become a REPECO firm again.a

Türkiye. Türkiye’s labor and safety laws impose several regulations that apply to firms above certain size thresholds. Firms employing more than 50 workers must establish a health and safety board; set up a health unit and hire physicians and other health staff; and employ disabled workers and formerly convicted workers.b

India. Small-Scale Reservation Laws in India are the poster child of a size-dependent policy that fosters misallocation and discourages innovation.c Since 1960, the government of India has “reserved” the production of many manufactured goods for small-scale industries only. The definition of a small-scale industry is based on an industry’s cumulative investment in plant and machinery. Effectively, all establishments with plant and machinery below a specific limit have been considered small and allowed to produce the reserved goods. Although the number of products falling into the reserved category increased steadily between 1960 and 2002, the policy has been progressively dismantled, with only 20 products remaining under the reservation law in 2010.

Peru. Various labor laws in Peru are size-dependent. For example, a profit-sharing agreement applies to firms with more than 21 salaried workers. The fraction of profits to be distributed ranges from 10 percent in manufacturing to 8 percent in mining, retail, wholesale, and restaurants. Workers can join a firm-specific union of at least 20 members, exposing firms beyond this size to the unionization of their workforce. And firms exceeding 20 employees must set up a health and safety committee.d

Portugal. The average size of firms in Portugal fell sharply between the mid-1980s and mid-2000s. Size-dependent policies may have contributed to such a dramatic shift in the production structure.e Notably, firms with less than 50 workers are allowed to pay up to 50 percent less than the minimum wage, are subsidized in hiring young workers, and receive support for worker hiring. Firms with more than 50 workers must maintain a worker health protection system.

Italy. Italy’s Employment Protection Legislation imposes a disproportionately higher cost on firms employing more than 15 workers to fire workers. Firms with fewer than 15 workers must pay a dismissal cost equivalent to between 2.5 and 6 months of salary in cases of unjustified firing. Firms with more than 15 workers must compensate workers for forgone wages between the time of dismissal and the court’s sentence. Dismissal trials can last up to five years, and there is no upper limit on the amount of forgone wages.f

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Box 4.2 Examples of size-dependent policies (continued)
France. Labor laws in France apply special provisions to firms with more than 10, 11, 20, or 50 employees. In particular, as a firm reaches 50 employees, a committee for hygiene, safety, and work conditions must be formed and trained; a works council must be formed and meet at least every other month; and a higher payroll tax rate, which goes from 0.9 percent to 1.5 percent, subsidizes worker training. In addition, if a firm fires more than nine workers for “economic reasons,” it must follow a special legal process, which increases dismissal costs and creates legal uncertainty for the firm.

Republic of Korea. When a firm is classified as a small or medium enterprise (SME), it can receive about 160 benefits from the SME support policy. Benefits include differential corporate tax rates, tax relief benefits, and government-guaranteed loans for SMEs.

b. Akcigit et al. (2023).
g. Gourio and Roys (2014).
h. Jung and Jung (2022).

Box 4.2 Examples of size-dependent policies (continued)

Plants, defined as those whose capital stock did not exceed a government-set threshold. This policy was complemented by several additional benefits for small-scale enterprises, such as the Private Sector Lending Program, in effect until the 1990s, which stipulated that commercial banks had to allocate up to 40 percent of their private credit at subsidized rates to small firms. In Peru, the constitution and legislation require firms with more than 21 workers to distribute a portion of their before-tax profits to their formal labor force. And, in France, firms with more than 50 workers pay a higher payroll tax rate and must comply with additional regulations. Such programs create perverse incentives in terms of resource allocation and innovation. They also contribute to increased informality in developing countries.

Turnover taxes that tax intermediate and capital goods and corporate taxes, even when set at uniform rates, are also examples of size-dependent policies in the way in which they are enforced. Larger firms are more likely to face tax enforcement in low- and middle-income countries, whereas this practice is almost absent in advanced economies.

In terms of credit, when contract enforcement is weak and secured transactions and bankruptcy laws are poorly designed and enforced, banks may demand higher interest rates, impose more stringent lending standards, and tighten their collateral requirements. Some firms may have more collateral to pledge and thus may not be affected by the financial requirements. Others may have accumulated enough internal liquid funds to cope with the pressing needs of working and physical capital without financial intermediation. However, for many other firms credit is necessary. Tighter collateral constraints hamper these firms’ abilities to scale up to the level merited by their capabilities. It is usually young entrepreneurs with innovative business ideas but without collateral they can pledge who are most negatively affected (box 4.3).
Box 4.3 The productivity effects of credit misallocation and capital market underdevelopment

A concerning feature of credit markets is the misallocation of credit away from the most productive businesses in middle-income economies. More productive firms in these countries receive lower amounts of debt and equity financing than merited by their technical efficiency, a property that is less prevalent in high-income countries (figure B4.3.1). In Mexico, for example, access to finance across firms favors the least productive over the most productive firms.\(^a\)

Another feature of developing economies is the underdevelopment of capital markets. Unlike bank-provided credit, debt and equity financing are associated with productive investments by firms, leading to expansions in infusion, innovation, and physical capital.\(^b\) By excessively relying on banks for financial intermediation, middle-income countries are limiting their capable firms to access finance.

Figure B4.3.1 Productivity-dependent financial distortions, by GDP per capita

Source: Cusolito et al., forthcoming.
Note: The figure reports the estimate of a regression coefficient between the logarithm of idiosyncratic financial distortions and the logarithm of idiosyncratic physical productivity across firms, both computed as in Whited and Zhao (2021). A high value of the coefficient means that more productive firms face higher distortions in financial markets than less productive ones. Thus, there is a weaker relationship between a firm’s productivity and its debt and equity financing compared with efficient allocation. GDP = gross domestic product.
Box 4.3 The productivity effects of credit misallocation and capital market underdevelopment (continued)

Episodes of capital account liberalization, opening middle-income countries’ economies to foreign capital financing, can reduce the misallocation of capital. For example, India’s capital market liberalization contributed to a more efficient allocation of resources across firms over the last 20 years.

a. Iacovone et al. (2022).
b. Didier et al. (2020).

Figure 4.11 Productivity-dependent distortions are more severe in low- and middle-income countries

More broadly, these rules of thumb impose a hefty tax on productive firms, a practice known as “taxing the good” (figure 4.11). By discouraging the expansion and growth of firms, these policies also discourage the adoption of modern management practices, a necessary condition for improving efficiency and adopting technologies. Alfred D. Chandler, Jr., a renowned economic historian,
suggested that one of the critical transformations in the US economy between the mid-1880s and World War I was the replacement of the traditional family enterprise with the modern multiunit enterprise managed by a complex layer of top- and middle-management structures.\textsuperscript{16}

Countries with a higher quality of management practices—as measured by the World Management Surveys—have lower productivity-dependent distortions (figure 4.12).\textsuperscript{17} In the United States, a firm’s managerial capabilities are central to its ability to grow and innovate. However, in most middle-income countries, managerial capabilities of firms are underdeveloped.\textsuperscript{18} The exceptions are a handful of countries that have enjoyed sustained growth accelerations.

**Benefits extended to state-owned enterprises hurt private enterprise**

When countries are early in their development journey, the state favors its SOEs for undertaking ventures in the market. However, these preferences hurt private enterprise. Although SOEs benefit from lower costs of labor and capital, this benefit increases the cost of production for their private counterparts, which are often more productive. Benefits extended to SOEs not only misallocate resources away from more productive firms but also discourage the private sector from investing in costly initiatives (such as R&D) to become more innovative or produce more innovative goods or services.\textsuperscript{19} SOEs in manufacturing and contestable service industries have become a source of resource misallocation.\textsuperscript{20}

In the critical area of energy supply, electricity continues to be delivered primarily by SOEs. In 2020, 60 percent of 125 low- and middle-income countries still relied on a public distribution utility.\textsuperscript{21} The role of SOEs in fossil fuel power investment increased from 43 percent to 50 percent from 2015 to 2019, notably due to the expansion of coal plants in India and South Africa and gas plants in the Middle East and North Africa.
Preferences for incumbents block progress

Large enterprises are important drivers of innovation and are able to imitate at scale. However, weak institutions may encourage these firms to protect their profitability by deterring competition rather than innovating their way out of competition. A firm’s market power and incentives to abuse its dominance are shaped by features of the market, government interventions, and its strategic behavior.

The problem is not the market power of some firms per se, but the exercise of dominance that undermines effective competition, dampening innovation, harming consumers, and driving equally efficient competitors out of the market (table 4.1). Market leaders can also acquire smaller competitors to wind down the operations of potential competitors, such as in the pharmaceutical industry. Market power becomes problematic under the following conditions:

- **Market power is not the result of innovation.** For example, politically connected firms in Italy’s local markets changed their behavior as they grew. Rather than innovating and competing with other firms, they brought local politicians onto their payroll. At the same time, their innovation (measured in terms of numbers of patents) began to decline.

- **Market power is sustained over time by government interventions that protect a firm or provide it with specific advantages.** In Mexico, for example, although the telecommunications sector was open to competition in 1995 after 20 years of public monopoly, followed by five years of private monopoly, it was not until 2014 that the government imposed the first obligations on Telmex and Telcel as operators with significant market power. The inability of the sector regulator and the competition authority to impose such conditions in previous years made its owner, Carlos Slim, the richest man in the world between 2011 and 2013, according to *Forbes* magazine. Similarly, overly long concession contracts for limestone and restrictive standards for cement helped Aliko Danzoute become the richest man in Africa.

- **Market power is sustained over time by illegal strategic behavior,** such as when dominant firms exclude their rivals from the market or when a few firms agree to collude. Anti-competitive practices that close entry and place competitors at a disadvantage are common in digital platform markets.

If large incumbent firms are not disciplined by means of regulations that promote competition or antitrust rules, firms with market power are more prone to abusive practices—such as predatory pricing, price squeezing, or denial to supply

<table>
<thead>
<tr>
<th>DEVELOPMENT OUTCOMES</th>
<th>PROS</th>
<th>CONS</th>
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<tbody>
<tr>
<td>Productivity</td>
<td>Mergers and acquisitions can lead to more efficiency.</td>
<td>Conglomerates can cross-subsidize unproductive firms, crowding out more productive competitors.</td>
</tr>
<tr>
<td>Consumer welfare</td>
<td>More efficient structures can lead to lower costs and therefore lower prices.</td>
<td>It is easier to form cartels when fewer players are in the market.</td>
</tr>
<tr>
<td>Innovation</td>
<td>Some firms acquire market power because they innovate and push the frontier.</td>
<td>There are fewer incentives to innovate, and firm entry is low.</td>
</tr>
<tr>
<td>Jobs</td>
<td>The demand for highly skilled workers grows.</td>
<td>Wages for lower-skilled workers are depressed, while the most talented workers are captured.</td>
</tr>
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</table>

other competitors—contributing to a decrease in competition. Although many competition authorities have the mandate to sanction anticompetitive practices, prevent anticompetitive mergers, and provide policy advice to eliminate regulatory restrictions to competition, not all competition authorities in middle-income countries have the resources needed to enforce their mandate. For example, although Brazil, China, India, Mexico, and South Africa have a wide range of resources such as enforcement tools, budget, and staff, authorities in Bangladesh, Malaysia, Morocco, and Nigeria have limited resources.29

**Modernizing data and diagnostic tools to understand and regulate creative destruction—from X-rays to MRIs**

Modern Schumpeterian thinking on creative destruction has the potential to provide much more reliable diagnostics than what analysts, researchers, and regulators have been using so far. No longer is it enough to decompose aggregate output growth into the growth of measurable production factors—physical and human capital and the residual, total factor productivity. Nor is it enough to rely solely on measures such as firm employment and size distribution to gauge an industry’s health. These diagnostics are much like using two-dimensional images from X-ray machines to analyze economic structures. They are necessary but not sufficient.

A nuanced understanding of the process of creative destruction emphasizes the tensions that arise between entrants and incumbents, as well as among incumbents competing for market leadership. Diagnostics that examine these links need the latest instruments—akin to three-dimensional images from MRIs. As with MRIs, using these instruments also requires more skilled practitioners, more data, and more care.

**New questions to answer.** Moving beyond firm employment size, diagnostics will need to examine the following questions: Do firms grow from “within” by enhancing their existing product portfolio, or do they expand “across” the market by challenging other incumbents in different markets? If growth is from within, are gatekeepers hindering firms from developing new products for new markets? Examining the health of an economy and measuring its vital signs require a comprehensive approach to weighing its business dynamism, including responsiveness to productivity shocks, job creation and destruction rates, turnover among market leadership, entry and exit rates, life cycle (age and size) dynamics, R&D investment, and spending on technology licensing, among other things.

**New sources of data and new opportunities for data-driven policy analysis.** The creative destruction framework offers a distinctive advantage in understanding aggregate economies by addressing microlevel intricacies and frictions that combine to form the macroeconomy. Although certain underperforming countries may exhibit analogous macroeconomic trends in terms of investment dynamics and sluggish productivity growth, their microlevel challenges can vary significantly. For example, one economy may grapple with financial frictions affecting the “cost” of investment for firms, while another may contend with high market concentration hindering investment incentives by lowering “returns.” Similarly, entrants may face obstacles in one economy, while incumbent firms encounter distinct challenges in others. A microlevel investigation, informed by reliable data on firms and individuals, is needed. The recent digital revolution facilitates not only the collection and organization of extensive firmlevel data sets but also their processing through innovative techniques for data-driven policy analysis.

Several “must-have” data sets exist. One noteworthy example is the census of firms, a thorough and complete collection of information about all businesses or firms within a specific geographic area or industry. Many countries now grant experts access to their census of firms for research purposes. Unlike a sample survey, which gathers data from a subset of the population,
a census aims to encompass every entity within the defined scope. Typically, census of firms data include details such as the number of firms, their size, location, ownership structure, industry, number of employees, revenue, and other pertinent information. This data collection method provides a detailed, accurate representation of the entire population of firms, enabling a comprehensive analysis of many measures of business dynamism.

The World Bank’s Enterprise Surveys are the go-to resource for cross-country analysis of firm-level information about the business environment. More recently, the surveys have been expanded to include the informal sector. The World Bank also conducts the Firm-level Adoption of Technology (FAT) survey, collecting information on the adoption of general business functions and sector-specific technologies in 11 developing economies. Some commercial databases have also been widely used in the literature. Salient examples are the Orbis database, produced by Bureau van Dijk, and Worldscope, accessible via online platform.

Social Security records are also widely utilized. These records often contain employment-related information, including earnings, work history, and contributions to social security programs. Experts can scrutinize labor market dynamics, employment patterns, and strategic hiring, even investigating “killer acquisitions” by examining which firms hire workers from their rivals to stifle competition. Emerging online platforms present invaluable opportunities for real-time tracking of businesses. In middle-income countries, especially among small firms with limited internal resources, susceptibility to macroeconomic conditions has increased, underscoring the need for frequent real-time monitoring of the health of the small business sector. Meeting this need was previously challenging because of a lack of the appropriate data. However, the emergence of online cloud-based accounting software has bridged this gap. Many businesses now leverage these platforms for improved efficiency, accessibility, security, and flexibility in managing their financial processes. As a result, platform data can provide information, even on the smallest businesses, almost in real time, even when government statistics are unavailable.

Several additional “good-to-have” data sources are available for conducting in-depth firm-level investigations, including Orbis Europe, Orbis M&A, PitchBook, and PATSTAT. These data sets offer valuable insights into firm performance at the micro level.

Greater analytical expertise. As the sources and volume of data soar, avoiding misdirection and framing the appropriate questions become challenging. A starting point is to carefully investigate whether promising new firms can easily enter the economy or they face obstacles, be it from direct means such as licensing or indirectly from a significant presence of SOEs. Furthermore, a better understanding of the productivity dynamics among incumbent firms is needed. As firms expand, there is typically an upsurge in the concentration of economic activities. Market concentration can either signify “productive behavior” or be linked to rent-seeking and “strategic behavior.” The challenge lies in distinguishing between the two. Analysts must therefore scrutinize whether growing firms are expanding due to enhanced productivity or are exhibiting strategic behavior without an actual improvement in productivity. Improving the analytic capabilities of analysis is just as important as improving the quality of data.

In conclusion, the forces of creation will need strengthening in middle-income countries. Both entrants and incumbents can create value—by infusing global technologies and by innovating. Outdated rules of thumb, a preference for SOEs, and political capture by large incumbents stymie the forces of creation. By modernizing data and diagnostics, governments can help in the modernization of productive firms, leading to better managers, better professionals, and better technologies. Governments can also discipline dominant incumbents.
Notes
1. Foster, Haltiwanger, and Krizan (2001); Lentz and Mortensen (2016).
6. See, for example, Abreha et al. (2022) for a discussion of informality and the firm size distribution in Sub-Saharan Africa.
11. Akcigit et al. (2023).
19. Akcigit and Cilasun (2024).
20. Brandt, Kambourov, and Storesletten (2020); Hsieh and Klenow (2009); Whited and Zhao (2021); World Bank (2023).

References
23. World Bank (2024a).
29. World Bank (2024a).
31. Akcigit et al. (2024).
33. See https://libguides.eur.nl/az.php?q=ZEPHYR.
36. World Bank (2024a).


