McKinsey Global Institute






March 2014

A tale of two Mexicos: Growth and prosperity in a two-speed economy

The McKinsey Global Institute

The McKinsey Global Institute (MGI), the business and economics research arm of McKinsey & Company, was established in 1990 to develop a deeper understanding of the evolving global economy. Our goal is to provide leaders in the commercial, public, and social sectors with the facts and insights on which to base management and policy decisions.

MGI research combines the disciplines of economics and management, employing the analytical tools of economics with the insights of business leaders. Our "micro-to-macro" methodology examines microeconomic industry trends to better understand the broad macroeconomic forces affecting business strategy and public policy. MGI's in-depth reports have covered more than 20 countries and 30 industries. Current research focuses on six themes: productivity and growth; natural resources; labor markets; the evolution of global financial markets; the economic impact of technology and innovation; and urbanization. Recent reports have assessed job creation, resource productivity, cities of the future, the economic impact of the Internet, and the future of manufacturing.

MGI is led by three McKinsey & Company directors: Richard Dobbs, James Manyika, and Jonathan Woetzel. Michael Chui, Susan Lund, and Jaana Remes serve as MGI partners. Project teams are led by the MGI partners and a group of senior fellows, and include consultants from McKinsey & Company's offices around the world. These teams draw on McKinsey & Company's global network of partners and industry and management experts. In addition, leading economists, including Nobel laureates, act as research advisers.

The partners of McKinsey & Company fund MGI's research; it is not commissioned by any business, government, or other institution.
For further information about MGI and to download reports, please visit www.mckinsey.com/mgi.

McKinsey in Mexico

McKinsey Mexico opened its doors in 1970 with a team of professionals with deep functional and industry expertise. Today, the Mexico office consists of two locations—in Mexico City and Monterrey—that employ a global team of consultants with significant experience and knowledge of the country. The office serves private local companies, state-owned enterprises, and the public and social sectors, as well as multinational corporations across industries that are building a presence in the country.

Copyright © McKinsey & Company 2014

McKinsey Global Institute

March 2014

A tale of two Mexicos: Growth and prosperity in a two-speed economy

Eduardo Bolio
Jaana Remes
Tomás Lajous
James Manyika
Morten Rossé
Eugenia Ramirez

Preface

Mexico is once again on the minds of global investors and business leaders, who regard it as a prime location for reaching the US market and as an emerging market with particularly promising growth prospects. Mexico is also undertaking a series of reforms that have been well received abroad. To inform future decision making, this report examines why, for all its endowments and great potential, Mexico has struggled for three decades to raise growth rates. Despite a series of market-opening reforms, including the North American Free Trade Agreement that created a single market with the United States and Canada, Mexico's GDP growth has fallen behind that of other developing nations, both in Asia and in Latin America. As a result, GDP per capita and improvements in living standards have stagnated.

The central finding of our research is that Mexico has a serious productivity challenge that can be traced to what we call the "two Mexicos"—a highly productive modern economy and a low-productivity traditional economy. The two Mexicos are moving in opposite directions: while the modern sector flourishes, competes globally, and raises productivity rapidly, in traditional Mexico (with very small, often informal enterprises), productivity is plunging. Traditional Mexico is creating more jobs than modern Mexico and therefore shifting labor from high-productivity work to low-productivity work. As Mexico seeks to reignite growth, a top priority must be to raise traditional sector productivity. We offer steps to raise productivity in the traditional sector, remove barriers to the growth of modern establishments—particularly mid-sized firms that can create high-quality jobs—and improve Mexico's overall business climate.

This report is a collaboration between the McKinsey Global Institute and McKinsey & Company's Mexico office. Jaana Remes, an MGI partner, and Tomás Lajous, a partner in McKinsey's Mexico office, led this research, together with Eduardo Bolio, a McKinsey director and chairman of McKinsey Mexico, and James Manyika, a director of MGI. Eugenia Ramirez and Morten Rossé, consultants in Mexico, led the project team, which consisted of Dulce Kadise, Sandya Swamy, and Benjamin Tschauner.

We are grateful for the advice and input of many McKinsey colleagues and experts. Pablo Ordorica, Pablo Haberer, and Sergio Waisser provided invaluable guidance throughout the effort. In automotive manufacturing, we thank Manuel Alvarez, Srikant Inampudi, and John Newman. Miguel Angel Alcaraz, Alejandro Díaz, and Sree Ramaswamy provided insights on food processing industries, and we benefited from input on retailing from Felipe Ize, Eduardo Malpica, and Alex Rodríguez. Alberto Chaia provided information about informality and labor skills, and Maya Horii, Robert Schiff, and Sergio Waisser advised us on access to capital. For insights on energy productivity, we relied on Heinz-Peter Elstrodt, Scott Nyquist, and Pablo Ordorica. Our analysis of infrastructure productivity was based on contributions by Pablo Haberer and Jan Mischke. We thank Geoffrey Lewis, who provided editorial support;

Rebeca Robboy for her help on external relations; Julie Philpot, MGI's editorial production manager; and Marisa Carder, graphics specialist.

Many experts in academia, government, and industry have offered invaluable guidance, suggestions, and advice. We give particular thanks to our academic advisers: Martin N. Baily, the Bernard L. Schwartz Chair in Economic Policy Development at the Brookings Institution; Richard N. Cooper, the Maurits C. Boas Professor of International Economics at Harvard University; and Luis Rubio, chairman of Centro de Investigación para el Desarrollo.

This report contributes to MGI's mission to help business and policy leaders understand the forces transforming the global economy, identify strategic locations, and prepare for the next wave of growth. As with all MGI research, this work is independent and has not been commissioned or sponsored in any way by any business, government, or other institution. We welcome your comments on the research at MGI@mckinsey.com.

Richard Dobbs
Director, McKinsey Global Institute
London

James Manyika
Director, McKinsey Global Institute
San Francisco

Jonathan Woetzel
Director, McKinsey Global Institute
Shanghai

March 2014

A two-speed economy …

Productivity has grown **5.8%** a year in large modern firms

but has fallen **6.5%** a year in traditional firms

Small traditional firms were **28%** as productive

as large modern ones in 1999, **8%** in 2009

Employees in traditional bakeries are **1/50th**
as productive as those in largest modern companies

53% of small and mid-sized Mexican firms
are underserved by the banking industry

Without an acceleration in productivity gains,

GDP growth could drop to **2%** a year



… slows down growth

0.8% average rate of productivity growth from 1990 to 2012

Wages in traditional firms fell **2.4%** a year from 1999 to 2009

Manufacturing in Mexico is **24%** as productive as in the United States, even though top plants exceed the US average

Mexican businesses face an estimated **$60 billion** credit gap

To reach the **3.5%** GDP growth target, productivity growth would need to triple





Contents

Executive summary 1

1. Mexico's productivity imperative 19

2. Strategies to raise productivity 33

3. Clearing the path to productivity growth 51

4. Implications 75

Appendix: Technical notes 81

Bibliography 87



Executive summary

Twenty years after the signing of the North American Free Trade Agreement (NAFTA), the question remains: What is Mexico? Is it a dynamic industrial power that builds more cars than Canada and has become a global auto exporter? Or is it a land of traditional slow-growing businesses and informality? Has it found the right combination of reforms to restore rapid GDP growth and rising living standards? Or is it stuck in a perpetual cycle of economic advances and retreats? Is it a modern, urbanized state that has adopted market reforms and built well-functioning institutions, or is it a place where corruption and crime are tolerated?

According to the media, Mexico is all these things and more. These dichotomies, however, are more than provocative story lines. They reflect the dualistic nature of the Mexican economy. There is a modern Mexico, a high-speed, sophisticated economy with cutting-edge auto and aerospace factories, multinationals that compete in global markets, and universities that graduate more engineers than Germany. And there is traditional Mexico, a land of sub-scale, low-speed, technologically backward, unproductive enterprises, many of which operate outside the formal economy.

It is precisely the deep division between the two economies that has kept Mexico's growth at disappointingly low levels despite three decades of economic reforms. This report, the product of a six-month study by McKinsey's Mexico office and the McKinsey Global Institute, focuses on the two-speed nature of the Mexican economy. We find that the duality of modern and traditional Mexico permeates the economic life of the nation, influencing performance across all sectors and regions, and determining the path of the overall economy.

What makes this dichotomy important now is that the two Mexicos are pulling in opposite directions. As the modern economy celebrates the NAFTA anniversary and triumphs such as the opening of yet another world-class auto plant, the traditional sector is moving backward. The productivity of small establishments (with ten or fewer employees) declined from 28 percent of the level of large companies (those with more than 500 employees) in 1999 to 8 percent in 2009. Yet these traditional unproductive firms are creating jobs at a faster rate than modern firms—the opposite of what typically happens as economies develop.

The declining performance of the traditional sector and its rising share of employment explain why three decades of reforms have failed to raise Mexico's overall GDP growth. Measures to privatize industries, embrace free trade, and welcome foreign investment have helped create a highly productive and globally competitive modern Mexico where multinationals such as FEMSA, Grupo Alfa, Grupo Bimbo, Grupo Lala, Mabe, Walmex, and many others have flourished.[1] Today they have access to global capital and employ the latest technology. They

1 List of top public companies in "500 Empresas de Expansión," *Expansión*, June 2013, in manufacturing and retailing with a principal listing in Mexico and/or private companies (non-subsidiary), headquartered in Mexico.

have become leaders in some of the most competitive markets in the world. But reforms have barely touched the other Mexico, where traditional enterprises operate in the same old ways, informality is rising, and productivity is plunging.

The question overhanging Mexico today is whether the current reform agenda of the Enrique Peña Nieto administration can drive economic growth across both modern and traditional Mexico. For Mexico to get closer to the pre-1980 growth rates that can raise per capita income, grow the middle class, and bring more people out of poverty, the nation must reverse the stagnation of the traditional segment and narrow the gap between the two Mexicos. Policies and practices that discourage traditional businesses from formalizing so that they can qualify for financing and invest in growth need to be rethought. More companies and workers need to move into the modern economy, creating a vibrant and globally competitive small and medium-sized enterprise (SME) sector. To reach Mexico's ambitious growth goals, the modern segment also needs to continue to improve productivity, expand, and create jobs. Policy makers should address remaining barriers to growth for all companies, including inadequate education and infrastructure, limited access to capital, and high energy costs.

Among the key findings of this report:

- Mexico's slow income growth in the past three decades—GDP per capita rose by just 0.6 percent per year on average and only 0.4 percent during 2013—is due to weak labor productivity, which fell from $18.30 per worker per hour (in purchasing power parity) in 1981 to $17.90 in 2012.

- Behind the productivity averages are two dramatically divergent trends: the productivity of large modern enterprises, many of which have become integrated into the global economy, has risen by 5.8 percent a year since 1999; in small traditional enterprises, productivity is falling by 6.5 percent a year. In between are mid-sized companies—a mix of traditional and modern establishments whose productivity growth has been close to flat at about 1.0 percent a year. Overall, the gains of modern companies have been all but offset by the decline in traditional ones, leaving economy-wide productivity growth at about 0.8 percent a year since 1990.[2]

- Faster job growth in the traditional sector is shifting more labor to low-productivity work. The traditional segment has accounted for 48 percent of job growth since 1999. Large modern enterprises are expanding, too, but are not creating jobs fast enough to raise their 20 percent share of employment. The share of employment of mid-sized companies dropped from 41 percent in 1999 to 38 percent in 2009, making Mexico's employment increasingly polarized between two extremes. This hollowing middle is seen across most sectors. In manufacturing, declining trade barriers have created new opportunities for expanding multinationals, but many mid-sized domestic producers have been squeezed between increasing competition from low-cost imports and small local fabricators that derive cost advantages by operating outside the formal economy, thereby avoiding taxes and other costs.

2 See Box 1 for a definition of traditional and modern segments. We use company sizes as a proxy for our estimates, defining companies with ten or fewer employees as mainly traditional; companies with 11 to 500 employees as mid-sized; and those with more than 500 employees as large modern enterprises. This estimate likely understates the gap between modern and traditional, since it counts small modern establishments such as outlets of convenience store chains and small professional services firms that have strong productivity as traditional.

- A central focus of productivity-improvement efforts needs to be reversing two unwelcome trends: the declining productivity of traditional enterprises and their rising share of employment. This will involve raising productivity in traditional enterprises and creating opportunities for successful ones to grow into modern, formal SMEs. To achieve this, Mexico must create a business environment that encourages entrepreneurship and growth and removes economic incentives for businesses to remain small and informal. A critical part of a successful strategy will be to improve enforcement. Simplifying regulatory processes can also help companies join the formal economy: it costs twice as much (as a percentage of average income) to register a business in Mexico as in Chile—and seven times as much as in the United States.

- While addressing the problems of the traditional sector, Mexico also needs to continue to raise productivity of modern firms, particularly mid-sized companies, and expand employment in the modern sector. A key priority for making mid-sized companies growth engines for Mexico is to improve access to capital. Mexico lags far behind its emerging-market peers in bank lending, a key source of funding for mid-sized businesses. The World Bank estimates that more than half of Mexico's small and medium-sized businesses have insufficient access to financial services, and lack of access for businesses with ten to 250 employees accounts for most of what we estimate to be a $60 billion credit gap for Mexican business.

- Expansion and hiring by modern-sector firms should be encouraged. Despite recent reforms, requirements in Mexican labor regulations continue to discourage hiring of full-time employees. Companies still have limited flexibility to lay off workers or hire part-time employees. They also must contribute to profit-sharing plans. To skirt these requirements, more and more employers are hiring even core personnel through contractors. Zoning regulations also hinder growth by keeping modern-sector firms out of many neighborhoods.

- Broad measures are needed to support growth across the Mexican economy. They include reducing electricity costs, upgrading infrastructure, improving labor-force skills, and continuing to improve security. These "enablers" will be important for continuing productivity improvements of modern and traditional companies alike—steps that are critical to reaching overall productivity goals.

- Productivity-raising measures need to be adopted soon. Mexico's productivity imperative is made more urgent by the fading of the "demographic dividend," the rapid expansion of the labor force due to population growth that has contributed 2 percentage points of GDP growth (or 72 percent of overall growth) since 1990. To reach GDP growth of 3.5 percent a year as labor-force growth slows, the productivity growth rate would have to rise almost three-fold from the 0.8 percent per year average since 1990.

We believe that with the right measures, Mexico can accelerate productivity improvements and raise GDP growth to 3.5 percent a year or even higher. Mexico's new administration has launched an ambitious set of reforms that have the potential to address several, although not all, of the constraints we identify. The approval of controversial reforms—in areas ranging from education to energy—has impressed many observers. In our work we have not evaluated the

current reforms that have been adopted or are still under consideration. However, the impact of any reform agenda depends on translating broad agreements into detailed policies and legislation and implementing them across the nation.

How well this is done will determine whether Mexico can live up to expectations and rebuild a high-growth economy that can create better jobs, an expanding middle class, and rising living standards. We recognize that identifying reforms and new policies to unleash productivity growth is the easy part. Carrying them out requires changes in long-standing practices, which will require new capabilities and new ways of doing business. Ultimately, Mexico's ability to reignite growth depends on building a modern economy: a place where formal, compliant companies grow and prosper—and inspire others to emulate their success.

From a Mexican Miracle to stagnation

To understand the potential of the Mexican economy, it is useful to remember what was accomplished before the 1980s. From the early 1950s through the 1960s and 1970s, Mexico urbanized and industrialized at a rapid clip. GDP rose by an average of 6.5 percent annually. From 1950 to 1970 productivity rose by 4.3 percent a year on average. This "Mexican Miracle" was hailed as a model for economic development around the world.

The miracle era passed, however, and growth never recovered. The great expansion of public spending under the "shared development" program in the 1970s led to financial imbalances that proved unsustainable when oil prices plunged. This resulted in a financial crisis and devaluation in 1982. Since 1981, GDP growth has averaged 2.3 percent a year—mostly due to the expanding labor force—and GDP per capita has grown by a disappointing 0.6 percent a year. Labor productivity, which fell sharply from its 1981 peak, has yet to recover completely in purchasing power terms. In 2012, the output of the average Mexican worker was about $17.90 per hour in purchasing power parity, still below the $18.30 per hour of 1981. Mexican GDP per capita, which was 12 times China's in 1980, is now only 25 percent higher, and, at current growth rates, China could surpass Mexico by 2018.

Many factors have affected growth and productivity in Mexico over the past three decades, including volatile energy prices and serious financial crises. However, we find that in good times and bad, it is the stagnation of the large pool of traditional enterprises that limits GDP and productivity growth. Traditional enterprises employ 42 percent of all workers, yet contributed just 10 percent of the total value added in the Mexican economy in 2009. (For definitions of traditional enterprises, informality, and other terms we use in our analysis, see Box 1, "Defining our terms: Modern, traditional, formal, and informal.")

Box 1. Defining our terms: Modern, traditional, formal, and informal

It is clear that there are two versions of the Mexican economy. There is a traditional Mexico that employs millions of workers in labor-intensive, low-productivity tasks, and there is a modern Mexico that consists of both large multinationals (Mexican and foreign) and successful domestic corporations. Thousands of mid-sized companies fall somewhere between these extremes. There is also a formal economy and an informal economy. However, it is not easy to draw clear lines between categories. A company can have fewer than ten employees yet be fully modern and formal and rely on state-of-the-art ways of doing business. At the same time, even some large companies, those with more than 500 employees, hire informally. Here is how we define the following categories in this report:

- **Modern.** A modern enterprise uses the standard business practices found across organizations in advanced economies, with formal controls, resource allocation, and management systems. A modern firm typically hires qualified managers and uses machinery and information technology to raise productivity. Modern companies, even if they are owned by a sole proprietor, tend to be growth-oriented and have strategies and goals.

- **Traditional.** A traditional business does not use modern business methods or tools. It may be informal—with employees working "off the books"—or it may be part of the formal economy. A traditional player is unlikely to be able to invest in productivity-improving equipment and technology and may use manual methods or antiquated machinery. Traditional businesses may exist to provide a living for the owner and his or her family.

- **Formal.** Formal companies are registered businesses that pay all corporate taxes and submit to relevant regulation. Their employees work on the books, and the company withholds required tax and social security payments. The workers have rights to severance payments, must be paid a minimum wage, and can form unions.

- **Informal.** Informal businesses fail to comply with all regulatory requirements. They may not be registered with the authorities; they may under-report income to avoid paying all or part of their tax obligations; and they may pay bribes to avoid land-use, sanitary, or other regulations. There are many shades of informality, ranging from large modern companies that cut corners in parts of their operations by hiring informally, to mid-sized companies that are properly registered yet employ most of their workers informally and may not comply with a full range of health or other regulations, to completely informal businesses that operate entirely under the legal radar.

Mexico faces a growing productivity imperative

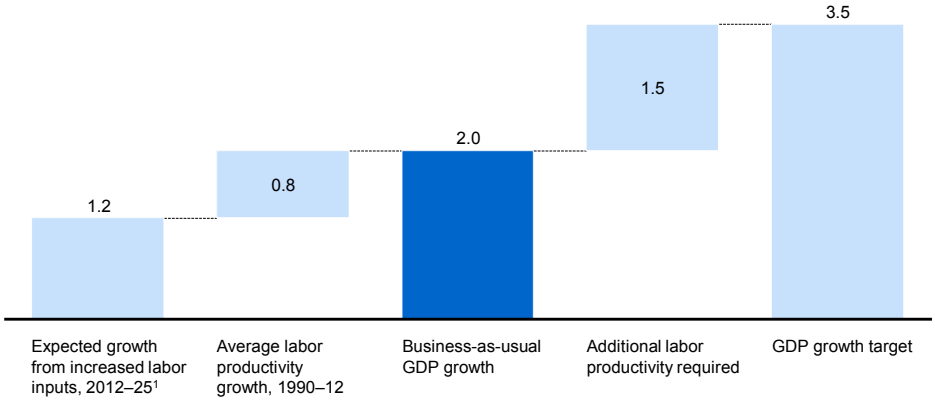
The low productivity of traditional companies is at the heart of Mexico's growth challenge. GDP growth has averaged 2.7 percent annually since 1990, largely due to a rapidly expanding labor force. Labor inputs have accounted for more than two-thirds of GDP growth. Now, this "demographic dividend" is beginning to decline; labor-force growth is expected to fall from 2 percent annually to 1.2 percent through 2025. Productivity will need to take up the slack to sustain GDP growth. If productivity does not accelerate from the recent rate of 0.8 percent per year, Mexican GDP growth could decline to 2 percent a year. To raise the GDP growth rate to 3.5 percent, the growth projection by the Central Bank of Mexico for 2014, productivity would need to rise by 2.3 percent annually—almost three times the rate of the 1990 to 2012 period. To meet the government's 6 percent goal would require raising productivity by 4.8 percent annually, or about six times the rate of the past two decades (Exhibit E1).

Exhibit E1

Without a boost in productivity growth, Mexico's GDP growth could slow to 2 percent per year

Annual real GDP growth rates

%



1 Workers joining the labor force due to population growth and increased participation rates; employment rate assumed constant at 2012 level.

NOTE: Numbers may not sum due to rounding.

SOURCE: Instituto Nacional de Estadística y Geografía (INEGI); *Encuesta Nacional de Ocupación y Empleo*, INEGI; McKinsey Global Institute analysis

We see abundant opportunities to raise Mexican productivity to rates that would accelerate GDP growth. Mexico has many of the ingredients in place for both productivity improvement and accelerated GDP growth. It has not stinted on investment—roughly a quarter of its GDP goes into fixed capital investment, a rate lower than in rapidly growing Asian economies but among the highest in Latin America. And Mexico's macroeconomic environment has become increasingly stable over the past decades. Mexico has adopted many important market-opening reforms that have enabled the success of highly productive modern companies. As these large private corporations have been exposed to global competition at home and have expanded abroad, they have sharpened their operating skills.

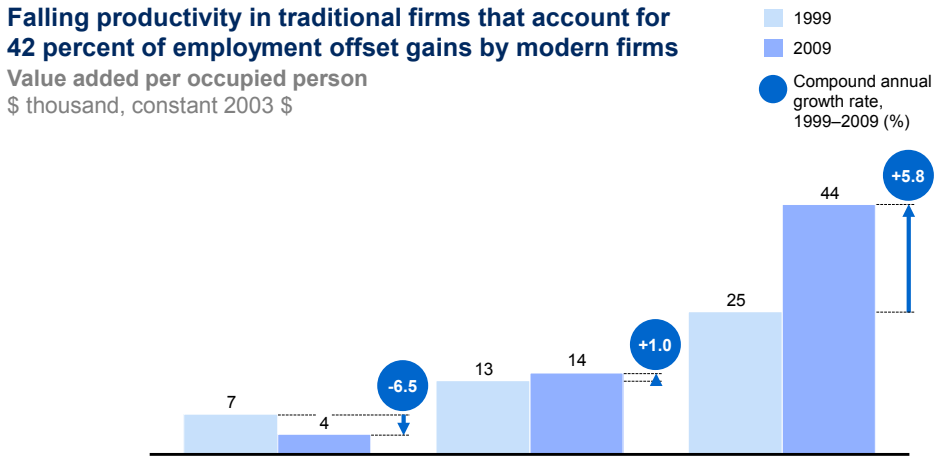
The strength of modern-sector players, however, has not been sufficient to lift Mexico's growth trajectory. Instead, modern-sector growth and productivity are increasingly eclipsed by the weakness of the traditional sector. While large modern corporations raised productivity by 5.8 percent per year from 1999 to 2009 and mid-sized companies raised productivity by 1.0 percent per year, the productivity of traditional enterprises fell by a staggering 6.5 percent a year.[3] And the impact of that is magnified because the number of workers in traditional enterprises is growing: in 1999, 39 percent of all workers were employed in low-productivity traditional enterprises; by 2009, that proportion had risen to 42 percent.

Mexico's mid-sized companies (with 11 to 500 employees) represent another challenge. With some exceptions, mid-sized businesses have not been a source of innovation, job creation, and dynamic change in the economy. Not only has their productivity growth been weak, their share of employment has declined from 41 percent of all employees in 1999 to 38 percent in 2009. In industries where products and services are heavily traded, mid-sized companies—particularly manufacturers, which face rising imports from low-cost locations—have lost ground. Mid-sized companies are also constrained by lack of access to capital, as well as competition from a growing pool of informal competitors that gain a cost advantage by evading taxes and employing workers off the books. With weak contributions to productivity by mid-sized companies, the falling productivity of the vast number of small traditional enterprises has all but canceled out the gains of modern companies in national averages (Exhibit E2).

Exhibit E2

Falling productivity in traditional firms that account for 42 percent of employment offset gains by modern firms

Value added per occupied person
$ thousand, constant 2003 $



Number of employees	≤10	11–500	>500
Share of employment, 2009 %	42	38	20
Share of employment, 1999 %	39	41	20

SOURCE: *Censos Económicos 1999*, *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis

3 Measuring productivity changes over time is notoriously challenging, and particularly so for small, at times informal establishments. However, the overall declining trend is consistent across multiple available sources and estimation methods. All data quoted are based on the 1999 and 2009 *Censos Económicos* (National Economic Census), which encompasses both formal and informal companies, from the Instituto Nacional de Estadística y Geografía (National Institute of Statistics and Geography).

The flagging productivity of traditional businesses has come with a high human cost, as declining productivity has depressed incomes of low-skill workers. Wages in traditional firms with ten or fewer employees, adjusted for inflation, shrank by 2.4 percent per year from 1999 to 2009. From 2008 to 2012, income from independent work (in the informal economy) dropped by an estimated 22 percent.[4] In Mexico's largest companies, wages have remained static, despite rapid advances in productivity. Stagnant and falling wages not only make life more difficult for millions of Mexicans, but they also hold back the expansion of Mexico's consuming class and limit the purchasing power needed for domestic demand to spur sustained growth.

Prescribing many of the measures that are needed to improve productivity in traditional enterprises is straightforward—many strategies, such as introducing labor-saving equipment and improving basic business processes, have not been applied. The more difficult task is to understand why these solutions are not yet in place. To bring about change in the traditional sector, Mexico needs to understand and tackle the reasons business owners are not seeking to make the operational changes and investments required to grow and raise productivity. Mexico also must look carefully for regulations and tax laws that limit modern-sector expansion.

Boost productivity in traditional enterprises and sustain productivity growth in the modern sector

A central focus of this report is to identify actions to boost productivity by private players—both traditional and modern—in major sectors of the Mexican economy. We also examine ways in which policy makers can remove incentives that keep businesses in the traditional sector and inhibit the growth of the modern sector. To identify specific opportunities for realizing productivity gains across the Mexican economy, we use a sector-based approach. We focus on food processing, auto manufacturing, and retail, because of their large size and the catalytic role they can play in the economy. Within these sectors, we isolate opportunities through a two-step approach. We start with a bottom-up assessment of the operational factors that lead to success in the segment and that companies can control, such as adopting technology or developing superior capabilities in certain types of operations. Then we take into account external factors that influence a firm's ability to make such improvements, such as the competitive and regulatory environment.

ADDRESSING PRODUCTIVITY IN THE TRADITIONAL SEGMENT

Food processing, Mexico's largest manufacturing industry, provides a striking example of the stark contrast between the productivity of the largest modern players and of the traditional companies that outnumber them. The 0.5 percent of baking-industry employees who work in the very large, best-in-class corporations generate half of the industry's value added. The vast majority of baking employees, however, work in traditional neighborhood *panaderías* (bakeries) and *tortillerías* (small-scale tortilla factories), which have—at best—one-fiftieth the

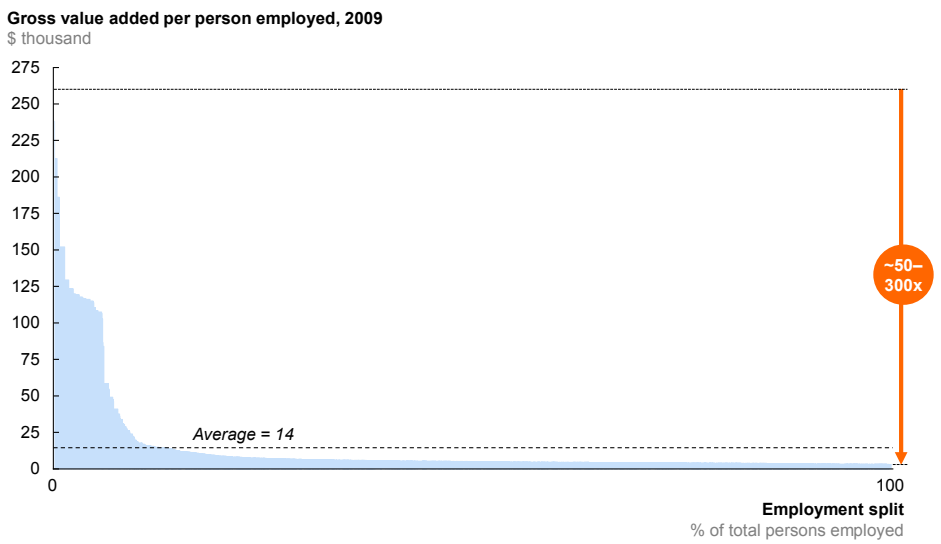
4 *Encuesta Nacional de Ingresos y Gastos de los Hogares*, or ENIGH (National survey of household income and expenditure) 2012, Instituto Nacional de Estadística y Geografía.

productivity of the best-in-class large bakeries and one-twentieth the productivity of the average industrial bakery (Exhibit E3).

Exhibit E3

In the long tail of traditional firms in baking, productivity is 1/50th to 1/300th the level of top performers

Mexico labor productivity vs. share of employment in baked goods[1]



1 NAICS industry code 3118 only.

SOURCE: *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía (INEGI); INEGI Annual Manufacturing Survey 2011; IMF; World Input-Output Database 2012; McKinsey Global Institute analysis

The "long tail" of unproductive traditional enterprises is also a large force in auto manufacturing. The global parts makers and auto assemblers that have flourished under NAFTA rely on a network of local subcontractors that assemble components such as wiring harnesses using low-cost, low-skill labor. Subcontractors with ten or fewer employees, which account for 80 percent of enterprises and 40 percent of sector employment, have one-tenth the productivity of the modern parts suppliers for which they work.

Manufacturing enterprises can raise productivity in many ways. Some of these, such as investing in productivity-improving equipment and technologies, may be beyond the reach of traditional enterprises that lack scale and access to capital (which we discuss below). However, companies of all sizes can introduce process improvements and strategies such as adjusting product mix to include more high-value-added items. In addition, small enterprises can join buying consortia to qualify for discounts and gain access to better raw materials. In this way, for example, small bakers might raise quality and generate higher profits to invest in productivity-improving equipment.

Food and beverage stores, the largest subsegment of the retail industry, present an enormous opportunity for productivity improvement. Mexican food retailing went through a significant transformation after the sector was opened up to foreign investors in the 1990s, and today modern-format chains account for 65 percent of sales.[5] Yet traditional mom-and-pop stores, market stalls, and counter stores continue to proliferate. They employ 84 percent of workers in food and beverage retailing but have only 20 percent of the productivity of modern

5 For more details on the food retailing transformation, see *New horizons: Multinational company investment in emerging economies*, McKinsey Global Institute, October 2003.

stores. Many small stores have limited display space, requiring workers to take orders or suggest items to customers and fetch merchandise from storerooms, lengthening transaction times and hampering productivity.

Simple operational improvements, such as layouts that allow self-service and buying consortia, could help small-scale retailers. Today, wholesalers sometimes charge small stores more than retail prices available at modern discount stores. The Independent Grocers Alliance (IGA) was started in the United States to help small grocers. It now operates in 30 countries, providing store owners with store-branded products, standardized layouts, and logistics. Food manufacturers, which already support mom-and-pop stores with infrastructure such as beverage cases, can add other services such as access to capital and technology for inventory management and ordering. Finally, small shop owners can consider joining franchise chains to gain scale benefits and operating expertise.

SUSTAINING PRODUCTIVITY IN THE MODERN SECTOR

Mexico has built one of the world's top 15 global manufacturing economies (by gross value added) and has become one of the top five auto producers, with assembly plants of seven global automakers and operations of leading global parts suppliers. Annual production at the ten largest Mexican plants rose from 1.1 million vehicles in 1994, the year NAFTA went into effect, to nearly 2.9 million in 2012. Many Mexican plants are regarded as world-class, and some exceed average US productivity levels. In food processing, Grupo Bimbo is a highly automated global player that has become the largest baking company in the world. In food and beverage retailing, operators of modern-format stores have introduced the latest practices in supply-chain management, marketing, and other operations, which has contributed to the industry's productivity.

For Mexico to achieve its growth aspirations, modern manufacturers and retailers must continue to improve their productivity, while the pool of modern companies and the number of people they employ need to expand. Fortunately, there is room for much more progress in both areas. Modern manufacturers can raise the value of their output by optimizing product mixes, improving quality, and innovating. They also can reduce inputs through efficiency measures, investment in technology and automation, and optimizing supply chains. The Mexican subsidiaries of global assemblers, for example, may be able to source more parts locally rather than importing them from global supply chains. Today, assemblers and global parts makers import many of the components that go into their finished goods, and some 70 percent of the value of their exports from Mexico is based on imported parts. Bringing local suppliers up to global standards may require some training and investment, but the savings and supply-chain simplification can make the effort worthwhile.

In food and beverage retailing, modern-format stores can narrow the productivity gap with US-based stores (they are now about 68 percent as productive as comparable US stores) through further operational improvements. Continuing to raise the share of modern stores in food retailing is a major opportunity for improving sector productivity. We estimate that if the share of modern-format stores can rise from 65 percent now to 75 percent by 2025, sector productivity then could be 25 percent above the 2012 level.

Beyond these improvements by individual operators, Mexico needs to find ways to create a larger, more dynamic modern sector that spans industries and includes companies of all sizes. More small companies need to grow into modern mid-sized companies, and more mid-sized companies need to grow into large modern corporations. The country also needs more entries by new modern companies every year to continue to inject dynamism into the economy and enable creative destruction to take its course so that the modern sector can expand and new industries can rise.

Today, Mexico does not resemble a dynamic economy. Academic research has shown that the entry of new and more productive players and the exit of less productive ones are important contributors to aggregate productivity growth.[6] Mexico, however, has the lowest rate of new company entries among major developed and emerging countries.[7] In addition, Mexican companies may expand less rapidly than those in other countries. Mexican manufacturing plants tend to invest less in process efficiency, quality, and market expansion, and as a result add capacity only half as rapidly as US plants. In the United States, a 40-year-old plant is typically four times as large in terms of employment as a 25-year-old plant in the same industry, but in Mexico, there is no difference in employment between a 40-year-old plant and a 25-year-old plant.[8]

The path of equity markets is another sign of Mexico's lack of economic dynamism. Fewer publicly traded companies exist today than in 2000 due to acquisitions (for example, Grupo Modelo's acquisition by AB-InBev) and a dearth of initial public offerings. IPOs in Mexico raised only $1.9 billion a year from 2000 to 2013, compared with $54 billion per year in the United States.

An important source of dynamic economic activity—fast-growing companies—is also relatively limited in Mexico. In the United States, rapidly growing companies, sometimes called "gazelles," contribute an overwhelming share of all job growth.[9] There are signs that entrepreneurial SMEs can succeed in Mexico, with examples such as Doña Tota, a *gordita* restaurant chain that was recently acquired by FEMSA, owner of Oxxo, a leading convenience store chain, and City Express, a startup middle-market hotel chain that has become number two countrywide and was recently listed on the Mexican Stock Exchange. But Mexico needs many more such companies to affect overall growth.

6 See Lucia Foster, John Haltiwanger, and C. J. Krizan, *The link between aggregate and micro productivity growth: Evidence from retail trade*, NBER working paper number 9120, August 2002.

7 See John C. Haltiwanger, Eric Bartelsman, and Stefano Scarpetta, *Microeconomic evidence of creative destruction in industrial and developing countries*, World Bank, 2004. The authors, however, find that the growth of new Mexican companies in their first seven years is relatively high.

8 Chang-Tai Hsieh and Peter J. Klenow, *The life cycle of plants in India and Mexico*, NBER working paper number 18133, June 2012.

9 Analyses by the Corporate Research Board and American Corporate Statistical Library show that high-growth companies represent just 6 percent of all US companies but contribute almost all net employment growth.

Remove barriers to boost productivity and growth for all sectors of the Mexican economy

A dynamic economy where companies can take full advantage of opportunities to grow and compete more effectively requires the foundation of a strong business environment. In Mexico, significant barriers to growth and productivity remain, despite the reforms of the past three decades.[10] Small companies today, for example, respond to incentives in the regulatory regime that reward business owners for staying small and informal, creating a substantial barrier to growth. At the same time, competitive pressure from the modern sector is held back by restrictive zoning and other preferences for small businesses. And all Mexican businesses would benefit from lower-cost and more reliable energy supplies, improved infrastructure, investment in labor force skills, and a more secure business environment. Collectively, these barriers create friction and reduce rewards for entrepreneurship, slowing the speed of economic change.

The current reform agenda of the Mexican government touches on many issues that we identify as necessary to boost growth: regulatory reforms, improved access to capital, and an enhanced business climate. Many of these reforms have not been translated into specific legislation nor implemented yet, and our assessment of measures that could enable growth relies on observations made before the reform agenda has had substantial impact.

ADDRESS REGULATORY HURDLES AND REMOVE DISINCENTIVES FOR GROWTH

Many companies remain small and continue to operate informally because they have economic incentives to do so. The regulatory cost of establishing and operating a formal enterprise in Mexico is relatively high, and enforcement is weak and too often tainted by corruption, enticing companies of all sizes to conduct all or part of their business beyond the strictures of the formal economy. Small companies enjoy a variety of preferences. For example, companies under a certain size can purchase electricity at the consumer rate and may qualify for subsidies that can cover 80 percent of their costs. Small companies also enjoy tax exemptions, while zoning insulates them from modern competitors that would force them to become more productive. Efforts in the following areas could remove incentives to stay small and unproductive and could provide a more level playing field for all companies:

- **Reduce regulatory complexity.** Not only is it far costlier to start a formal business in Mexico than in peer countries, but it also costs more to expand: construction permits cost three times the average income per capita vs. 67 percent in Chile. There are also wide variations in regulatory processes and regulations within Mexico (a complication also seen in other countries): it takes six days to start a business in Monterrey and 49 days in Cancún, and the simplest regulations—such as the height at which to hang a fire extinguisher—vary from state to state.

10 For a comprehensive synthesis of the literature assessing reasons behind Mexico's performance, see Gordon H. Hanson, "Why isn't Mexico rich?" *Journal of Economic Literature*, volume 48, number 4, December 2010.

- **Improve enforcement.** An estimated 54 percent of Mexico's non-agricultural workers are employed in the informal sector, and informality is rising. Informal companies avoid paying into the social security system, complying with sanitary and environmental regulations, and filing paperwork. As a result, informal establishments enjoy cost advantages over more compliant and formal firms. Raising the odds of prosecution for tax fraud or other violations would not only discourage informality but it would also help compliant companies survive and prosper.

- **Remove incentives to remain small and unproductive.** Traditional markets and *tianguis* (street markets) pay only license fees, while modern formal stores pay sales tax as well as employment taxes. Employees of informal enterprises have little incentive to push employers to make payments for social insurance programs since they can get nearly identical benefits through programs for the poor.[11] Unproductive enterprises of all sizes are protected by remaining trade barriers, including high tariffs for even most-favored nations such as China, antidumping rules, and excessively costly customs procedures.

- **Further improve labor flexibility.** Mexico has liberalized some labor rules, but it still has relatively restrictive labor laws.[12] This constrains hiring by large companies and makes it difficult for small employers to operate formally. By staying informal, firms keep the option of letting employees go and can pay workers less than the minimum wage.

- **Ensure that zoning does not reduce competition.** Many communities have enacted zoning rules that limit construction of modern-format stores to protect traditional stores and the jobs they provide. But by limiting the growth of modern-format stores and the competition they would introduce, these regulations are a barrier to higher productivity.

IMPROVE ACCESS TO CAPITAL

For small and mid-sized businesses, lack of capital frustrates expansion plans and forces companies to rely excessively on labor-intensive methods to raise output (often using family or informal workers), rather than making capital investments. This exacerbates the productivity problem. Bank loans are a traditional source of financing for SMEs, but lending activity is very limited in Mexico. Lending in advanced economies, as a share of GDP, is 4.5 times the level in Mexico. The country has fewer loans outstanding than Brazil and other Latin American peers. At 33 percent of GDP, Mexico's lending places it behind Ethiopia, a nation with much lower GDP per capita.

The World Bank estimates that 53 percent of Mexico's medium-sized firms are underserved by the domestic financial industry. Furthermore, the mid-sized firms that do have access to credit pay a very high cost compared with what large corporate bond issuers and SMEs pay in the United States (Exhibit E4). By contrast, foreign multinationals operating in Mexico and Mexico's largest modern

11 Matías Busso, María Victoria Fazio, and Santiago Levy, *(In)formal and (un)productive: The productivity costs of excessive informality in Mexico*, Inter-American Development Bank working paper number IDB-WP-341, August 2012.

12 According to the OECD, Mexico's 2012 labor reforms might move the country up to fourth place from 11th in rankings for restrictive labor practices. *OECD economic surveys: Mexico 2013*, OECD Publishing, May 2013.

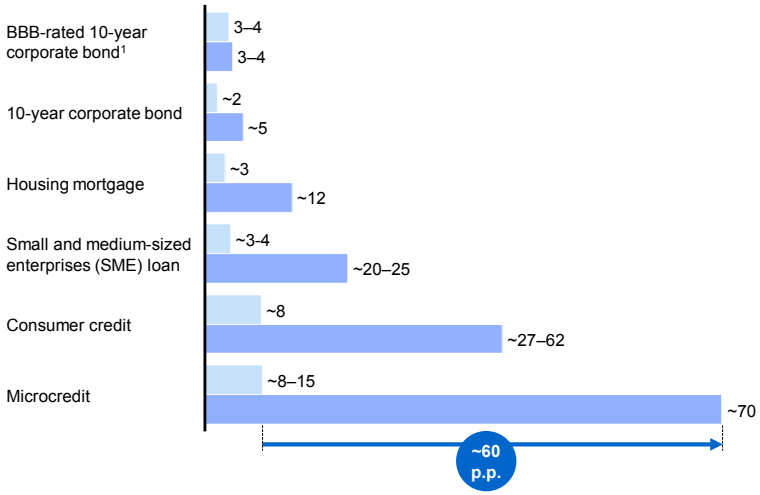
corporations have access to capital markets around the world and benefit from a relatively low cost of capital.

Exhibit E4

Corporate bond rates in Mexico are comparable to US rates; SME loans and microcredit are much more expensive

Interest rates of different forms of debt

% per year



1 PPL Energy Supply, LLC in the United States and Banco Santander de México in Mexico.

SOURCE: Bloomberg; Banco de Mexico; McKinsey Global Institute analysis

The unmet capital needs of firms with ten to 250 employees represent 75 percent of what we estimate to be a $60 billion credit gap in Mexico. The credit gap limits entry by new businesses and prevents mid-sized companies from growing into major employers and making larger contributions to GDP. It also removes the capital cushion that can keep companies viable in the face of market shocks. Furthermore, it holds back productivity gains: the mid-sized companies that are being deprived of credit are precisely the companies that need to invest in machinery and technology to drive modern-sector productivity gains.

Mexico can take several steps to improve access to credit across the nation. Regulatory changes, such as improving protections for creditors in bankruptcies, would encourage lending, and the government has made some progress in insolvency regulation. Improvements in Mexico's financial infrastructure would also help. And better auditing systems and credit reporting resources would make risks more explicit and enable more lending.

IMPROVE ENERGY SUPPLY, INFRASTRUCTURE, SKILLS, AND SECURITY

Beyond reforms to regulations, Mexico can strengthen its overall business environment to increase its global competitiveness and support the growth of domestic industries. High costs of electricity, gaps in infrastructure and skills, and rising security concerns are all barriers to growth.

- **Increase energy productivity.** Electricity for commercial customers in Mexico costs 73 percent more than it does for commercial users in the United States. The World Economic Forum ranks Mexico 79 out of 144 countries for the cost and quality of its industrial electricity supply. We estimate that Mexico could

reduce total energy costs by as much as 20 percent by addressing issues of supply and demand, including raising the proportion of electricity generated with natural gas and further developing low-cost renewables. On the demand side, Mexico can raise fuel-economy standards and expand public transportation, perhaps by adding more bus rapid transit.

- **Close the infrastructure gap.** Mexico's infrastructure is not adequate to support future growth. To bring infrastructure stock up to the global average of infrastructure stock to GDP, we estimate that the nation would need to spend $71 billion per year through 2025 to support expected growth. Filling these gaps will enable Mexico to support growth and provide for the needs of an expanding economy—and perhaps address issues of economic inclusion at the same time. Using measures to improve the productivity of infrastructure investments, Mexico could reduce the cost of building the necessary infrastructure by as much as 40 percent.[13]

- **Build workforce skills.** Mexico lags behind other countries, including large Latin American peers, in both the level and quality of education. Today, the average Mexican has only nine years of formal schooling and few opportunities to get on-the-job training in globally competitive businesses. Addressing the shortcomings of the educational system will take many years. However, in the short term, Mexico can focus on upgrading vocational education, aligning curricula with employer needs, developing more employer-sponsored training programs, creating rapid training courses, and improving labor-market matching mechanisms.

- **Improve safety.** Security is a concern for most businesses operating in Mexico. Mexico rates poorly on the World Economic Forum's country rankings for costs of crime and violence, presence of organized crime, and reliability of police services. On organized crime, it ranks 139 out of 144 countries. The challenge for Mexico is to build capabilities in the police force and judiciary to be able to combat violence and crime and reduce related corruption.[14]

Implications for Mexico's economy

If Mexico succeeds in boosting the productivity of traditional companies, sustains productivity growth in the modern sector, and addresses barriers to growth across the economy, a 3.5 percent growth target is feasible. While this is an aggressive goal, it can be reached if both the public and the private sectors are determined to make the change happen. The nation will face some dislocations in existing businesses—and can consider appropriate measures to ease the transition for workers—as the process of creative destruction plays out.

We do not underestimate the extent of the changes that will be needed. To unleash growth and productivity, longstanding political, judicial, and regulatory practices will need to be modified, and this cannot happen overnight. Yet our analyses strongly suggest that there is no alternative: Mexico not only needs strategies to address structural issues, it also needs to shift ingrained institutional

13 Such savings have been achieved in other economies using strategies described in *Infrastructure productivity: How to save $1 trillion a year*, McKinsey Global Institute, January 2013.

14 *The global competitiveness report 2012–2013: Full data edition*, World Economic Forum, 2012.

practices. Mexico needs to enforce a rule of law that allows lenders to trust that they can collect on their loans and ensures that businesses have a fair opportunity to reap the benefits of their investments. Most important of all, Mexico needs to become a place where those who do not play by the rules will be penalized and where formal, compliant companies are free to go as far as the energies and talent of their workers can take them.

Changing Mexican business practices may take many years, perhaps a generation. In the near term, the Mexican people, business owners, investors, and policy makers have much to do. The private sector has a key role to play in identifying opportunities for improvement—within organizations and industries and beyond. Mexico will need investments of financial and human capital to act on those opportunities. We identify actions on three fronts, described below, that will be needed by policy makers and private-sector leaders:

- **Help traditional enterprises evolve into modern, formal SMEs.** With appropriate government actions to make informality less attractive, assistance from the private sector, and efforts by small business owners, many of Mexico's traditional enterprises can evolve into modern companies. First, government should examine incentives, such as tax preferences, that make it economically attractive for companies to remain small and informal. At the same time, government can make it far easier to register a business or obtain a permit; investments in online and self-service systems will be money well spent.

  The most powerful prod, however, will be rigorous enforcement.[15] It should become abundantly clear to business owners that if they are not paying taxes or meeting other obligations, they are likely to be caught, and that when they are caught they will be prosecuted. To do this, government will have to invest in new systems and capabilities. Moving toward digital payments for government transactions can help. In Brazil, businesses that submit digital receipts of business expenses are eligible for special tax breaks. Using big-data analytics, tax authorities can use such files to uncover possible fraud (if the company that issued the receipt for the reported expenses did not also report the income, for example). To make sure laws are enforced equitably, government must root out corruption in agencies and in the field.

  The private sector can help bring small enterprises into the formal economy, too. Large manufacturers can integrate more closely with the small companies in their supply chains, perhaps helping them finance the online systems to tie them into production systems and help subcontractors manage inventory and scheduling. Large manufacturers can also work with local governments to find ways to bring smaller firms into industry clusters. Finally, business owners will need to decide to move up to the formal sector—because the path is clearer and the benefits of staying informal are diminishing.

- **Expand access to capital, particularly for mid-sized companies.** The inability to access credit and the high cost of credit are major obstacles for

15 Research by the World Bank in Brazil found that of all government measures aimed at reducing informality, only enforcement influenced formalization rates. Gustavo Henrique de Andrade, Miriam Bruhn, and David McKenzie, *A helping hand or the long arm of the law? Experimental evidence on what governments can do to formalize firms*, World Bank policy research working paper 6435, May 2013.

the growth of the mid-sized businesses that can create new jobs, innovate, and aspire to become Mexico's next leading companies. Government and the private sector—banks as well as large corporations—can help. Financial reforms should include strengthening support for creditors to encourage lending, such as by improving the process for recovering collateral. The World Bank, for example, recommends a national system for registering movable assets such as business equipment. Government can push for improvements in credit reporting, too.

Banks can help by going back to "growing" their business customers—starting with small loans and staying with the same clients as they prosper and need additional services. Banks can also modernize their credit-granting processes, using data analytics and new unconventional forms of information that can be used to gauge creditworthiness. Many aspiring business owners do not fit the profile that conventional credit reviews require, but they may be excellent risks.

Mexico's leading businesses can also do their part to help SMEs finance growth. One easy step would be to make prompt payments to small suppliers—waiting 90 or 120 days for payments can wreak havoc on a small business. Large companies with access to low-cost capital can also help finance smaller partners directly, by offering financing for equipment or technology purchases, for example. There is room for innovative solutions to boost lending and close the credit gap. In China, Alibaba, the operator of massive online markets, has become one of the nation's largest SME lenders and is in the process of obtaining a banking license.

- **Continue to make Mexico a place where world-class companies prosper.** Through decades of policy reforms and trade agreements such as NAFTA, Mexico has become an attractive place for world-class companies to locate operations, as well as a place where world-class companies are born. To allow such companies to maintain their momentum, government can further enhance the business environment by upgrading infrastructure, improving the cost and reliability of energy, and educating workers for higher-skill employment. Addressing security issues, an area of ongoing concern, will also be important.

  The private sector will continue to have a key role to play. The investment climate remains favorable despite crime concerns; Mexico's global firms and multinationals continue to see Mexico as a core production location for the North American market and can be expected to expand their operations to create more jobs. Local and global private equity investors can help enable the change that Mexico needs by identifying opportunities for productivity improvements in companies and better performance in specific industries.

  Formalizing and revitalizing the traditional sector and enabling the growth of mid-sized companies are essential steps to restore growth. Mexico must reverse the productivity decline in its smallest enterprises and start moving workers from low-productivity work to higher-productivity jobs in the modern sector. Government, the private sector, and Mexican citizens will all need to pull in the same direction for the two Mexicos to move ahead.



1. Mexico's productivity imperative

Mexico's economy is blessed with a young and growing labor force, abundant natural resources, and a strategic location next to the United States. Despite these endowments, Mexico's economic performance has been disappointing in recent decades. Its economy has grown by about 2.3 percent a year since 1981, a little more than one-third of the rate of Mexico's expansion in the preceding decades. The result: Mexico's GDP per capita in 2012 was barely higher than it was 30 years before, and it is expanding by just 0.6 percent annually.

To get back on the path of rapidly rising GDP and GDP per capita, Mexico will need to address the causes of the weak productivity gains that have depressed growth rates for three decades. After being a growth leader for most of the postwar period, Mexico started to fall behind its global peers in the 1980s. So, while Mexico's GDP per capita was almost double South Korea's and 30 percent higher than Taiwan's in 1980, today South Korean per capita GDP is twice Mexico's and Taiwan's is almost three times as much. China, which had one-twelfth of Mexico's GDP per capita in 1980, by the start of 2014 was approaching 75 percent of Mexican GDP per capita and could surpass Mexico by 2018.

Growth has suffered for many reasons, including volatile energy prices, repeated economic shocks, and the rise of China. There have been two debt and currency crises and three massive downturns (in 1982, 1995, and 2009), each of which reduced GDP by 4 to 6 percent. And even with NAFTA expanding Mexico's access to the US market, in the past two decades China has supplanted Mexico as the top supplier of goods to the United States.

More than any other factor, however, the lack of productivity improvement explains Mexico's modest growth (see Box 2, "How we define and measure productivity"). And there is one dominant cause of Mexico's productivity problem: in good times and bad, a large and growing pool of slow-growing, unproductive traditional enterprises does not contribute to Mexico's growth.[16] Despite strong productivity gains by modern firms—especially by the largest companies—Mexico's overall productivity growth has fallen from the 3.3 percent a year on average before 1981 to flat or negative in the past 30 years. Since 1990 productivity growth has averaged about 0.8 percent per year (Exhibit 1).

16 For more on the role of microeconomic barriers to economic growth across the globe, see William Lewis, *The power of productivity*, University of Chicago Press, 2004.

Box 2. How we define and measure productivity

Labor productivity has been the overwhelming force for rising global living standards across nations. While an economy grows with the expansion of population and the labor pool, it is rising labor productivity—the output produced by each worker—that translates into higher incomes and purchasing power for each nation. Rising productivity generates a virtuous cycle: the surplus created for the firm translates into lower prices to consumers, higher profits to owners, or higher salaries to employees, all of which will be recycled into either rising investment or consumption in the economy overall.

We focus our research on labor productivity and measure the productivity of an industry or a company by dividing its value added (revenue less purchased raw materials and intermediate inputs) by the labor inputs used in producing the value added. We can measure labor productivity across and within different industries with available national accounts data, an exercise that is less feasible for calculating total factor productivity (a measure of output compared with all inputs: capital, energy, and other resources, as well as labor).[1]

There are many ways to raise labor productivity. Capital investments provide workers with better tools and equipment that enable them to produce more and better goods and services. A worker in a highly automated plant or an engineer using advanced computer-aided design software can produce dozens of times the output of a worker employed in more labor-intensive operations. Productivity can also be raised through process improvements, such as streamlining interactions with suppliers and customers. All of these efficiency improvements reduce the time and effort needed to produce a unit of output.

Productivity improvements are not just about reducing labor inputs needed for given output. Importantly, productivity is also about increasing the quality and value of outputs. A company that increases the value of its products by improving quality or performance also improves productivity and generates greater economic surplus.

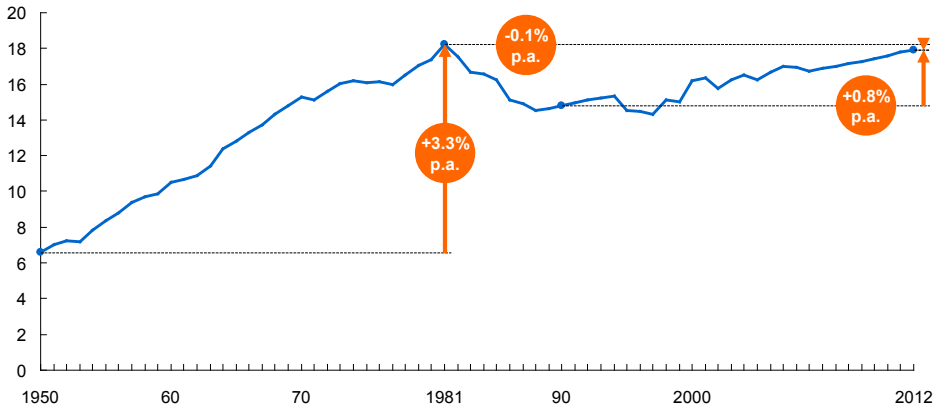
Finally, employment trends shape productivity at the national level. The mix of jobs that are created, the types of skills that are demanded by employers, and the amount invested in training and equipment all affect productivity. In many parts of the world, trends in these areas are helping to raise productivity. In Mexico, employment patterns are reducing productivity by shifting labor from more productive to less productive sectors.

1 We use the Conference Board Total Economy Database (2013) for country productivity numbers, which can be compared across nations going back to 1950. For the Mexican sector analysis, we use national accounts, the economic census, the national survey of occupancy and employment, and deflators from Instituto Nacional de Estadística y Geografía. The results of our labor productivity analysis are in line with analyses conducted on total factor productivity, such as those by Kehoe and Meza. See Timothy J. Kehoe and Felipe Meza, "Catch-up growth followed by stagnation: Mexico, 1950–2010," *Latin American Journal of Economics*, volume 48, number 2, November 2011.

Exhibit 1

Productivity per worker has fallen from its peak in 1981

GDP per hour worked, in 2012 purchasing power parity dollars



SOURCE: Conference Board Total Economy Database 2013; McKinsey Global Institute analysis

With limited contributions from productivity improvements, Mexico's GDP growth has largely reflected its expanding labor force. Indeed, the addition of labor inputs through the expansion of the labor force has accounted for 72 percent of Mexico's average GDP growth since 1990. However, Mexico will not be able to rely as much on an expanding labor force in coming years as its population starts to age and the "demographic dividend" begins to fade. This gives additional urgency to addressing Mexico's productivity problem, by raising the productivity of traditional firms, expanding the role of modern firms in the economy, and removing barriers to growth and productivity improvements across the economy.

In this chapter we examine how Mexico went from being a growth and productivity leader to a slower-growing economy, despite reforms, privatization, the introduction of free trade, and massive investment in modern industries. To understand how Mexico arrived at this point and why it faces such a massive productivity imperative, we first look at how the economy has evolved over the past decades.

The "Mexican Miracle," followed by stagnation

Beginning in the 1950s, the Mexican economy staged a 30-year growth streak that restored its role as a leading Latin American economy. It had begun the 20th century as the region's largest economy, but revolution and the ravages of the Great Depression, which sharply reduced investment and demand for imports from the United States, slowed Mexico's growth. By mid-century, Argentina and Brazil had overtaken Mexico in GDP.[17] However, by the early fifties, Mexico was back on a rapid growth trajectory, riding a wave of industrialization and urbanization. Exports swelled as the US postwar boom gathered momentum,

17 For a more detailed description of the history of the Mexican economy, see Timothy Kehoe and Felipe Meza, "Catch-up growth followed by stagnation: Mexico, 1950–2010," *Latin American Journal of Economics,* volume 48, number 2, November 2011; and Leopoldo Solís Manjarrez, *La realidad económica mexicana: Retrovisión y perspectivas*, 3rd ed., México, El Colegio Nacional, Fondo de Cultura Económica, 2000.

and by 1959, Mexico had bounced back to number two among Latin American economies, overtaking Argentina. The “Mexican Miracle” was under way.

MEXICO EMERGES AS A GLOBAL GROWTH LEADER

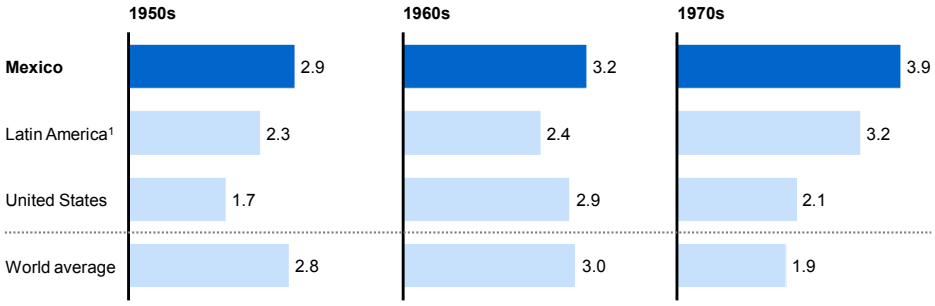
From 1950 to 1981, Mexico consistently outpaced other nations in raising GDP per capita. In those years, Mexican per capita GDP grew between 2.9 percent and 3.9 percent annually (Exhibit 2). GDP growth averaged 6.5 percent per year; about half of that came from strong productivity growth, which averaged 3.3 percent annually, and the rest came from the expanding labor force.

Exhibit 2

Mexico was a global growth leader from the 1950s through the 1970s

GDP per capita, compound annual growth rate

%



1 Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, and Venezuela.

SOURCE: Angus Maddison, *Historical statistics for the world economy: 1–2008 AD*; McKinsey Global Institute analysis

This rapid and sustained economic expansion was driven by three key factors:

- **Industrialization.** Mexico went through a dramatic structural change as millions of Mexicans moved from unproductive rural agriculture into manufacturing and service sectors. The share of people employed in agriculture went from 58 percent in 1950 to 26 percent in 1980.[18] Agriculture’s share of GDP dropped from almost 20 percent in 1950 to less than 10 percent in 1980, while manufacturing nearly doubled its share of GDP. It was during this period that some of Mexico’s largest companies were born, including Bachoco (poultry processing, 1952), Grupo Lala (dairy products, 1950), and Grupo Alfa (industrial conglomerate, 1967).[19]

- **Rapid urbanization.** Mexico’s urban population increased from around 35 percent of all residents in 1940 to almost 70 percent in 1980. This transition not only enabled industrialization but rising population density also encouraged rising investment by improving the economics of providing water, electricity, telecommunications, transportation, and other services.[20]

- **Investment in education.** As more Mexicans moved to cities, access to education improved, too. The literacy rate among citizens aged ten and older rose from around 40 percent in 1940 to more than 80 percent in 1985.

18 National account, Instituto Nacional de Estadística y Geografía.

19 ISI Emerging Markets; Industridata database; “500 Empresas de Expansión,” *Expansión*, June 2013.

20 For a more detailed explanation of the economic effects of urbanization, see *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

The period from 1950 to 1980 had two distinct phases. During the Mexican Miracle phase, lasting from roughly 1950 to 1970, Mexico made steady gains in GDP per capita. It used a program of import substitution to shelter and grow domestic industries and create jobs, and it began to narrow the gap in living standards with the United States. This plan was known as *desarrollo estabilizador*, or stabilizing development.

Starting in 1970, Mexico's development agenda shifted as the government introduced an ambitious spending program called "shared development." Rising spending led to budget deficits and higher public debt. Oil prices soared—more than doubling in 1974—just as new Mexican reserves including the enormous Cantarell Field were discovered, enabling Mexico to borrow internationally to fund development of these assets.[21] An oil boom and growing debt fueled Mexico's growth and raised GDP per capita at more than twice the global average rate in the 1970s (3.9 percent a year vs. 1.9 percent). When oil prices plunged in 1982, it was clear that the debt-fueled growth was not sustainable, and Mexico's deteriorating fiscal situation led to devaluations and austerity measures.

MEXICO'S ECONOMIC PROGRESS STALLS

Beginning in the early 1980s, Mexico started to liberalize its economic policies to increase competition and fuel growth. It reduced the role of the state in the economy and opened up major sectors to foreign investors. Mexico privatized its telecommunications and banking sectors and created an independent central bank. Mexico has consistently invested in capital stock; about 25 percent of GDP is spent on machinery, buildings, and other productive assets—below the 30 to 40 percent rate seen in China in recent years, but above the investment levels of most Latin American peers.

In 1994, Mexico joined the community of free-trading nations, participating in the Uruguay round of trade negotiations that led to the establishment of the World Trade Organization (WTO). The same year it negotiated the landmark North American Free Trade Agreement (NAFTA), creating a free trade bloc among Mexico, the United States, and Canada. Even as China overtook Mexico as a supplier to the massive US market, Mexican exports to the United States doubled in the past decade, from $130 billion per year to $260 billion (see Box 3, "How Mexico became a global trader").

Mexico's rich endowment of oil has played a positive role in trade. The state-owned petroleum company, Pemex, is a net exporter of oil and contributes around 33 percent of the federal budget. This has helped Mexico avoid the large current account deficits that have imposed fiscal constraints on many developing economies. Indeed, Mexico's domestic macroeconomic environment has become increasingly stable over the past two decades.

Despite three decades of reforms, Mexico has never been able to regain the level of growth that it achieved before 1981. After 1982, GDP contracted for two years straight and the nation was plunged into a debt crisis triggered by surging government deficits (amounting to 14.7 percent of GDP in 1981 and 17.6 percent in 1982). For the rest of the decade, GDP growth averaged just 1.1 percent annually. By 1990, GDP per capita had not returned to the 1980 level, although it remained higher than that of several of Mexico's peer economies.

21 James D. Hamilton, "Historical oil shocks," NBER working paper number 16790, 2011.

Box 3. How Mexico became a global trader

Mexico has gradually opened up to foreign trade and investment since the 1980s. It entered the WTO in 1995 and today trades under favored tariff terms with 45 countries through 13 bilateral and multilateral agreements. The most important of these, the NAFTA treaty with the United States and Canada, took effect on January 1, 1994. The most recent, the Pacific Alliance with Chile, Colombia, and Peru, was signed in February 2014.

Trade agreements have raised the role of exports and imports in Mexico's economy: the ratio of trade to GDP rose from 39 percent in 1990 to 58 percent in 1995 and 65 percent in 2011. This share is relatively high compared with China (59 percent), India (54 percent), the United States (32 percent), and Brazil (25 percent). The United States is by far the most important market. Exports to the United States have risen six-fold under NAFTA and account for 78 percent of total exports today. Three-quarters of Mexico's exports to the United States are manufactured goods; autos and related industries have been responsible for one-third of the growth.[1] The United States is still the largest exporter to Mexico, followed by China, which accounts for 15 percent of Mexican imports; the value of goods arriving from China now is 235 times what it was in 1990.

Despite significant progress in opening up to international trade, Mexico continues to protect a number of domestic industries with import tariffs as well as non-tariff barriers.[2] Tariffs for goods from China, a most-favored-nation partner, today average 15 percent—a huge decline from the 300 to 350 percent level before China entered the WTO in 2001—but remain higher in certain sectors such as textiles, which are subject to tariffs of about 30 percent. Mexico has also restricted imports through non-tariff barriers, such as cumbersome customs procedures and anti-dumping laws. The World Economic Forum ranks Mexico 94 out of 144 countries on trade tariffs and ranks it 74 for burden of customs procedures.

The remaining import barriers reflect concerns that imports from lower-cost regions displace products made in Mexico, causing loss of local jobs. Indeed, the manufacturing segments in which imports from China have risen fastest have also tended to experience large declines in employment. Our field research suggests that mid-sized manufacturers serving Mexico's domestic market have lost share to imports or competitors that rely heavily on imported inputs. Yet the protections cut both ways: higher costs for textile imports due to tariffs, for example, shelter Mexican textile manufacturers but reduce the cost-competiveness of Mexican apparel firms. Many Mexican companies have shown that they can be competitive not just in the domestic market but globally as well—and as remaining protection declines, businesses in other sectors will be challenged to compete more effectively.

---

1 Autos are part of a manufacturing subsector that the McKinsey Global Institute defines as "global innovation for local markets," which is made up of businesses that build R&D-intensive products in or near end markets. For more on these classifications, see Box 6.

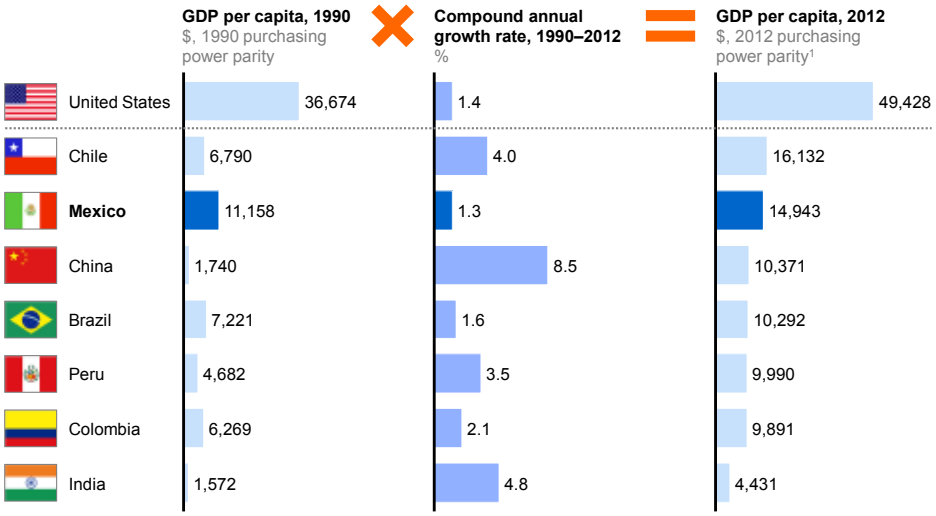
2 For more information, see David Haugh, Roselyne Jamin, and Bruno Rocha, *Maximising Mexico's gains from integration in the world economy*, OECD economic department working paper number 657, December 2008.

After 1990, and particularly after 1995, GDP per capita growth resumed, but not at nearly the former pace. As a result, the gap between GDP per capita in Mexico and the United States has not narrowed: Mexico had 30 percent of US GDP per capita in 1990 and in 2012. Over this period, other developing economies pulled ahead: Chile has overtaken Mexico in GDP per capita, and Peru has raised GDP per capita by 3.5 percent annually, nearly three times the Mexican rate, narrowing the gap. China went from having 15 percent of Mexico's GDP per capita to having 69 percent of Mexican per capita GDP in 2012 (Exhibit 3).

Exhibit 3

Since 1990, Mexico's GDP per capita growth rate has trailed that of other developing economies

GDP per capita progress from 1990 to 2012



1 2012 price levels converted by the Conference Board using 2005 Elteto, Koves, and Szulc (EKS) purchasing power parity dollars.

SOURCE: Conference Board Total Economy Database 2013; McKinsey Global Institute analysis

Today's challenge: The growing productivity imperative

The declining growth of Mexico's GDP per capita reflects the dramatic drop in Mexico's productivity growth rate. From 1990 to 2012, Mexico had the second-lowest average productivity growth rate among the 20 largest developing economies. This left Mexico with overall productivity (based on gross value added per worker in purchasing parity terms) that is just 24 percent of the US level.

The primary force that has kept Mexico's economy expanding, albeit at a modest rate, has been the influx of new workers into the labor market. The number of working-age Mexicans (people between 15 and 64 years old) rose by 25 million in the past two decades, and more than 70 percent of GDP growth from 1990 to 2012 came from rising labor inputs (more workers and more hours worked).

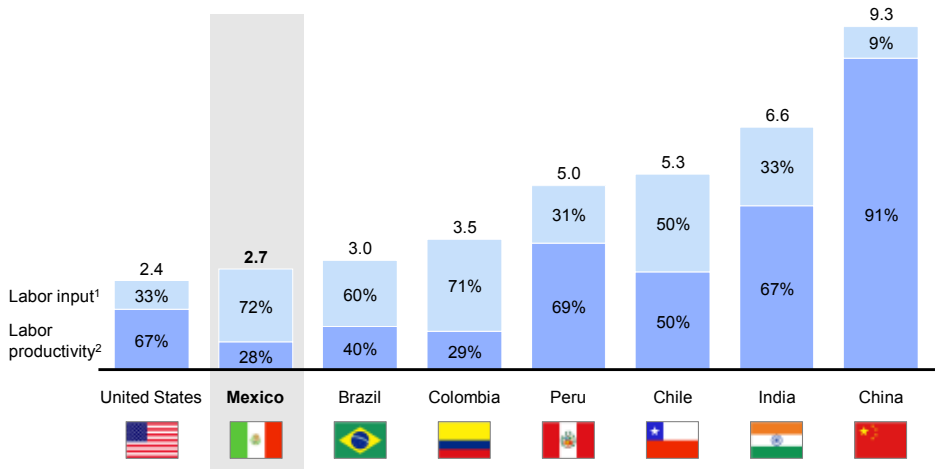
This pattern stands in stark contrast to that of fast-growing developing economies. More than 90 percent of China's GDP growth from 1990 to 2012 came from productivity, while in India productivity contributed two-thirds of overall economic growth. Even by Latin American standards, productivity's contribution to growth in Mexico is poor (Exhibit 4).

Exhibit 4

Mexico's labor productivity makes a smaller contribution to GDP growth than in other developing economies

Contribution of labor input and productivity increases to GDP growth, 1990–2012

Compound annual growth rate, %



1 Higher labor input reflects increased population and changes in participation and employment rates.
2 Labor productivity growth is measured as real GDP per employee.
NOTE: Numbers may not sum due to rounding.
SOURCE: Conference Board Total Economy Database 2013; McKinsey Global Institute analysis

Mexico's productivity challenge will only grow more urgent in the coming years as the effect of the demographic dividend that has driven labor-force growth begins to fade. If we assume that the level of productivity growth from 1990 to 2012 continues, Mexico could be headed toward 2 percent annual GDP growth as the flow of new workers into the economy slows. From 1990 to 2012, labor force expansion contributed about 2 percentage points of GDP per year. As a result of aging and a declining birth rate, this contribution is expected to drop to 1.2 percent per year through 2025. Productivity growth would need to double just to maintain GDP growth of about 2.7 percent, the average from 1990 to 2012. To reach a GDP target of 3.5 percent per year, the growth projection of the Bank of Mexico for 2014, productivity would need to rise by 2.3 percent annually—almost three times the rate from 1990 to 2012. To meet the government's 6 percent goal would require raising productivity by 4.8 percent annually, or about six times the rate of the past two decades.

Low productivity of traditional companies has constrained Mexico's growth

The past three decades brought massive investment in Mexico by global companies, including auto manufacturers, which have built highly productive modern factories. At the same time, modern Mexican corporations have thrived, and companies such as FEMSA, Grupo Alfa, Grupo Bimbo, Grupo Lala, Mabe, and Walmex have become strong global competitors that make continuous productivity gains.[22] Large modern establishments (more than 500 employees), which employ about 20 percent of the census-registered workforce, raised productivity by 5.8 percent per year, on average, between 1999 and 2009.[23]

On the other side of the ledger is traditional Mexico—hundreds of thousands of small enterprises that vastly outnumber modern companies and skew national averages for output and productivity growth. Many traditional enterprises are informal, but 95 percent of registered companies fall into the traditional category (about 3.5 million companies captured in the economic census have ten or fewer employees). Such companies employed 42 percent of all registered workers in 2009.

This long tail of traditional companies has had low productivity for decades and recently has become even less productive. From 1999 to 2009, the productivity of traditional companies plunged, even as they generated 48 percent of new jobs. The smaller the enterprise, the steeper the decline: productivity fell by 6 percent a year in firms with three to five employees and by 9 percent a year in those with zero to two employees (Exhibit 5).

The reforms and market liberalizations of the 1990s that increased competition and boosted productivity across the modern segment did little to improve productivity in the traditional sector. Traditional and informal companies are often one-person operations or small family firms—micro-enterprises that cannot easily expand or invest in the productivity-improving equipment and technology that would make them more competitive. And, as we will discuss in Chapter 3, Mexico's regulatory and tax regimes provide incentives for them to remain small.

Between the large modern players and the micro-enterprises is an increasingly challenged cohort of mid-sized companies (with 11 to 500 employees). This is a diverse group that ranges from longstanding traditional businesses to fully modern enterprises. Mid-sized companies are not an engine of growth in today's Mexico. The share of the labor force employed by mid-sized firms fell from 41 percent in 1999 to 38 percent in 2009. And, on average, the productivity of establishments in this category has risen by just 1.0 percent a year. Between the declining productivity of the traditional sector and the weak productivity growth of mid-sized companies—the smallest of which (with 11 to 30 employees) have

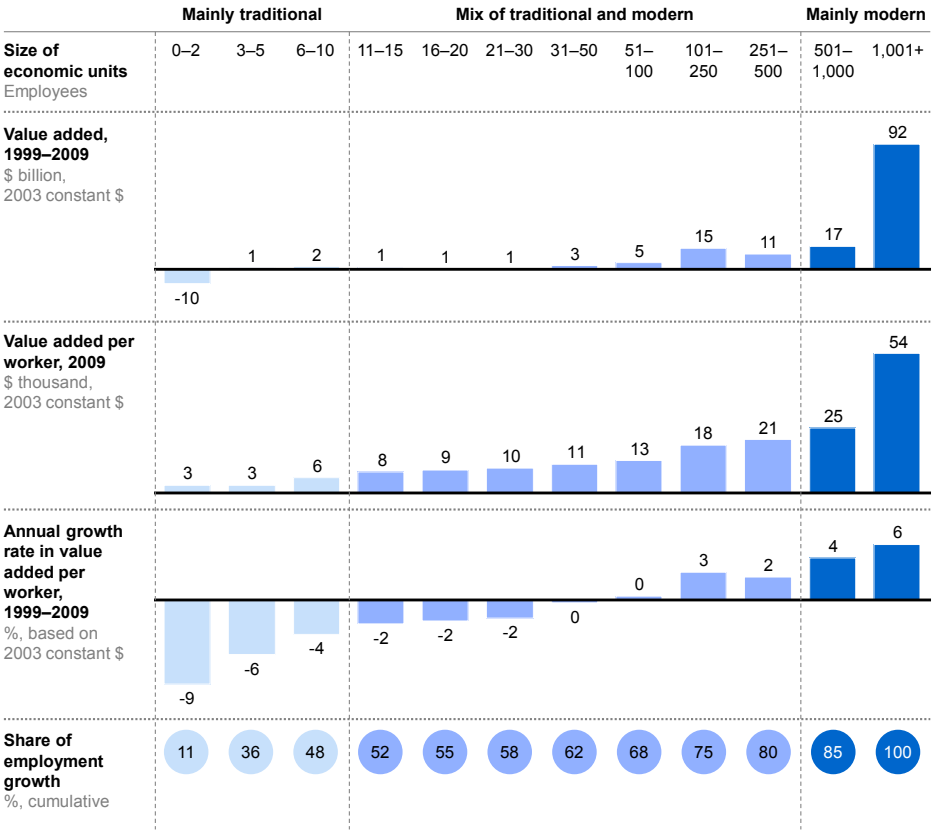
22 List of top public companies in "500 Empresas de Expansión," *Expansión*, June 2013, in manufacturing and retailing with a principal listing in Mexico and/or private companies (non-subsidiary), headquartered in Mexico.

23 We use establishment size as a proxy for modern vs. traditional due to constraints in available statistical data. Some modern, productive establishments can be small. Convenience stores and fast-food restaurants that are part of large modern chains are examples. Counting these modern establishments as part of the traditional segment may narrow the estimated productivity gap between the traditional and modern sectors; if they were counted in the modern segment, the gap would be wider.

had declining productivity—the productivity gains of large modern companies are eclipsed.

Exhibit 5

How falling productivity in traditional enterprises and low productivity growth in SMEs negates gains in the modern sector



SOURCE: *Censos Económicos 1999*, *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis

We find that the concentration of traditional firms affects performance across all regions and industries. Productivity varies widely within regions, too: the most productive retail employee in Mexico City is 20 times as productive as the average retail worker in the bottom 20 percent. In Yucatan, the top-performing wholesale beverage worker is seven times as productive as the average worker in the bottom 20 percent.

Variation in productivity growth across industries is quite pronounced as well. From 2000 to 2012, the top-performing sectors of the Mexican economy raised productivity by 25 to 35 percent, while productivity fell by as much as 40 percent for the poorest performers (see Box 4, “Where the productivity gaps are”).

Box 4. Where the productivity gaps are

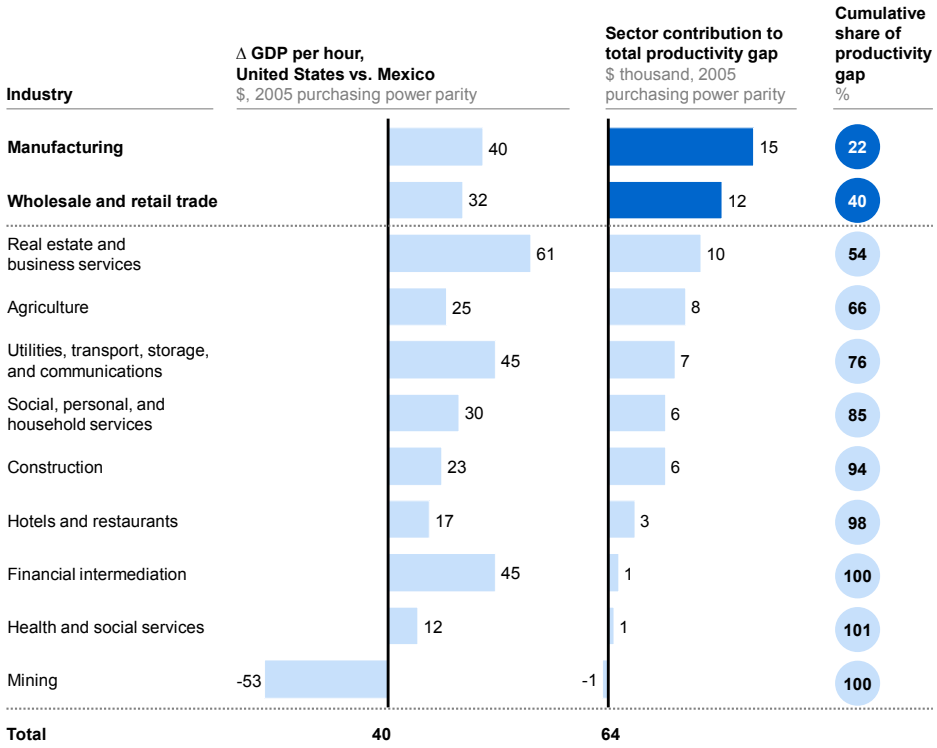
While productivity has been declining in major sectors of the Mexican economy, the impact on the nation's overall productivity varies greatly by sector, based on the size of the industry and the rate of decline. With the notable exception of mining, where Mexico outperforms the United States, Mexican industries all have significant productivity gaps with their US counterparts. On average, a US worker contributes $38 more per hour to GDP, or $64,000 per year, than a Mexican worker. In Exhibit 6, we see that around 40 percent of the productivity gap between Mexico and the United States is driven by the performance of two sectors of the economy: manufacturing, and wholesale and retail trade.

Auto manufacturing in Mexico includes world-class auto assembly plants, including some that exceed average US productivity. But these modern plants are vastly outnumbered by traditional players, including small subcontractors in the auto parts supply chain. Similarly, in retail, the productivity of modern-format stores is overwhelmed by the declining productivity in the small shops that dominate food and beverage sales.

Exhibit 6

Mexico lags behind the United States in productivity across sectors; manufacturing and wholesale/retail account for 40 percent of the gap

Industry-level productivity: comparison with the United States

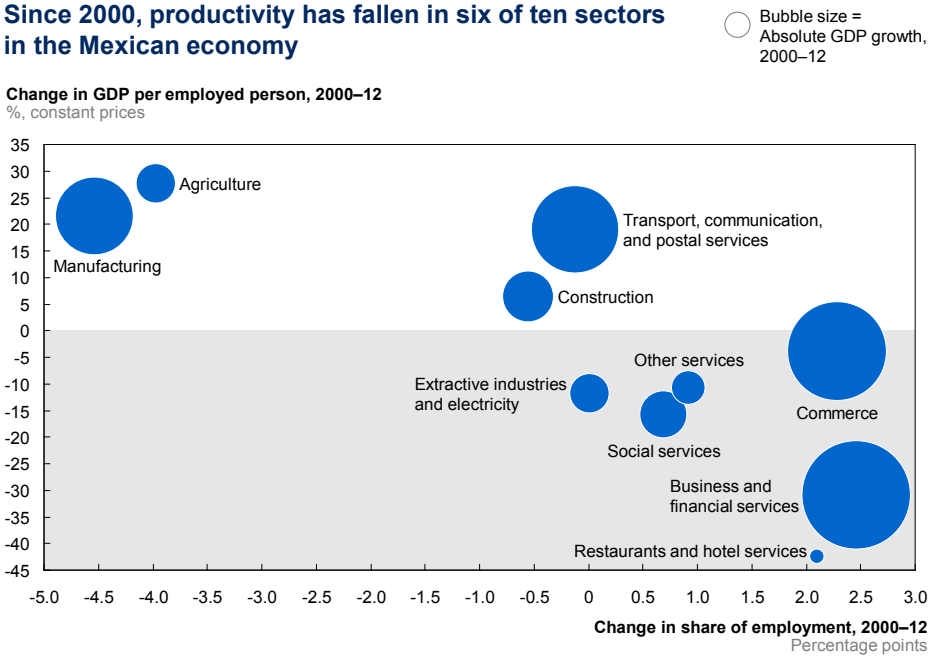


SOURCE: World Input-Output Database 2012; Conference Board Total Economy Database 2013; McKinsey Global Institute analysis

Of ten major industries in Mexico, six failed to increase productivity per worker. Those six sectors employ around 55 percent of Mexico's labor force. This means that for 12 years, output per worker for the majority of Mexican workers fell (Exhibit 7). Unlike many other nations, Mexico has experienced steady declines in productivity in major service industries for many years. From 1981 to 2005, productivity in commerce (wholesale and retail trade), business and financial services, and restaurants and hotel services fell between 2.6 and 3.1 percent a year. India, South Korea, and the United States all raised productivity in their large service sectors.[24]

Exhibit 7

Since 2000, productivity has fallen in six of ten sectors in the Mexican economy



SOURCE: *Encuesta Nacional de Ocupación y Empleo*, Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis

In the four sectors of the Mexican economy that have improved productivity since 2000—agriculture, manufacturing, construction, and transport, communication, and postal services—employment has declined. In fact, labor has migrated from more productive to less productive activities, with most of the losses in manufacturing and most of the gains in the commerce sector. We estimate that the shift to lower-productivity work reduced overall productivity in Mexico by 13 percent, or 1.2 percent a year, from 1999 to 2009.

24 Analysis based on Groningen Growth and Development Centre ten-sector database, June 2007. Productivity in the commerce and restaurant sector grew 2.4 percent a year in India in the same period, 3.4 percent per year in South Korea, and 2.7 percent in the United States.

□ □ □

The key to unlocking Mexico's growth is to understand what is keeping the traditional segment large and stagnant and limiting the expansion of modern establishments. In the next chapter, we outline steps that could be taken to raise the productivity of the traditional as well as the modern segments. In Chapter 3 we discuss ways to remove barriers to growth across the economy. Together, these actions could enable Mexico to meet the productivity imperative.



2. Strategies to raise productivity

Today, the long tail of traditional enterprises has low and declining labor productivity and is gaining share of employment from modern enterprises. Without reversing both of these trends, Mexico's growth will continue to disappoint. Not only do traditional businesses need to become more productive, but modern firms also need to continue to raise their productivity, and—most importantly—the proportion of output and employment that modern enterprises contribute to the Mexican economy needs to rise.

In this chapter, we examine ways to raise productivity in key industries that account for a large share of output and employment and in which traditional enterprises play a significant role. We look at two manufacturing industries—autos and food—and retailing (see Box 5, "Data sources and methodology"). Each of these industries has a thriving group of large modern players that are highly productive and account for a growing share of output. Yet each industry also has a far larger group of small, traditional enterprises. We examine what inhibits productivity and growth in traditional and modern businesses in these industries and identify productivity opportunities for both traditional and modern firms.

Box 5. Data sources and methodology

We derive our estimates of employment and output per enterprise from the economic census conducted by Instituto Nacional de Estadística y Geografía (National Institute of Statistics and Geography). The census measures economic activity of private establishments with a fixed location in urban areas and tracks data such as sales, value added, and number of workers. We used data from the 1999 and 2009 census reports, which are based on data collected in 1998 and 2008. The data do not cover important parts of the economy such as rural activities, government offices, and urban mobile businesses (street vendors, for example). The 2009 data capture 41 percent of value added in the economy and 46 percent of workers (20 million out of around 44 million workers in total).[1]

The 1999 sample for the manufacturing and wholesale and retail services sectors we consider consists of 2.7 million establishments in 559 industries, employing 12.8 million workers. In the 2009 report, the sample is of 3.6 million establishments in 707 industries, employing 17.6 million workers. Elsewhere, such as in Chapter 1, Exhibit 6, we use a larger data set, including establishments and workers from a broader sample of industries.

1 For a more detailed description of the economic census data, see Matías Busso, María Victoria Fazio, and Santiago Levy, *(In)formal and (un)productive: The productivity costs of excessive informality in Mexico*, Inter-American Development Bank working paper number IDB-WP-341, August 2012.

A tale of two Mexicos in manufacturing

Since the ratification of NAFTA in 1994, which accelerated the market reforms that began in the 1980s, Mexico has attracted or created global world-class performers across most industries and, in particular, in manufacturing. Mexico has become one of the top 15 global manufacturing economies by gross value added, and the manufacturing sector is the largest recipient of foreign direct investment in Mexico, capturing about 39 percent of total FDI inflows in 2012. Manufacturing represents roughly 17 percent of Mexico's GDP, compared with about 12 percent in the United States, and it has been one of the few sources of consistent productivity growth since 2000. In transportation equipment (auto parts and assembly), which represents 13 percent of Mexico's manufacturing value added, investments in new plants by top global players have driven rapid productivity improvements.

The post-NAFTA boom is not the final chapter in the Mexican manufacturing story. Today, the manufacturing sector is well positioned to continue to benefit from a shifting global manufacturing landscape (see Box 6, "How Mexico fits into the global manufacturing sector"). More than two-thirds of global manufacturing is regional in nature, meaning that much of production is located close to or within end markets to enable rapid supply-chain response, reduce transportation cost and risk, and address local regulatory and market requirements.

With its adjacency to the large North American consumer market, Mexico has a competitive advantage relative to nations in Asia and South America. It takes on average four days to truck goods from Mexico City to Pittsburgh, Pennsylvania. From Beijing to Atlanta, Georgia, shipping time averages 30 days, and from São Paulo to Atlanta takes 14 days.[25] Mexico's geographic advantage will likely become increasingly important as more companies turn to "near-shore" production—moving processes closer to their home markets as costs rise in Asia and manufacturers seek to reduce supply-chain complexity and risk.[26] Mexico also is poised to reap growing benefits from the thriving clusters that it has established in advanced industries, such as automotive and aerospace, that have tight links to global value chains.[27]

25 North American Strategy for Competitiveness (NASCO).

26 Katy George, Sree Ramaswamy, and Lou Rassey, "Next-shoring: A CEO's guide," *McKinsey Quarterly*, January 2014.

27 These include automotive clusters in Puebla and Guanajuato; aerospace clusters in Chihuahua, Queretaro, and Baja California; and the electronics cluster in Jalisco. Ricardo Hausmann's analysis of industry complexity suggests that Mexico is well positioned for growth. See Hausmann et al., *The atlas of economic complexity: Mapping paths to prosperity*, Center for International Development, Harvard University, and Macro Connections, Massachusetts Institute of Technology Media Lab, 2007.

Box 6. How Mexico fits into the global manufacturing sector

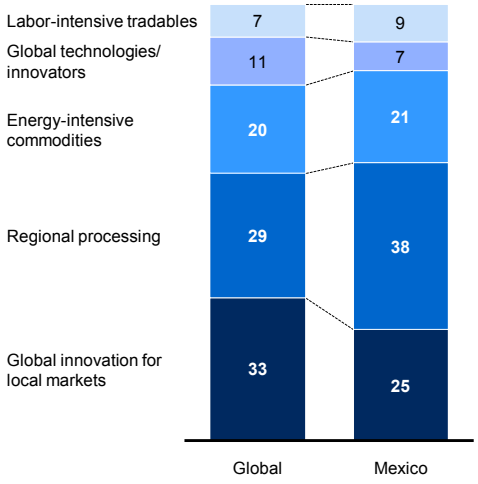
Globally, the manufacturing sector consists of five broad segments that vary significantly in their sources of competitive advantage and factors required for success.[1] The two largest segments globally and in Mexico are regional processing and global innovation for local markets, which account for two-thirds of Mexico's manufacturing industry. The largest subsector in Mexico is regional processing, which includes food and beverage manufacturing and similar industries that make goods for local markets. Manufacturing is more concentrated in regional processing in Mexico than it is in other countries (Exhibit 8). In Mexico, food and beverage processing is composed of both efficient modern giants such as Coca-Cola, FEMSA, Gruma, Grupo Alfa, Grupo Bimbo, and Grupo Lala, and thousands of very small players, many of which operate outside the formal economy and have very low productivity.

Exhibit 8

Mexico's manufacturing mix is more heavily weighted toward regional processing industries than the global average

Value-added GDP, Mexico vs. world, 2009[1]

%



1 Categories from *Manufacturing the future: The next era of global growth and innovation*, McKinsey Global Institute, November 2012.
NOTE: Numbers may not sum due to rounding.
SOURCE: IHS Global Insight; McKinsey Global Institute analysis

Mexico's second-largest manufacturing sector, global innovation for local markets, includes industries such as chemicals, transportation equipment, machinery, and appliances. It accounts for 25 percent of Mexico's manufacturing GDP. Transportation equipment (automotive manufacturing) makes up almost 60 percent of the global innovation for local markets segment in Mexico. Industries in this segment have a strong need for continuous innovation and tend to locate in or near consumer markets to reduce transportation costs and comply with local requirements. Finished autos and parts account for 10 percent of Mexico's exports. Some 70 percent of finished autos are exported, with 90 percent of them going to the United States.[2]

1 For more on the conditions required by different segments of manufacturing, see *Manufacturing the future: The next era of global growth and innovation*, McKinsey Global Institute, November 2012.

2 *The Mexican supplier report*, IHS Global Insight, 2012.

Mexican food producers are well positioned to take advantage of a growing North American market, too. Grupo Bimbo, which is the leading supplier of baked goods in Mexico, has grown into the largest baking company in the world through acquisitions in the Americas, Asia, and Europe. Several factors make Mexico an attractive location for processed food exports to the United States. Mexico's food industry exports only 8 percent of its output, less than the global average and less than the rate of peer countries such as Brazil, which exports 14 percent of its output. Mexico can not only take advantage of a growing market for Mexican foods in the United States, but also can benefit from a shift in US consumer preferences to private-label brands and "value products," which places a premium on low-cost production. Some global food producers such as Hershey have already built factories in Mexico for exports to the US market. The challenges for would-be food exporters include regulations in the US Food Safety Modernization Act of 2011, which require US food importers to verify that foreign suppliers have controls in place to ensure food safety.

Perhaps the greatest manufacturing success story in the past two decades has been Mexico's transformation into an important global auto assembly hub. The output of Mexico's ten largest assembly plants increased from 1.1 million vehicles in 1994 to nearly 2.9 million vehicles in 2012, an annual increase of 5.5 percent. Mexico's trade surplus in cars and parts in the first half of 2013 was 80 percent higher than for petroleum.[28] Seven global automakers have operations in Mexico. Nissan, General Motors, and Chrysler have plants in the industry cluster in Toluca, where they build cars for the United States, South America, and other markets. Volkswagen has assembly facilities in Puebla. And the sector continues to grow: Nissan recently opened a $2 billion plant in Aguascalientes, Mazda is investing $800 million in its first assembly and engine plants in Mexico, and Honda is spending $1.3 billion on an assembly and transmission plant.[29] Mexican auto assembly plants are considered world-class. On average, their productivity is 80 percent of the US average, and several plants outperform the US average.

However, the modern assemblers that are driving the auto sector's success are only a small part of the Mexican industry. The auto parts sector, which accounts for 60 percent of Mexican automotive output, consists of thousands of traditional players as well as major multinationals such as Benteler International, a German metal stamping company. The global firms work directly for the global assemblers and contract with small Mexican manufacturing companies to assemble parts using low-cost labor and, most often, imported components (Exhibit 9).

While modern parts manufacturers, which typically employ more than 500 workers, have high labor productivity, 80 percent of Mexican parts suppliers have ten employees or fewer and much lower productivity. These small operators account for 40 percent of sector employment; as a result, the average Mexican autoworker produces only one-fifth of the output per hour of a US autoworker. In the least productive plants—the bottom fifth—output per worker is only 11 percent of the US average (Exhibit 10).

The productivity of Mexico's traditional and small-scale auto parts manufacturing companies suffers from lack of scale, insufficient investment in machinery, and limited capabilities. Moreover, most small players are so far down the value chain from the top global companies that they do not feel direct pressure to

28 IHS Automotive.

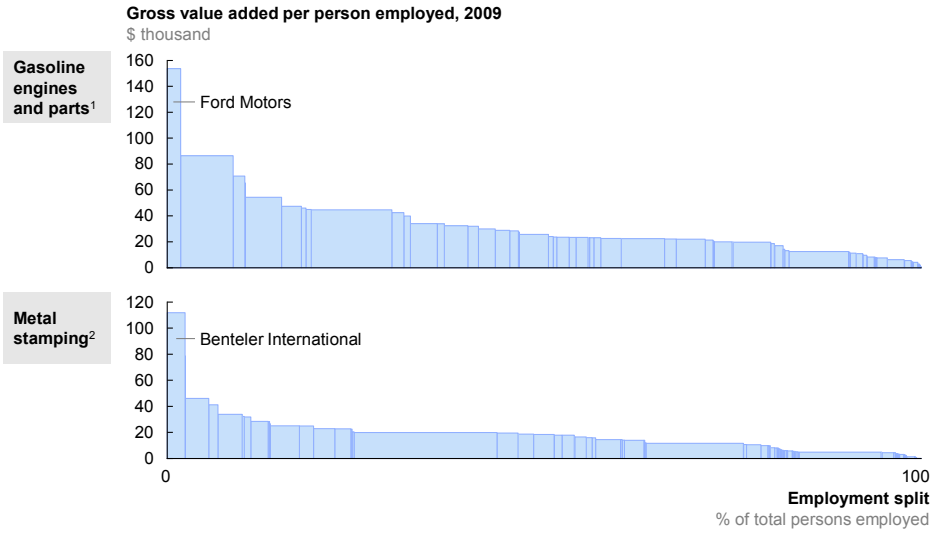
29 *Expansión*, October 2013; IHS Automotive data.

raise productivity to meet demands for ever-higher quality and lower prices. Policy inadvertently helped to create this situation: in *maquiladora* plants, located in free trade zones near the US border, assemblers were able to import raw materials, equipment, and parts without paying tariffs or value-added taxes. This discouraged them from sourcing intermediate products locally and reduced the incentives for multinationals to coach Mexican suppliers and push them to meet higher standards.[30]

Exhibit 9

The long-tail phenomenon persists across the Mexican auto parts industry

Mexico labor productivity vs. share of employment



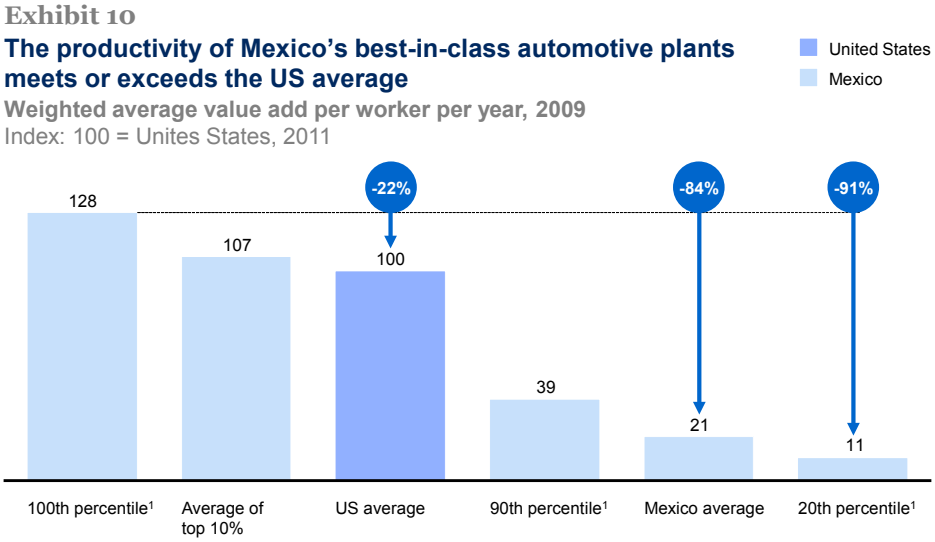
1 NAICS industry code 33631 firms only.
2 NAICS industry code 33637.

SOURCE: *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía (INEGI); INEGI Annual Manufacturing Survey 2011; IMF; World Input-Output Database 2012; McKinsey Global Institute analysis

Exhibit 10

The productivity of Mexico's best-in-class automotive plants meets or exceeds the US average

Weighted average value add per worker per year, 2009
Index: 100 = Unites States, 2011



1 Percentiles as defined by firm-level productivity vs. percent of workers.

SOURCE: Instituto Nacional de Estadística y Geografía; IMF; US Bureau of Economic Analysis; World Input-Output Database; McKinsey Global Institute analysis

30 Diana Farrell, Antonio Puron, and Jaana K. Remes, "Beyond cheap labor: Lessons for developing economies," *McKinsey Quarterly*, February 2005.

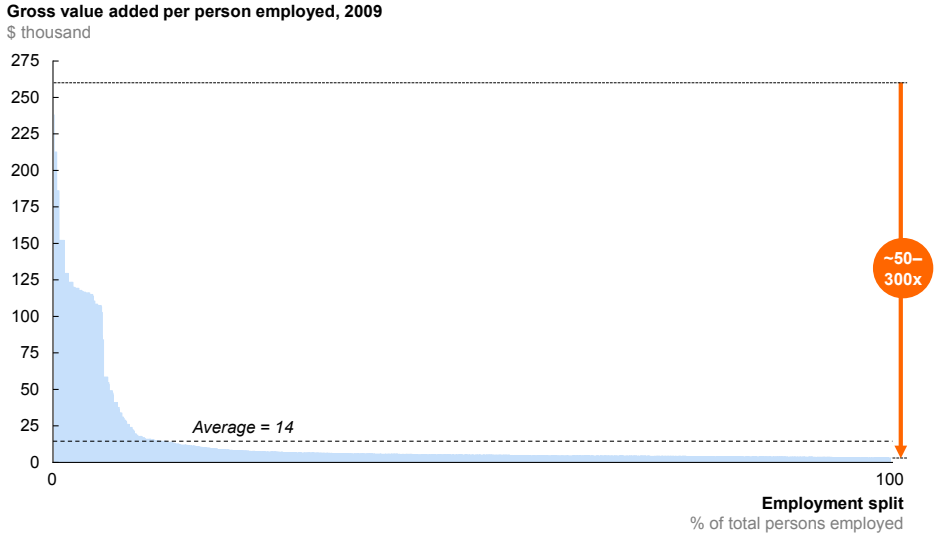
Traditional players have an even greater impact in food processing, the largest manufacturing sector, which accounts for 30 percent of manufacturing output and employs 25 percent of manufacturing workers. Within food manufacturing, the most striking example of the effects of low-productivity traditional enterprises is in bread and tortilla manufacturing, which is the largest subsector and employs more than half of all workers in food manufacturing. The industry is highly fragmented: Grupo Bimbo has a 29 percent share, and no other player has more than 1 percent.[31]

The baking industry consists mostly of traditional and artisanal producers, including local *panaderías* (bread bakeries) and *tortillerías* (tortilla bakeries). It is estimated that fully 70 percent of the bread industry is informal.[32] With outdated equipment and labor-intensive processes, the productivity of traditional baking workers is, at best, one-fiftieth that of employees in the most efficient large companies (Exhibit 11). The difference in productivity between the modern and traditional sectors is greater in Mexico than in other parts of the Americas. In the United States, companies in the 90th percentile are less than twice as productive as firms in the 10th percentile.[33]

Exhibit 11

In the long tail of traditional firms in baking, productivity is 1/50th to 1/300th the level of top performers

Mexico labor productivity vs. share of employment in baked goods[1]



1 NAICS industry code 3118 only.

SOURCE: *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía (INEGI); INEGI Annual Manufacturing Survey 2011; IMF; World Input-Output Database 2012; McKinsey Global Institute analysis

There are three ways to increase productivity across these manufacturing industries: raise the productivity of traditional players, sustain productivity growth among modern players, and increase the share of modern companies in these industries. Ultimately, expanding the share of output and employment

31 *Packaged food in México*, Euromonitor International, January 2013.

32 *Encuesta Mensual de la Industria Manufacturera*, Instituto Nacional de Estadística y Geografía, 2012; McKinsey Global Institute interviews.

33 Chang-Tai Hsieh and Peter J. Klenow, "Misallocation and manufacturing TFP in China and India," *Quarterly Journal of Economics*, volume 124, number 4, 2009; Matiás Busso, Lucía Madrigal, and Carmen Pagés, *Productivity and resource misallocation in Latin America*, working paper number IDB-WP-306, Inter-American Development Bank, April 2012.

of modern players will be the biggest lever for productivity gains. However, this entails significant disruptions in industry structure. Some traditional players will modernize and migrate (with or without their current employees) into the modern sector, where they can start to contribute more to Mexican growth and productivity. New and innovative players will enter. As the modern sector expands, some traditional businesses will close and their employees will move on to other opportunities, ideally in higher-paying modern work.

Raising the productivity of traditional manufacturing enterprises

There are proven ways of raising productivity in manufacturing that can be applied in Mexico's traditional industries in the near term. We acknowledge that some tried and true methods, such as investments in technology and equipment, may not be realistic choices for the smallest firms. But even a small bakery can benefit from process improvements, and, given the increasing accessibility of digital technologies, very small businesses across sectors do not have to go without the benefits of information technology (see Box 7, "How technology can help raise productivity in Mexico").

- **Technology and automation.** Industrial bakers use large-scale machinery to raise volume and maintain consistent quality; modern auto parts suppliers invest continually in machines and technology to keep up with the requirements of their customers. For traditional bakers or small auto-parts assemblers, adopting even simple and inexpensive tools and machinery can have a dramatic effect on productivity.

- **Consolidation and buying consortia.** Small, traditional companies can gain scale benefits by banding together in purchasing consortia. They may also be able to gain other important benefits, such as access to credit. This would allow these small firms to build up working capital and make investments to improve productivity. In the auto parts sector, smaller suppliers that band together to purchase material might also benefit from co-locating with each other, emulating the supplier parks that cluster around auto assembly plants. By congregating in this manner, members of supplier consortia could gain access to larger markets and buyers. Traditional food processing manufacturers can gain similar benefits through purchasing consortia. For example, a cooperative of 200,000 Mexican farmers has gained access to credit for capital purchases and technical resources, allowing co-op members to increase productivity significantly.[34] The consortia could also develop better supplier relationships that could lead to lower prices. And by standardizing supplies, small players could improve the quality and consistency of their goods.

- **Product mix.** Companies can raise productivity by raising the unit value of their output—upgrading the quality of what they make or making additional units that have higher value. In Mexico, local companies generate about 30 percent of auto parts revenue, but much of their output is low-value subassemblies and parts.[35] Many Mexican auto parts manufacturers simply

34 Asociación Nacional de Empresas Comercializadoras de Productores del Campo (ANEC).

35 *The Mexican supplier report*, IHS Global Insight, 2012.

Box 7. How technology can help raise productivity in Mexico

The effects of advances in information technology, computational capabilities, and digital communications are being felt across both advanced and developing economies. The mobile Internet, for example, is enabling some of the world's poorest people in remote areas to leapfrog into the digital economy. In Mexico, advances such as inexpensive wireless digital communications and big-data analytics can be instrumental in efforts to raise the productivity of the traditional sector and to help Mexico's modern corporations meet global performance standards. Technology can also provide a bridge between the traditional and modern economies as modern-sector companies forge digital links to traditional-sector suppliers and distributors, spreading modern methods and knowledge as they manage supply chains.

- **Traditional retail.** The typical neighborhood food shop or market stall is not beyond the reach of productivity-improving IT systems. In India, for example, Unilever has provided mobile phones to its vast network of small distributors that sell products in small communities. These distributors may run shops out of their homes or travel door to door with soap and other goods. With ordinary mobile phones, they report sales and inventory data to the company, which uses the information for demand planning, market analysis, and other purposes. In Mexico, such arrangements could help mom-and-pop stores gain control over inventories, learn to forecast, understand demand patterns, and spend less time on inventory management. Small shops might also find ways to add value as shoppers switch to online purchasing. We estimate that by 2025, 20 to 30 percent of retail transactions in developing economies might take place online.[1] Small shops can specialize in items that are not typically purchased online, such as fresh produce, and perhaps act as convenient and secure transfer stations for consumers picking up online purchases.

- **Traditional manufacturing.** Small-scale manufacturers often work as subcontractors to larger component suppliers, particularly in the Mexican automotive sector. Technology provides a way for major suppliers that work directly with auto assemblers to work in a more collaborative way with their subcontractors. By tying even small subcontractors into online systems, larger suppliers can help the small firms manage inventory and labor more effectively. Information and production technologies are becoming more accessible for even very small operators. Simple, easily programmed robots that can be introduced into manufacturing environments alongside workers are now available for little more than $20,000, and cloud-based IT services can provide many of the basic support functions that very small businesses have difficulty managing in-house.

- **Modern-sector companies.** The productivity of modern manufacturers and retailers still lags behind that of their counterparts in the United States and other advanced economies. IT tools can help them bridge that gap. In manufacturing, big-data analytics can be applied across the value chain, from driving simulations in the design process, to designing to value, to managing assembly lines in real time, to supply-chain management and post-sale support. Big data is already used extensively in retail operations in the United States, and we estimate that aggressive use of big data for demand forecasting (to avoid stock-outs, for example), identifying cross-selling opportunities, and other applications can increase operating margins by as much as 60 percent.

1 See *Disruptive technologies: Advances that will transform life, business, and the global economy*, McKinsey & Company, May 2013.

assemble electronic components from imported parts. In the Ciudad Juárez region, scores of local companies take components from China and assemble them for export to the United States, adding little value in the process. By working with their large customers to shift toward higher-value-added products, local suppliers could increase their share of industry revenue and increase productivity. Injection-molded parts could be a target opportunity. Auto assemblers in Mexico import an estimated $30 million of injection-molded plastic parts each year from their global suppliers; producing such parts is the sort of work that could be done in Mexico.[36]

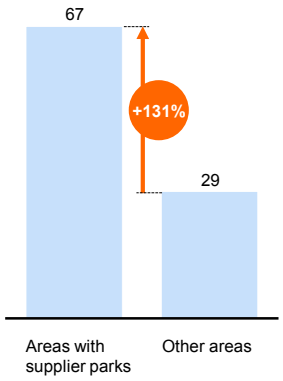
- **Location in industry clusters.** Suppliers that co-locate with the companies they serve in supplier parks or industry clusters achieve higher productivity than firms outside of these clusters (Exhibit 12). In clusters, subcontractors have opportunities to work with large suppliers that can help them innovate and improve quality. Auto manufacturers often ask for "productivity givebacks" from their suppliers, pushing them to pursue continuous productivity improvements.[37] The first auto industry supplier park in Mexico, Finsa Puebla, was established in 1992 to supply Volkswagen's Puebla plant and now houses several large parts suppliers. A dozen more parks have been built since then, and Honda, Mazda, and Nissan have announced plans to add more. The modern-sector parts suppliers can provide direct support to improve the performance of nearby subcontractors. Bosch, for example, works closely with its subcontractors, helping them innovate and providing access to affordable capital.

Exhibit 12

Autoworkers in areas with supplier parks are more productive than those in firms outside these clusters

Gross value added in automotive manufacturing per worker, 2009

$ thousand



SOURCE: IHS Global Insight; Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis

36 Industria Nacional de Autopartes (INA); McKinsey industry practice.

37 *Supplier perspective: How automotive suppliers create value*, McKinsey Advanced Industries Practice, 2012.

Modern retailing is gaining share in Mexico, but traditional stores continue to proliferate

Retail and wholesale trade make up the commerce sector, which accounts for 16 percent of GDP and 15 percent of total employment in Mexico. The retail subsector alone accounts for 7 percent of GDP and employs 10 percent of the labor force. The evolution of the commerce sector in the past two decades illustrates the effects of Mexico's two-tier economy. Even as the country adopted market-opening reforms and modern-format stores spread across the landscape, traditional and informal operators not only hung on, they also grew in number and share of employment, reducing overall sector productivity.

Our analysis focuses on food and beverage retailing, the largest category of retailing. Mexican food stores range from hypermarkets to stalls at public markets and street fairs. After the opening of the market to foreign retailers in 1991, the industry changed rapidly, with new formats proliferating and providing Mexicans with new ways to shop (see Box 8, "How foreign competition spurred improvement in grocery retailing"). Five modern-sector companies—Walmart, Soriana, FEMSA, Chedraui, and Comercial Mexicana—now account for about 42 percent of the food and beverage market and two-thirds of the modern grocery channel. The total share of food and beverage sales through modern-format stores rose from 50 percent in 1999 to 60 percent in 2007; it reached 65 percent in 2012.

Box 8. How foreign competition spurred improvement in grocery retailing

In 1991, Mexico opened food retailing to foreign competitors, ushering in an era of dramatic change. In 1997, Walmart acquired Cifra, the local supermarket operator, its joint venture partner for six years. Walmart introduced many operational practices that it had pioneered in the United States, including large-scale regional distribution centers and competitive pricing. To compete for national or regional contracts, suppliers had to improve their performance.

FEMSA, the conglomerate built around soft drinks and beer, moved into retailing by investing in Oxxo, a rapidly growing convenience store chain, which has grown from 1,000 stores in 1999 to more than 11,000. Walmex, the Walmart subsidiary that operates in Mexico and Central America, has its Bodega Aurrerá Express format.

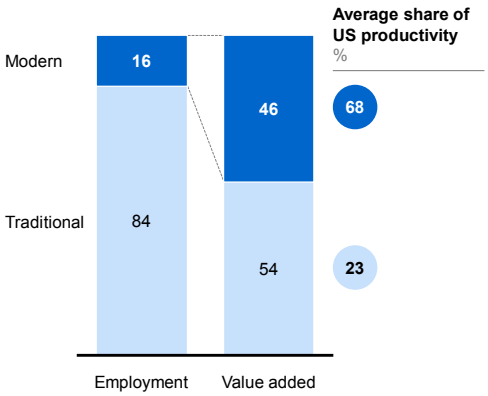
While modern-format chains account for the majority of food and beverage retail revenue, traditional food shops still account for 84 percent of sector employment and 54 percent of value added (Exhibit 13). Moreover, according to unofficial estimates, 5.9 million Mexicans work informally in food and beverage retailing—far more than the number that are employed in fixed locations and thus captured in the economic census. On average, traditional food stores are one-fifth as productive as modern-format Mexican stores. Raising productivity in traditional stores and reducing their effects on sector productivity can help Mexico accelerate productivity and growth.

Exhibit 13

Mexico has long tail of low-productivity traditional food retailers

Share of employment and gross value added in food retail, 2009

%



NOTE: Numbers may not sum due to rounding.

SOURCE: *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía; Euromonitor; McKinsey Global Institute analysis

Raising productivity in traditional retailing

Improving productivity of Mexico's many small food and beverage shops can be exceedingly challenging. Many of these stores are informal family-run operations that lack such basics as point-of-sale terminals. Barriers to entry are low and, as in many countries, Mexicans may open stores because they lack better employment choices. Running a store can be simply a stopgap measure until other opportunities open up, which reduces commitment to making long-term investments.

Nonetheless, ample opportunities exist to raise the productivity of traditional stores. The success of convenience store chains such as Oxxo and 7-Eleven demonstrates that small-scale, modern-format neighborhood food shops can work in Mexico. To identify the most important opportunities to raise the productivity of traditional food shops, we first look at how they lag behind modern convenience stores in three critical areas:

- **Poor store layout.** Convenience stores are designed for self-service and place a wide range of products, brands, and package sizes on display. With cramped storefronts and limited display space, mom-and-pop stores can offer only limited self-service. Many products are stored in a back room, and even products in the front are poorly displayed; in counter shops, almost no merchandise is on display. As a consequence, shoppers are not exposed to all possible purchase choices, and an employee must answer questions, suggest items, and fetch inventory. This is not only labor-intensive, but it also makes shopping slower, a drawback for busy urban consumers. To improve store layout, however, retailers would need to formalize their businesses to obtain credit and required permits. Also, most shops would need to move to larger spaces: an Oxxo convenience store with a good self-serve layout is two to three times the size of the average traditional store.

- **Limited product mix.** The large modern retail companies that operate convenience store chains have access to a wide range of goods from multiple suppliers, and the largest players can demand custom product and packaging variations. Modern stores also can optimize product mix to maximize value, selling high-margin items such as prepared food and a wide range of non-food items such as payment services. By contrast, the product mix of small stores is limited. This is largely a function of Mexico's poorly developed distribution system. Most large multinationals that manufacture food and fast-moving consumer goods such as paper products have no way to get their goods into most small traditional stores, which rely on small-scale wholesalers that have a limited variety of goods. One option for many small retailers is the *Mi Tienda* program at Sam's Club, a Walmart format that offers credit and ready-made packages of assorted inventory to owners of small shops. This can be a solution for certain product categories such as cleaning products and canned foods, but not for fresh food.

  To a larger extent than in modern stores, variety in traditional shops may be limited by agreements with major brands. In exchange for awnings, signs, coolers, or other infrastructure and supports such as discounts, credit, or assistance with local permits, small shops agree not to sell competing brands. In 2010, beer giant SABMiller filed a complaint with the Mexican antitrust authority alleging that AB-InBev and Heineken had locked up much of the market, preventing competition. According to research by Mexico City's Small Business Chamber of Commerce, lack of access to better selection is an important barrier to growth and productivity in traditional retail.

- **Limited use of technology and modern operational processes.** The productivity of traditional stores is also limited by inadequate investment in equipment, such as point-of-sale terminals. Through the use of scanners, convenience stores can provide faster checkout, manage inventory more efficiently, reduce shrinkage, and increase traffic by offering more payment options.

Based on the evolution of retail in other economies, we identify three initiatives that can address the problems of store layouts, access to better and more varied goods, and operational improvements.

- **Buying consortia or cooperatives.** By joining buying consortia or cooperatives, individual stores can remain independent while gaining more competitive pricing and distribution deals from suppliers. A classic example is the Independent Grocers Alliance (IGA), which started in 1926 with stores in the US states of New York and Connecticut and now operates in 30 countries. Consortia and cooperatives provide better pricing and access to a wider variety of goods, and can help members with standardized store layouts, merchandising, and technology. In Brazil, traditional retailers have created associations and remodeled stores using a standard model, which has helped to modernize the traditional trade faster than in Mexico. If Mexico's small shops worked together, they could have greater clout and acquire more skills and expertise.

- **Manufacturer assistance.** In Mexico, large food manufacturers such as Coca-Cola bottlers and Grupo Bimbo already support the traditional segment because these outlets offer high margins relative to modern chains. Manufacturers could work together to do more to bring modern methods

and higher productivity to the traditional sector, by assisting with layouts and technology, for example. In India, Unilever gives mobile devices to rural distributors and mom-and-pop stores, which use them to relay information such as stock levels and pricing back to the company. The data are used to improve demand forecasting, inventory management, and marketing strategy, increasing rural store sales by up to a third, Unilever India says.[38]

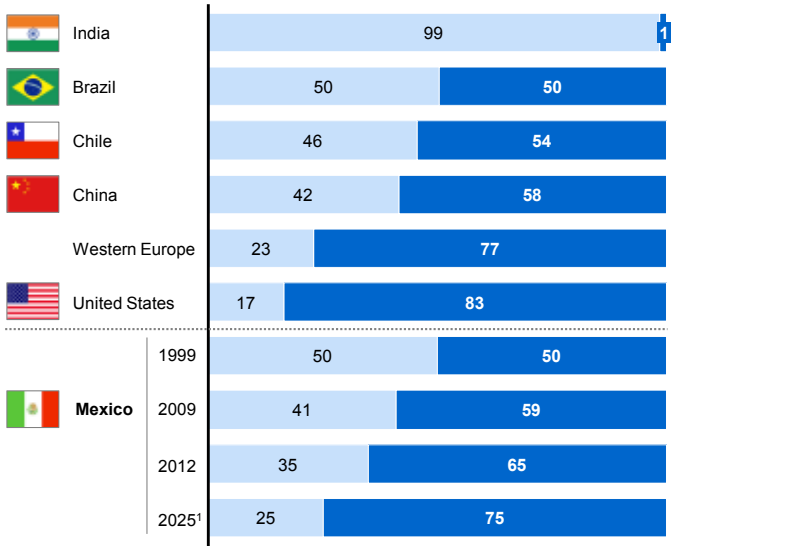
- **Franchising and similar arrangements.** By joining a modern franchise chain, store owners can gain access to managerial best practices and sophisticated IT, accounting, and administrative systems. They can also realize savings from group purchasing arrangements. Franchisees also get technical support, the benefits of a nationally supported brand name, and access to capital, while maintaining a level of independence. Franchising options are limited in Mexico today, but certain convenience store chains offer similar arrangements that could be attractive to traditional store owners.

While raising the productivity of traditional stores can have many benefits, including helping raise the incomes of some of Mexico's lowest-paid workers, the quickest way to raise productivity across the retailing industry is simply to continue raising the share of modern players. At the recent growth rate of sales in modern food and beverage chains, these stores could have 75 percent of the market by 2025, close to the European level of 77 percent (Exhibit 14). Based on the higher productivity of modern stores, we estimate that this change alone would lift food and beverage retailing productivity by 25 percent above the 2012 level.

Exhibit 14

Raising the share of modern stores in food and beverage retail to 75 percent would raise sector productivity by 25 percent

Revenue share split between modern and traditional players, 2009
Retail selling price (RSP) with sales tax
%



1 Projected potential.
NOTE: Numbers may not sum due to rounding.
SOURCE: Euromonitor; *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis

38 *Ten IT-enabled business trends for the decade ahead*, McKinsey Global Institute, May 2013.

Sustaining productivity growth in modern manufacturing and retail

Raising the productivity of traditional players is an important step for moving Mexico toward higher growth targets. Continuing productivity gains of all modern players are also required. This includes sustaining the rate of improvement among globally competitive multinationals and raising the performance of local market leaders. In addition, there need to be gains in the broad pool of mid-sized modern companies that lag behind the productivity of best-in-class producers and have seen their employment share decline and productivity rise only slowly. While our examples draw from the industries we studied in detail, most initiatives can be applied to broader swaths of Mexico's economy.

RAISING PRODUCTIVITY IN MODERN MANUFACTURING

Modern companies can optimize product mix, continue investing in technology and automation, and invest in innovation and quality.

- **Adjust product and customer mix.** Modern auto parts manufacturers can shift their product mixes to higher-value-added parts and increase their overall output. Automotive electronics represent an increasingly large share of innovation and value in finished cars, and Mexican-based suppliers can target these components. Auto assemblers could think about ways to increase production for the fast-growing local market. We estimate that the number of vehicles in Mexico could increase from 24 million to around 60 million by 2030 to meet the needs of a growing consuming class. While this is a large opportunity, it comes with a challenge: today, 90 percent of personal cars bought in Mexico are used.[39] Modern food processors also can improve product mix by adding more complex products—pastries and seasonal novelties, in addition to simple breads, for instance—or optimizing the mix by eliminating low-volume, low-margin products. Adjusting product and customer mix will require an investment in new employee skills.

- **Invest in innovation.** Product innovation confers a critical competitive advantage for manufacturers, creating barriers against competitors and raising switching costs for customers.[40] For example, a supplier that introduces advances in power-train systems or safety electronics would have a stronger hold on auto assemblers. Small modern suppliers may not have the engineering skills to design innovative products, but they can pursue other innovations that can enhance their competitive position and raise productivity, such as adopting production methods that lower costs or raise quality. Food processing firms can make similar investments. One small chain of modern bakeries in Mexico has an "innovation lab" that creates new products for its retail outlets and continuously improves quality, maintaining the company's competitive advantage.[41]

39 *Expansión*, October 2013, based on IHS Automotive data.

40 *Supplier perspective: How automotive suppliers create value*, McKinsey Advanced Industries Practice, 2012.

41 McKinsey Global Institute interviews.

- **Employ big-data techniques.** In the US manufacturing sector, we estimate that big data—the use of massive data sets—can create up to $270 billion in value a year by 2020.[42] This value arises from use of big data across the value chain, from using data analytics in the design-to-value process to providing real-time analytics of production machinery and calculating the optimum intervals for preventive maintenance. In operations, big data is being used for more precise demand forecasting. Big data is also an important tool for designing plant capacity by simulating various layouts and modeling their performance. Mexican factories can derive proportionate benefits.

- **Meet global standards.** An important tool for global manufacturers to raise productivity is to reduce plant-level productivity variations. Productivity levels differ widely across production plants within an industry, and sometimes even within the production network of a single manufacturing firm. By disseminating best practices across plants and industries, and ensuring that standardized processes are maintained across plants, companies can reduce interplant productivity differences and thereby improve their overall productivity. Modern Mexican suppliers can also improve efficiency by adopting global standards. For example, even among the most efficient Mexican part suppliers, utilization can be low—scheduling two eight-hour shifts, rather than three, and operating on a five-day week.

- **Increase local sourcing.** Many global manufacturers operating in Mexico rely on their global procurement systems for everything from parts to engineering and construction services. Auto assemblers import items such as isolation material and windows from their suppliers in Europe, Asia, or the United States, not because local suppliers cannot meet their requirements, but because these items are registered in their global materials databases. In some cases, local sourcing could reduce costs significantly and spark productivity gains among local suppliers.

IMPROVING THE PRODUCTIVITY OF MEXICO'S MODERN FOOD AND BEVERAGE STORES

Large modern stores in Mexico are on average 68 percent as productive as large US stores. This gap can be narrowed further with the following approaches:

- **Supply-chain and inventory management.** Transportation accounts for around 60 percent of logistics costs and is a good target for improvement. There are many ways of improving transportation, such as optimizing delivery routes and fleets, driver training, and outsourcing transportation. Improved inventory management can reduce costs by 5 to 10 percent. Mexican stores have high inventory levels—about 40 days, compared with 25 days in the United States.

- **Store layouts and service.** By optimizing product placement, creating layouts that improve the customer experience, and training staff to provide consistently high levels of customer service, stores can expect to increase sales by 1 to 5 percent.[43] In upscale stores, self-checkouts can be a plus for busy consumers. Stores targeting the lower-income segment similarly need to

42 See *Game changers: Five opportunities for US growth and renewal*, McKinsey Global Institute, July 2013.

43 Based on McKinsey industry practice.

understand what those customers want. In Mexico, low-income workers would rather go to *tortillerías* to eat a quick lunch than purchase prepared food at modern-format stores because of the differences in price and customer experience. Adding more tailored fast-food restaurant offerings or ready-to-eat meals in modern stores could help to attract such customers. Oxxo has started such an initiative and rents out sections of its stores to local street food vendors, which the company says is attracting new customers.

- **Operations.** Making operations more efficient includes modifications in back-room and front-room activities to avoid waste, and optimizing staffing and scheduling, which can reduce operating costs by 8 to 15 percent.[44] Mexican supermarkets have more employees per store than US stores due to larger security staffs and the slow adoption of labor-saving processes such as direct-to-shelf stocking. Another reason Mexico's modern chains are less efficient than US stores is that they use little part-time labor. US chains rely heavily on part-timers to match the workforce level with fluctuations in demand. There is also less flexibility in staffing in Mexican stores, so workers are not easily shifted between assignments as needed.

- **Wider product offerings.** Modern retailers can continue to focus on raising the volume of higher-margin non-food items as incomes rise and consumption evolves. Tesco, the large UK retailer, has expanded its portfolio of non-grocery items to include selling travel and insurance as well as sign-ups for cable TV, broadband, and phone services. In the United States, Walmart has introduced services ranging from check cashing and money transfers to tax preparation. It also offers medical services, such as vaccinations, in its supercenters. Mexican retailers provide services such as banking and are slowly expanding into services such as travel.

- **Technology and innovation.** Many retailers in Mexico are taking advantage of technology, but they can do more. Electronic shelf tags are becoming more common, and Superama (a premium Walmart format) offers an app for mobile phones. Automatic replenishment processes, although already widespread, could be used more effectively. Another way technology can cut costs is in theft and crime reduction: theft of trucks, robbery, and shrinkage represented 1.8 percent of the total sales of Mexico's modern retail sector in 2011, and advanced security technologies could help reduce these losses.[45] On the energy-efficiency front, Walmart and Soriana are adopting wind and solar power and installing lighting and refrigerator cases that cut energy use. E-commerce and online shopping in the grocery category are also underdeveloped in Mexico compared with peer developing economies. Pão de Açúcar in Brazil, for example, offers a drive-through service that lets customers who order online pick up their groceries without having to get out of the car, helping to speed transactions and accommodate more customers. In Mexico, retailers are not yet convinced that such services are economically attractive.

- **Employ big-data techniques.** Retailers in advanced economies have been leaders in the adoption of big-data analytics. Gathering information from many sources—point-of-sale data, demographic data, even weather information—enables food retailers to segment markets down to the neighborhood level to

44 Based on McKinsey industry practice.

45 Sergio Castañeda, "Los cuatro fantásticos del retail," *Alto Nivel*, December 2012.

adjust inventory mix and even customize shelf displays. In the United Kingdom, Tesco has analyzed weather data to fine-tune demand forecasting, allowing the company to boost sales by customizing the mix for the weather—stocking more pre-made sandwiches when the weather is fair to appeal to picnickers, for example. As a first step in Mexico, big-data analytics could be more widely employed in loyalty and coupon programs. These setups can even send instant coupons to a shopper's mobile phone in the store.

□ □ □

Raising the productivity of very small enterprises and continuing to raise the productivity and share of employment of modern firms are critical steps to return Mexico to the path of rapid growth and improving living standards. There are many proven methods for raising productivity in the industries that we have analyzed. To help both traditional and modern companies make the most of these opportunities, Mexico can remove regulatory incentives that discourage growth, allow modern companies to compete more vigorously, and invest in broad enablers such as infrastructure—which we discuss in the next chapter.



3. Clearing the path to productivity growth

With the measures we outline in Chapter 2, Mexico has ample opportunities to set a course to meet its productivity challenge. However, the success of these initiatives requires new dynamism in Mexico's companies and industries—which depends on further improvements in the overall business environment. In this chapter we examine seven sets of actions to enable the productivity agenda to succeed: reforming regulations and regulatory processes that inhibit growth; improving enforcement to reduce informality; expanding access to capital for growing firms; reducing the cost of energy and improving the quality of supply; raising infrastructure investment to support growth; investing in workforce skills; and improving security. We note that several of these priorities are included in the government's agenda of reform initiatives. But because these reforms had not been fully defined and implemented during the preparation of this report, our assessment relies on observations made before the reform agenda had substantial impact.

Reform regulations and reduce incentives to stay small and informal

Many regulations regarding commerce in Mexico were designed explicitly to protect the viability of traditional businesses such as food stalls and to provide employment. Over time, these protections, in some cases, have turned into unintended incentives that discourage formalization and growth. Even if the owner or a traditional business has larger ambitions, special exemptions and preferences in Mexican law today make it economically unattractive to join the formal economy or attempt to grow larger. Policy makers should consider ways to level the playing field for all Mexican businesses by examining regulations that favor one category or size of business at the expense of others. In addition, government should address growing informality in Mexico with a clear commitment to enforcement. We identify potential reforms in zoning, taxes, labor laws, and processes for starting or expanding a business that would eliminate perverse incentives and encourage growth of modern, formal enterprises.

REMOVE REGULATORY BARRIERS AND PREFERENCES

Regulatory changes can advance the goals of enlarging the modern sector and raising overall productivity growth in two ways: by removing obstacles that discourage companies from entering the formal economy and by ending preferences in taxes, zoning, and other regulations that favor traditional and informal players and put other firms at a competitive disadvantage.

- **Cost of opening or expanding a business.** The cost of registering a business in Mexico is around 10 percent of average annual per capita income, compared with 1.4 percent in the United States and 4.5 percent in Chile.[46] This creates a barrier to formality. Construction permits cost three times average per capita income vs. 67 percent in Chile. It takes 74 days to register property in Mexico, which is more than twice the time needed in Chile and five times the US average. There are wide regional variations, too: it takes six days to start a business in Monterrey and 49 days in Cancún, and construction permits cost 18 percent of income per capita in Aguascalientes and 333 percent in Mexico City.[47] There is a lot to be gained from transferring best practices from one part of Mexico to another and standardizing processes, which would make it easier for all companies to invest and expand.

- **Labor laws.** The 2012 labor reform promised greater flexibility for employers, easing restrictions on temporary employment and rules covering dismissals of full-time workers. According to assessments by the Organisation for Economic Co-operation and Development (OECD), however, Mexico still has room for improvement in its labor laws. Formal hiring of full-time staff remains costly because of requirements such as mandatory profit-sharing and severance payments. Full-time workers may also be covered by union contracts. To get around such restrictions, Mexican companies are using more contract labor, even for core functions, and shifting responsibility for compliance to contractors. Moreover, payments to labor contractors become tax-deductible business expenses. Firms that stay fully informal can pay workers less than the minimum wage, avoid unions, and retain the option of letting employees go when needed.

- **Taxes and tariffs.** Mexican tax laws favor microenterprises and place larger and growing competitors at a disadvantage. Local governments do not collect sales and other taxes from traditional markets and *tianguis* (street markets). Instead, they collect a flat license fee, which is lower than taxes paid by modern chains. Also, traditional operators commonly evade taxes, because owners believe the penalty will be light and they have no fixed assets to lose in a tax judgment.[48] Furthermore, relatively high tariffs on most-favored nations such as China, excessive custom procedures, and anti-dumping rules continue to shelter some unproductive industries from international competition.

46 *Doing business 2014: Understanding regulations for small and medium-size enterprises*, World Bank, October 2013.

47 Ibid.

48 McKinsey Global Institute interviews.

- **Social security.** It is estimated that social security payments for the average worker are around 28 percent of the cost of salary.[49] While businesses in the formal sector make their contributions, small family-owned stores and other small enterprises frequently fail to register some or all of their employees, particularly family members. Because they have access to free public health and social security services, employees have little reason to press for employers to hire them on the books. According to Mexican economist Santiago Levy, the two-tier Mexican social security system "promotes informality and subsidizes low productivity labor [and] penalizes the creation of formal jobs."[50] It should be noted that traditional enterprises are not the only companies that evade fiscal obligations. Even large companies can hire at least some workers informally to avoid social security taxes and other costs—a practice that takes place in other countries but is more widespread in Mexico. This strains government budgets and allows unproductive players to remain competitive.

- **Energy.** Many small companies purchase electricity as residential users, thus reducing their cost to about 25 percent of what companies in the formal sector pay.[51] Subsidies, which vary with consumption, can cover up to 80 percent of residential electricity bills. Rates for commercial companies are twice as high as nominal residential rates.[52]

- **Tax compliance complexity.** For many years, firms with annual revenues of less than 2 million pesos (about $150,000), filed taxes under a simplified system, rather than the more complicated and costly tax system used by larger companies. This created a disincentive to cross the revenue threshold and many business owners chose to stay small enough to remain under the simplified tax regime, even resorting to fraudulent means, such as breaking a company into multiple small entities—essentially dummy corporations—to file under the simplified rules. In January 2014, the new Regime of Fiscal Incorporation went into effect, replacing the simplified filing system but giving small companies the option to postpone filing under the more rigorous system for ten years. The complexity of Mexican tax laws continues to discourage formalization. Different taxes overlap, and payment schedules are complicated (some are monthly, others bimonthly, and so forth). Compliance usually requires engaging an accountant, which increases costs.

- **Zoning.** In many places in Mexico, zoning practices can severely limit the construction of commercial space, keeping large stores out of neighborhoods where key consumers live. This limits growth of modern stores, and removes the competitive pressure that would force traditional enterprises to improve their operations and raise productivity. Local lobbying to protect traditional players has kept modern stores and businesses away from entire communities. In Xochimilco, an area in Mexico City, community leaders

---

49 This percentage includes social security, pension payments, and housing fund contributions but excludes severance pay. It applies to wages between 1 and 25 times the minimum wage, which is the maximum income that can be taxed. Data are from Instituto Mexicano del Seguro Social (IMSS), the Mexican Social Security Institute.

50 Santiago Levy, "La política social que viene: Santiago Levy," *El Economista*, July 5, 2012.

51 McKinsey Global Institute calculation based on *Censos económicos 2009*, Instituto Nacional de Estadística y Geografía.

52 Comisión Federal de Electricidad, http://app.cfe.gob.mx/Aplicaciones/CCFE/Tarifas/Tarifas/tarifas_casa.asp.

pressured the authorities to shut down modern retailers to protect mom-and-pop stores. The Norma 29, passed by the local government in 2011, forbids the establishment of modern-format stores near traditional markets, with the explicit goal of protecting 70,000 stall tenants in 318 public markets. The Supreme Court declared the law unconstitutional, but the government is looking for other measures to limit the further expansion of modern-format stores. To get around restrictions, companies have sometimes resorted to unethical behavior, including allegedly bribing officials to redraw a zoning map to secure a desired site.[53] In other countries, removing restrictions on modern-format stores has had powerful effects. In Sweden, modern retailers faced similar challenges until the early 1990s, when a new zoning law removed restrictions on big-box stores, leading to 4 percent annual productivity growth in the retail sector between 1993 and 2007.[54]

- **Complex, inconsistent regulations.** Companies that operate formally quickly learn how time-consuming it is to comply with the welter of regulations that apply to even very small businesses. One Mexico City business owner finds the rules so difficult to follow (some documents require a specific color of ink, for example) that he spends one day a week on compliance.[55] Small companies that want to expand across Mexico quickly learn that regulations are not uniform from state to state, making growth and expansion complicated (a problem that is also common in the United States and other nations with multiple jurisdictions). For example, each state has different rules regarding the number of parking spaces a business needs and the positioning of fire extinguishers within a commercial establishment. An all-too-common response is to "solve" paperwork problems with bribes. While national governments attempt to make uniform regulations, which can be a difficult undertaking, states and cities can attack complexity at the local level. Lima, Peru, for example, introduced a "single window," where all processes for obtaining a business license are available. Lima also computerized processes, eliminated redundant paperwork, and implemented other reforms that allowed the city to process six times as many licenses per year.[56]

For these reforms to be effective, efforts to address corruption and crime should continue and intensify. Companies of all sizes should have good reason to expect that laws and regulations will be enforced uniformly and should see that it is to their advantage to play by the rules. Too often, the opposite view prevails in Mexico—that the law-abiding company is at a competitive disadvantage. The World Economic Forum rates Mexico among the world's poorest-performing economies for business cost of crime and violence, presence of organized crime, and reliability of police services, and on organized crime it ranks 139 out 144 countries (see Box 9, "Security as a cost of doing business").[57] Lawlessness ranges from violence associated with organized crime syndicates and the drug trade to extortion of small business owners.

53 Walmart is investigating allegations that employees in Mexico violated the law in 2003 to gain approval for a proposed store in Teotihuacán. See Frank Longid, "Wal-Mart probes Mexico license as NYT reports bribery," Bloomberg, December 18, 2012.

54 See *Growth and renewal in the Swedish economy*, McKinsey Global Institute, May 2012.

55 McKinsey Global Institute interviews.

56 David Sislen et al., *Cutting red tape in Lima: How municipal simplification improves investment climate*, World Bank en breve number 99, January 2007.

57 World Economic Forum, *The global competitiveness report 2012–2013: Full data edition*, 2012.

Box 9. Security as a cost of doing business

Mexico has been waging a war on crime, drug gangs, and corruption for years. Mexican citizens cite crime as the biggest threat to quality of life—ahead of poverty and unemployment—and are tied with Brazilians for having the lowest perception of safety.[1] According to the OECD, "threats to the integrity of property and the security of employees may either entirely drive investors and projects away or reduce the competitiveness of businesses through higher overhead costs."[2] The absence of a strong rule of law results in higher insurance costs, more worker absenteeism, shorter hours for stores and plants, and additional costs to employ private security personnel. To solve the security issue, Mexico needs to create a professional and reliable police force and judiciary. That will take time.

In the meantime, business leaders are taking a nuanced view. Most companies operating in Mexico recognize that there is great variation in criminal activity across different regions. On balance, we find that they continue to be willing to adapt to conditions to take advantage of the opportunities that Mexico presents. We heard from a number of companies that they consider managing security risks an additional cost of doing business in Mexico. They hire armed security guards for their factories and offices and to accompany trucks that transport their goods.

One indication that global business leaders are adapting: foreign direct investment rebounded strongly in 2013, reaching more than $23 billion in the first half of the year, compared with $15 billion for all of 2012.[3] According to one study, while crime affects investment in financial services, commerce, and agriculture, "there is no effect of organized crime on foreign investment in manufacturing."[4] Unlike banks and stores, which operate across the nation, manufacturers can choose where to locate their production facilities and continue to make long-term investments in Mexico.

1 *OECD economic surveys: Mexico 2013*, OECD Publishing, May 2013. For more on security and rule of law issues, see Luis Rubio, *Mexico matters: Change in Mexico and its impact upon the United States*, Wilson Center Mexico Institute, 2013.

2 *OECD economic surveys: Mexico 2013*, OECD Publishing, May 2013..

3 "Mexico president sees foreign direct investment at record high," Reuters, October 10, 2013; World Bank.

4 Nathan Ashby and Miguel A. Ramos, "Foreign direct investment and industry response to organized crime: The Mexican case," *European Journal of Political Economy*, volume 30, June 2013.

ADDRESS INFORMALITY THROUGH ENFORCEMENT

Lax enforcement is a major force keeping companies small and informal. Indeed, as in other countries with high informality, owners of traditional Mexican businesses calculate that they have little to gain by joining the formal economy and exceedingly low risk of being penalized for violating the law to remain informal. In Turkey, for example, a government effort to provide local grocery stores with purchasing, merchandising, and other services under the national umbrella brand Bakkalim failed largely because it required members to move into the formal economy. Faced with the prospect of modernizing and complying with all tax and social security requirements, store owners overwhelmingly opted for informality, even though it meant passing up an opportunity to grow and prosper. To Mexican business owners, the benefits of formality—the ability to borrow from a bank or take a creditor who will not pay to court—may not seem compelling, particularly if it is not clear that these advantages are available.

In Mexico, it is estimated that 54 percent of non-agricultural workers are employed in the informal sector. This compares with 38 percent in Brazil and 47 percent in Argentina. More worryingly, informality is growing.[58] Not all informal workers are self-employed or work in small businesses. Many workers are employed informally by mid-sized and large companies that do not comply with all legal requirements, at least for some employees. In 2009, 13 percent of the workforce employed by companies with more than 50 workers was informal.[59]

In Mexico, as in other nations, informal employment is not a choice for many workers: they have no other options. Informality is especially prevalent in regions with lower average incomes, such as Oaxaca and Guerrero. Informality also correlates with low educational attainment: 87 percent of Mexicans who have not completed primary school are employed informally, while 35 percent of workers with a secondary education work informally. And informality is highest among workers who are the least attached to the labor force—young workers just entering the labor force and older workers trying to remain employed (Exhibit 15).

The informal workforce is more concentrated in enterprises with ten or fewer employees, which are the largest employers in most industries.[60] Across all manufacturing firms, for example, more than 95 percent of workers are employed by companies with ten or fewer employees—the highest proportion of small-scale manufacturing among OECD economies. In food processing, 99 percent of firms have fewer than five employees. It is estimated that the 5.9 million people who work informally in retail outnumber formal workers by nearly 2 to 1. ANTAD, the national association of supermarkets, estimates that if sales by informal stores were counted accurately, they might be four times the level of modern-format store sales.

58 World Bank Enterprise Survey, 2010.

59 See Matías Busso, María Victoria Fazio, and Santiago Levy, *(In)formal and (un)productive: The productivity costs of excessive informality in Mexico*, Inter-American Development Bank working paper number IDB-WP-341, August 2012.

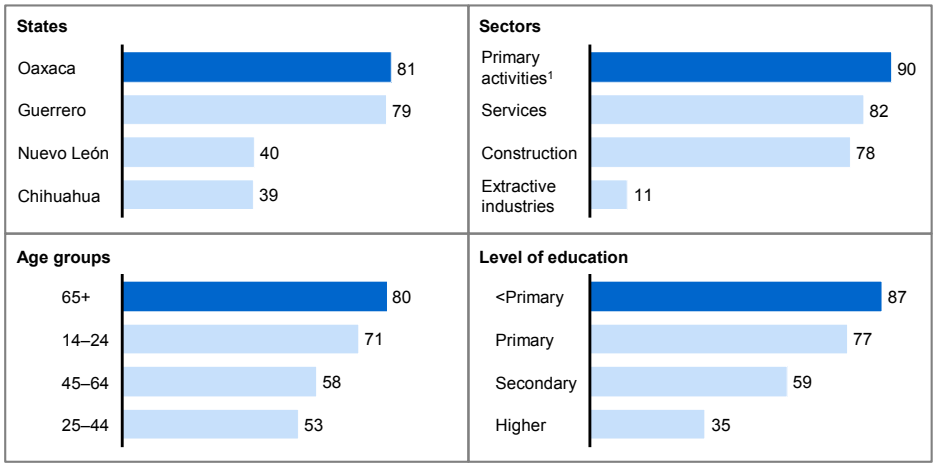
60 *Censos económicos 2009*, Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis.

Exhibit 15

Labor informality varies by state, sector, age, and level of education

Prevalence of informal employment, 2013

% of informality in total workforce



1 Agriculture, livestock, and fisheries.

SOURCE: *Encuesta Nacional de Ocupación y Empleo 2013*, Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis

To encourage formality and ensure a level playing field for all companies, it is essential to increase the likelihood of being caught for nonpayment of taxes or violating other regulations. Research in Brazil showed that the only effective government action to encourage formalization was random inspections to catch businesses operating illegally.[61] Today, the risks of noncompliance in Mexico are not great. It is estimated that foregone corporate income taxes are equivalent to almost 120 percent of what is collected. This low rate of collection, according to the Inter-American Development Bank, is due largely to organizational capabilities in Mexican tax authorities and corruption.[62]

The experience of other nations suggests that efforts to raise compliance that focus on particular types of companies where collection rates are known to be low are most effective. One way to target efforts is to focus on companies by size: those with more than 100 employees account for the largest amount of foregone taxes. Targeting one industry segment at a time makes it easier to identify all the potential violators, and the impact of compliance is felt by suppliers in the sector, whose sales should be disclosed as expenses of the large companies.[63] To raise compliance in smaller companies, tax authorities have required traditional stores to keep all register receipts. Poland mandated such a requirement as part of its effort to reduce informality, which also included comprehensive audits and substantial monetary penalties.[64] To improve compliance, Brazil's government provides tax breaks to companies that submit their deductible business expenses in digital form, which makes it easier to trace transactions to vendors to confirm

61 Gustavo Henrique de Andrade, Miriam Bruhn, and David McKenzie, *A helping hand or the long arm of the law? Experimental evidence on what governments can do to formalize firms*, World Bank policy research working paper number 6435, May 2013.

62 "La era de la productividad," Banco Interamericano de Desarrollo (Inter-American Development Bank), 2010.

63 Ibid.

64 *Turkey: Making the productivity and growth breakthrough*, McKinsey Global Institute, February 2003.

that they correctly report their revenue. India allows citizens to report corrupt public officials anonymously via mobile devices.

Big-data analytics can also be harnessed to improve enforcement. In Italy, where forgone taxes are estimated to total nearly $400 billion a year, a new computer system called *redditometro* sorts through masses of transaction and tax records to detect likely unpaid taxes.[65] Big-data technology also can be used to make filing easier, such as by automatically pre-filling portions of tax forms using government data. Similarly, big-data analytics can be used to look at factors such as income, past delinquency rates, and credit history to identify individual and corporate taxpayers for examination and collection activities.[66]

Expand access to capital

Adequate funding for daily operations and investments in equipment and technology is critical for any business to thrive and grow. However, there is a sharp division between access to capital for major modern corporations, which can raise money at attractive rates from banks and investors in the United States and other foreign sources, and for most other businesses in Mexico. In May 2013, the federal government proposed financial reforms that cover some of the initiatives we discuss here, such as strengthening protections for creditors and devising clear procedures to recover collateral from borrowers. It is not yet known to what extent these measures will be implemented.

Today, large Mexican corporations get access to global capital markets at rates similar to those available to large US companies, thanks to Mexico's stable macroeconomic conditions and the close integration of Mexico into the global economy.[67] But this has not been the case for small and medium-sized companies. Their primary source of financing is bank lending, in the form of either business loans or, in many cases, consumer credit. These loans typically carry interest rates of 20 percent or more, much higher than the rates small businesses pay in the United States. For very small enterprises that don't have access to bank lending and rely on microcredit or supplier credit, rates can be even higher (Exhibit 16).

In terms of access to lending, mid-sized businesses may be the most constrained. Mexico's growing microfinance industry, which includes such players as Banco Compartamos, one of the largest microfinance institutions in the world, serves the smallest enterprises. However, Mexico is very short on financing opportunities for its mid-sized firms (with 50 to 250 employees).[68] Large banks that originate business loans to SMEs typically require applicants to show audited reports for three consecutive fiscal years and hold compensatory balances, which can be particularly prohibitive for young enterprises.

---

65 Yasha Maccanico, "Using the Italian crisis to impose control: A shift towards a fiscal surveillance state?" *Statewatch Journal*, volume 23, number 1, March 2013.

66 *Big data: The next frontier for innovation, competition, and productivity*, McKinsey Global Institute, June 2011.

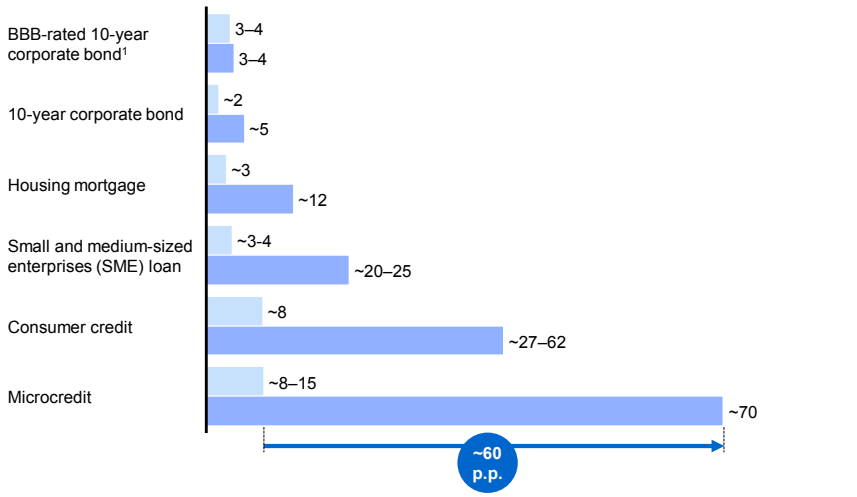
67 Access to capital is not a major problem for large corporations with access to international financial markets. América Móvil, for example, issued a ten-year bond with a yield to maturity of 3.9 percent—2.2 percentage points below the Mexican ten-year bond.

68 World Bank Enterprise Survey, 2010.

Exhibit 16

Corporate bond rates in Mexico are comparable to US rates; SME loans and microcredit are much more expensive

Interest rates of different forms of debt
% per year



1 PPL Energy Supply, LLC in the United States and Banco Santander de México in Mexico.
SOURCE: Bloomberg; Banco de Mexico; McKinsey Global Institute analysis

According to the World Bank, 53 percent of medium-sized firms are underserved by Mexico's financial industry. We estimate that the total credit gap among Mexican companies with between ten and 250 employees accounts for three-quarters of a roughly $60 billion credit gap in Mexico. The companies that are most starved for capital, then, are precisely the kinds of enterprises that could be engines of growth, employment, and productivity in Mexico—the equivalent of the "Mittelstand" companies that have been so important to Germany's economic success.

Efforts to bridge Mexico's funding gap for mid-sized firms have included the launch of a bond market for medium-sized companies on the Bolsa Mexicana de Valores. Yet the onerous filing requirements discouraged applicants: of 17,000 eligible companies, only six have been able to float issues on the market.[69] This problem gets even more severe as common business purchasing practices among the large players—the customers of the SMEs—demand credit periods of 30, 60, or even 120 days.

The SME credit gap is reflected in Mexico's shallow financial depth (the stock of debt and equity outstanding divided by GDP), which is one of the lowest among peer economies. The total equity and debt outstanding in Mexico amounts to 135 percent of GDP, lower than in all other large emerging economies except Russia (Exhibit 17). The amount of bank loans—the traditional source of financing for SMEs—is strikingly low. Advanced economies on average have 4.5 times Mexico's total amount of loans outstanding relative to GDP, and Mexico's total loans outstanding—at 33 percent of GDP—trails that of other developing economies such as Brazil, whose loans amount to 42 percent of GDP. Mexico ranks just behind Ethiopia, which has far lower per capita income.

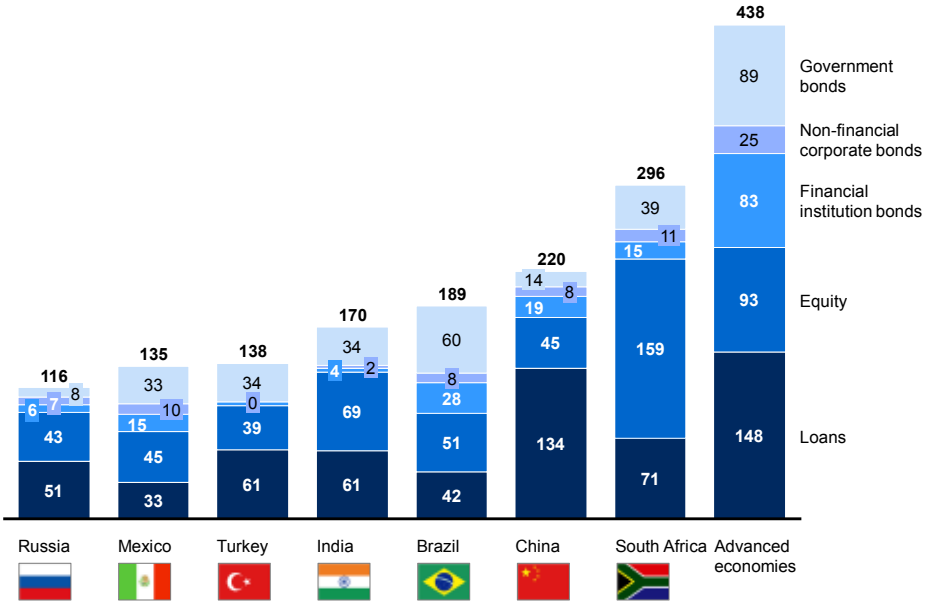
69 Jacqueline Tavera and Carmen Murillo, "A dream of the few," *Expansión*, October 2013.

Exhibit 17

Limited lending contributes to lower financial depth than in other large emerging markets

Financial depth, 2012

Stock of debt and equity, % of GDP



NOTE: Numbers may not sum due to rounding.

SOURCE: National sources; McKinsey Global Banking Pools; McKinsey Global Institute Financial Assets database; McKinsey Global Institute analysis

Other financial-service resources that typically assist growing businesses, such as a strong private equity industry, are either missing or underdeveloped in Mexico. Private equity firms are a source of funding for venture investing and mergers and acquisitions, but in Mexico, private equity deals averaged only 0.2 percent of GDP per year from 2000 to 2013. This is far below the volume in other developing economies such as Brazil, where private equity deals were about 1.2 percent of GDP.[70]

To improve access to credit and reduce the cost of borrowing for mid-sized firms, Mexican policy makers can improve regulations, develop a more robust financial infrastructure, and work with private-sector lenders.

- **Improve the regulatory environment and promote better financial management.** By strengthening rules to protect lenders and make it less risky to give credit to mid-sized companies, government can encourage lending. Today financial institutions in Mexico have limited rights to access borrowers' collateral in cases of bankruptcy. Improving the collateral registration system, especially for real estate, and introducing certificates of collateral could improve access to credit. The World Bank has suggested setting up a Unified Secured Transactions Registry for security interests in movable assets such as office equipment and vehicles; computerizing and connecting registry systems to remove inconsistencies in land data; and reducing the costs of registering real estate (particularly notary services).[71] Other key improvements would

70 S&P Capital IQ Platform, 2012.

71 Eva Gutierrez, *Fostering sound financial sector development*, World Bank Mexico policy note—draft, July 28, 2012.

include allowing out-of-court enforcement of security rights of creditors and protecting secured creditors during insolvency proceedings. The government can also consider providing support for auditing and collateral registration for new entrants, which would provide greater transparency to lenders and investors and at the same time encourage formalization.

- **Expand bank lending for mid-sized companies.** Most mid-sized firms have bank accounts, and these relationships can be expanded to include lending; for existing borrowers, higher lending limits may be possible. Financial institutions will need to strengthen their current business models to maintain risk at acceptable levels as they grant more loans, but banks that do this well will be rewarded with new and profitable sources of revenue. To expand bank lending, financial institutions need to simplify loan processes, which today are unnecessarily complicated. In our interviews with leaders of a multinational venture capital fund, they recalled that their employees could not get credit cards because the banks required three years of audited financial statements, real estate assets for security, and a guarantor related to the company. Finally, the company was told that it could apply for credit cards only if the cards were backed by deposits that matched the full credit line.

  Also, financial institutions need better access to data on borrowers. Financial institutions have their own rating systems, but they do not pool data and banks do not have comprehensive and reliable credit histories on individual borrowers.[72] Third-party credit-rating services in Mexico are more limited than in the United States and elsewhere. In addition, many potential borrowers—entrepreneurs hoping to launch businesses—do not have the sort of financial histories that credit raters use, such as mortgage and credit-card payments. A potential solution lies in the use of shared or "open" data about transactions that can show the creditworthiness of a potential borrower. A US startup called MicroBilt operates a service called Payment Reporting Builds Credit, which uses histories of rent, utility, telecom, and other payments to determine the risk associated with lending to a particular individual.[73] In Mexico, Telmex provides credit to its subscribers on the basis of their phone bill payment history.

  Finally, Mexico's large modern companies have opportunities to bridge the financing gap. As in other countries, large customers in Mexico today demand and get payment terms that are costly to SMEs. The practice of stretching payments to 30 days and beyond is particularly costly in Mexico's constrained credit environment: stretching payments to 60 or even 120 days can wreak havoc on the cash flow of a growing concern. Instead, large modern operations with access to low-cost financing could consider opportunities to provide financing for their suppliers and customers.

- **Use new business models to reach small borrowers.** Serving small and rural borrowers requires new approaches and business models. It is costly to serve such customers with conventional models because they are less

72 Ibid. The World Bank notes that there are credit histories for about 70 million people (63 percent of the population), which it cites as an indication of unreliability, given the low penetration of credit in Mexico. The bank calls for a national identification system to reduce fraud and error.

73 *Open data: Unlocking innovation and performance with liquid information*, McKinsey Global Institute, October 2013.

likely to have good records and more likely to be located in remote areas. One solution is for small firms to band together in cooperatives and seek funding as a group. Another solution is business model innovation. Private-sector institutions, in collaboration with public-sector initiatives, could provide banking services to very small enterprises in remote areas and bring them into the formal economy. New approaches to raising capital for entrepreneurial companies already are being adopted in Mexico. Microcréditos de Mérida has been providing loans of up to 50,000 pesos to registered small businesses in Mérida for more than a decade, and crowdfunding sites such as Fondeadora.mx and crowdfunder.com are bringing peer-to-peer lending to Mexico. Development banks can play a crucial role: in addition to providing credit, they can expand their guarantees to reduce risks for other lenders.

Raising the productivity of energy

Despite its energy endowments, Mexico lacks a cost-efficient and reliable power supply, which limits the productivity of even the best-run enterprises.[74] The World Economic Forum ranks Mexico 79 out of 144 countries for the cost and quality of electricity supply, and Enerdata, an energy research firm, estimates that electricity costs 73 percent more in Mexico than in the United States.[75] The largest factors behind Mexico's high electricity costs are constrained pipeline capacity, which is limiting the use of low-cost gas in power plants, and extremely high distribution losses, mostly due to theft (Exhibit 18).

Based on current usage patterns, we estimate that total energy demand would need to rise by 4 percent per year through 2025 to support a 3.5 percent per year GDP growth target.[76] This would bring total energy use to 2.7 million gigawatt hours (GWHs) annually in 2025, an 80 percent increase over the current 1.5 million GWHs per year (we use GWHs to normalize comparisons across types of energy). The largest source of demand would be in transportation, where energy use is expected to rise by 5.1 percent annually. This would have a disproportionate impact on costs, since gasoline and diesel are more expensive than fuels used to generate electricity. As a result, we project that even as demand rises by 4 percent a year, Mexico's total energy bill would rise by 5.6 percent annually, from $79 billion in 2010 to $179 billion in 2025 (Exhibit 19).

74 Mexico has long been a leading producer of conventional oil and has large proven reserves of unconventional (shale) reserves. It also has the fourth-largest installed capacity of geothermal energy and gets 15 percent of its electricity from hydropower. Mexico has access to the cost-competitive US gas market; the US Energy Information Administration ranks Mexico sixth in unconventional gas reserves, 14th in conventional gas reserves, eighth in unconventional oil, and 18th in conventional oil.

75 World Economic Forum, *The global competitiveness report 2012–2013: Full data edition*, 2012; Enerdata.

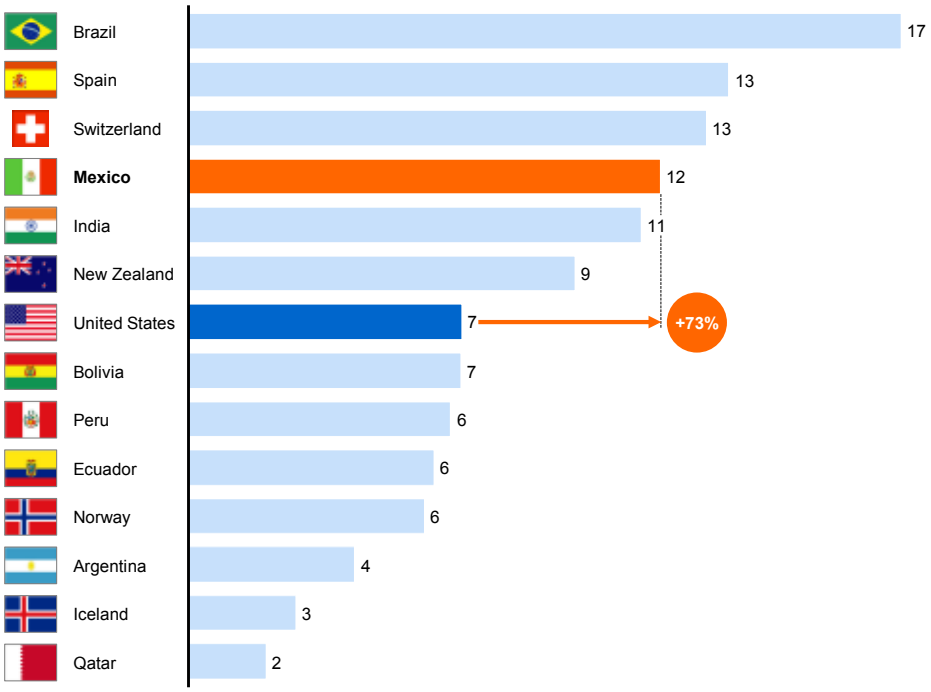
76 For methodology information, see *Pathways to a low-carbon economy: Version 2 of the global greenhouse gas abatement cost curve*, McKinsey Sustainability and Resource Productivity Practice, 2009. We also rely on previous McKinsey Global Institute research on development and energy use. See *Fueling sustainable development: The energy productivity solution*, McKinsey Global Institute, October 2008.

Exhibit 18

Cost of power in Mexico is relatively high

Electricity cost, 2011–12

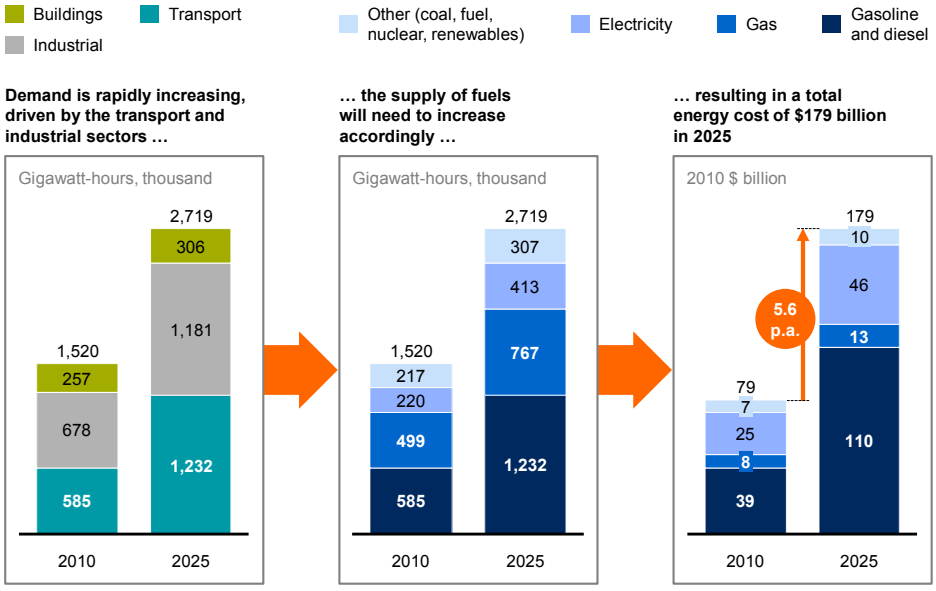
Cents per kWh



SOURCE: US Energy Information Administration; McKinsey Global Institute analysis

Exhibit 19

Mexican energy costs could rise by 5.6 percent per year



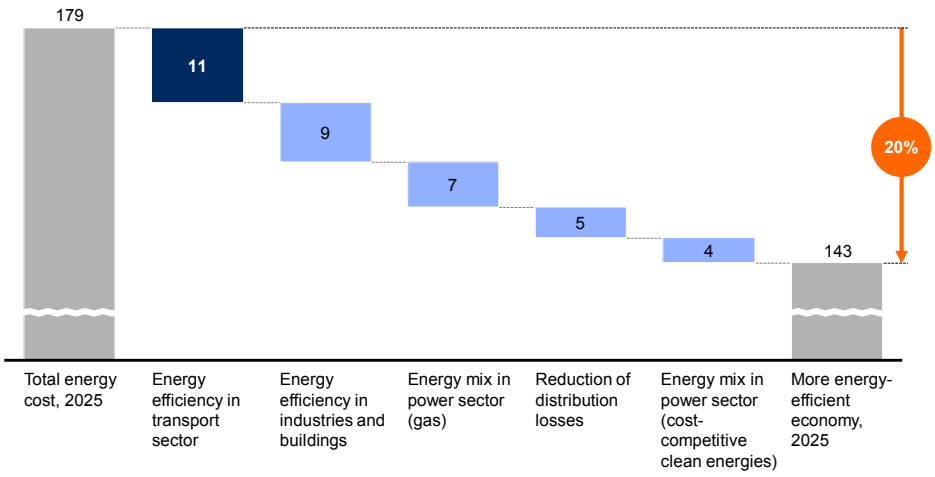
NOTE: Numbers may not sum due to rounding.
SOURCE: McKinsey Global Institute analysis

Mexico can raise energy productivity in both demand and supply. It can reduce overall demand by making transportation more energy-efficient and reducing the amount of energy used to run factories and to heat and cool buildings.[77] On the supply side, we identify three priority opportunities: raising the share of energy generated with low-cost gas, reducing electricity distribution losses, and relying more on Mexico's extensive hydro and geothermal sources of generating power. We estimate that Mexico could cut annual energy costs by 20 percent, or $36 billion, by 2025 by implementing these strategies (Exhibit 20). In addition, we estimate that these measures could limit carbon dioxide emissions in 2025 to nearly 25 percent below the levels they would otherwise reach.

Exhibit 20

Adoption of energy-efficient measures could reduce energy cost by about 20 percent in 2025

2010 $ billion



NOTE: Numbers may not sum due to rounding.
SOURCE: McKinsey Global Institute analysis

CREATING AN ENERGY-EFFICIENT TRANSPORT SECTOR

The number of cars on Mexico's roads could double from 24 million in 2010 to around 50 million in 2025, an annual growth rate of 5 percent, based on current ownership patterns and the projected expansion of the consuming class. As a consequence, demand for gasoline and diesel fuel is expected to increase by more than 5 percent per year. We estimate that Mexico can cut the projected 2025 fuel bill by 10 percent, or about $11 billion. Use of more efficient vehicles, particularly energy-efficient passenger cars, could save around $9 billion annually in 2025. This goal could be achieved if Mexico adopts new government fuel-efficiency standards modeled on the US government's revised Corporate Average Fuel Economy (CAFE) standards are adopted. This would require the fuel efficiency of new cars to rise from 12 kilometers per liter today to 23 kilometers per liter in 2025. Under current law, new cars will have to average around 15 kilometers per liter by 2016. To realize the 2025 target, the Mexican market would need to shift to smaller cars and sales of hybrid cars would have to rise.

77 We focus on opportunities to improve efficiency in transportation, since Mexican gasoline and diesel production and distribution are relatively cost competitive with benchmark countries.

To generate the remaining $2 billion a year in savings from reduced energy consumption in transportation, Mexico also would need to increase the use of public transportation. One of the proven methods is to expand bus rapid transit systems. Unlike conventional buses, bus rapid transit systems use dedicated lanes, avoiding congestion-related fuel waste and making public transit more efficient and attractive to riders. We assume that at least 6 percent of passenger-kilometers traveled in Mexico's larger cities can shift to buses by 2025.

RAISING ENERGY EFFICIENCY IN INDUSTRY AND COMMERCIAL BUILDINGS

We estimate that Mexico could save $9 billion per year by 2025 through improved energy efficiency in industry and commercial buildings. More than 80 percent of this opportunity is in industrial use. Cogeneration (the simultaneous generation of electricity and useful heat) in petroleum and gas refining could save more than $5 billion annually, we estimate. Pemex has announced 14 cogeneration projects that are expected to provide approximately 3,500 megawatts of capacity by 2017; three of these projects are already in the construction phase.[78] Based on international benchmarks and McKinsey's work in Mexico, we estimate that industries such as iron and steelmaking, cement, and chemicals could reduce energy costs by 15 percent by 2025 through adopting efficiency measures and through cogeneration, resulting in a potential annual saving of almost $2 billion.

Heating and cooling buildings is a relatively small part of national use. However, we estimate potential annual savings of nearly $1 billion through measures such as use of better electronic controls and more efficient lighting and air conditioning equipment.

USING MORE GAS IN ELECTRICITY GENERATION

On the supply side, the highest priority would be to raise the use of natural gas in power generation. In addition to its own gas reserves, Mexico has access to the low-cost US supply, which provides 20 percent of Mexico's gas.[79] Natural gas in Mexico currently costs about $4 per million BTU, or about one-third of the average price in Western Europe and one-fourth of Japan's.

To generate more power with gas, Mexico will need to address pipeline capacity constraints. Pipelines that connect oil and gas fields in the Gulf of Mexico to central Mexico are already at 100 percent capacity, and those connecting Texas to northeastern Mexico are expected to approach 100 percent capacity by this year. Also, because there is no pipeline serving western Mexico, that part of the country relies on imported liquefied natural gas, which costs four times as much as domestic gas. These pipeline constraints keep Mexico from filling demand in the central and western parts of the country. And, without a cost-effective means of transporting gas to where the demand exists, Pemex has been flaring around 10 percent of its gas production since the mid-2000s.

78 *Cogeneración de energía eléctrica en Petróleos Mexicanos*, Pemex, October 2010.

79 Shale gas and "tight oil" production has been growing by more than 50 percent annually since 2007 in the United States. *Game changers: Five opportunities for US growth and renewal,* McKinsey Global Institute, July 2013.

The good news is that the pipeline constraint may soon be relieved. According to construction timetables, the capacity of pipelines between northeastern Mexico and the United States is expected to more than double by 2015. A new pipeline connecting northeastern Mexico to western Mexico could eliminate the need to import liquefied natural gas. Planned pipelines connecting Campeche, near the southern tip of the country, to central Mexico are expected to increase capacity by around 40 percent, relieving constraints by 2020. Additional projects may be necessary to meet demand beyond this date.

Based on this expanding supply of gas, the Comisión Federal de Electricidad, the government-owned electric utility, has announced that it expects to generate 60 percent of its electricity with gas-fired generators by 2026, up from 46 percent today.[80] If this goal is met, we estimate that the cost of electricity production could drop by more than 15 percent, saving about $7 billion annually in 2025.

REDUCING ELECTRICITY DISTRIBUTION LOSSES

Today, 18 percent of Mexican electricity is lost in distribution, a very high share compared with losses in peer economies. Distribution losses are highest in the central region of Mexico, where an estimated 31 percent of electricity is lost. Here the losses are mainly driven by non-technical losses—theft—which account for 23 percentage points of the 31 percent lost.[81] Energy thieves use *diablitos*, illegal devices that let them tap overhead wires.

To reduce theft of service, Mexico can follow the practices of other nations that have reduced such losses. Chile's Enersis Group, a regional electric holding company, reduced its distribution losses in Argentina, Chile, Colombia, and Peru by at least 50 percent over three to seven years.[82] Enersis made use of a wide range of measures, including investment in technology, community engagement, and punitive actions. Enersis workers were dispatched to neighborhoods to identify irregular connections and damaged meters. Enersis also installed secure meter boxes to reduce tampering. Reducing Mexico's power losses to 9 percent of power could save $5 billion annually for electricity providers.

EXPANDING USE OF HYDRO, THERMAL, AND WIND

Mexico is well positioned to expand use of renewables as costs become more attractive. It already derives 15 percent of its power from large-scale hydro projects and is number four in the world in installed geothermal capacity. The nation also has significant potential for solar, wind, and additional hydro development. The Mexican government has established a target of getting 35 percent of its energy from clean sources by 2025.[83] Based on the current path of prices, we believe that only geothermal and hydro can be cost-competitive with gas in 2025 on a national scale. Photovoltaic solar and wind are expected to continue to experience strong growth rates, particularly in locations with the most favorable conditions, but they will remain a small part of the national energy supply.

---

80 *Prospectiva del sector eléctrico 2011–2026*, Secretaría de Energía de México (Secretariat of Energy, Mexico), 2012.

81 *Conferencia regional sobre smart grids*, Secretaría de Energía de México (Secretariat of Energy, Mexico), 2010.

82 Pedro Antmann, *Reducing technical and non-technical losses in the power sector*, World Bank, July 2009.

83 Clean energies are defined as renewable energies plus nuclear.

We estimate that shifting 4 percent of total production from fossil fuels to hydro and geothermal power could save about $4 billion a year in 2025. We expect the Comisión Federal de Electricidad to increase investments in renewables to carry out its mandate to consider social and environmental impacts of new generating projects. The biggest opportunity may be geothermal, which now provides 958 megawatts of generating capacity and could grow to as much as 8,000 megawatts in 2025. Before large additional investments in thermal are likely, however, the government will need to clarify regulatory issues, including determining the possible effects of geothermal development on underground structures.

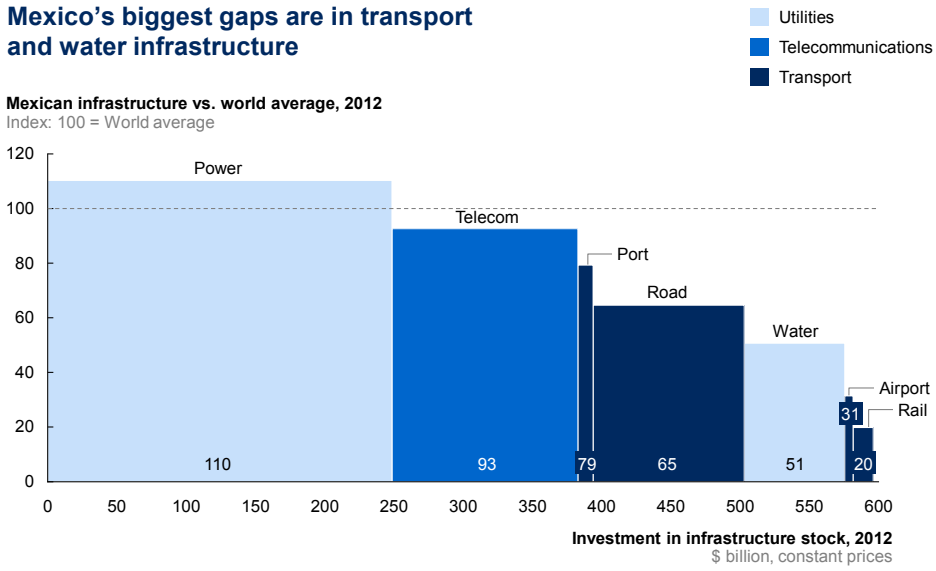
Improving productivity in infrastructure investments

To support faster economic expansion, population growth, and the needs of a larger middle class, Mexico will need to raise its investments in infrastructure. According to our estimates, Mexico starts with a $193 billion infrastructure gap—the difference between its current stock of infrastructure and what would be regarded as adequate to support its current level of GDP. Across economies, we find that the value of a nation's infrastructure stock averages 71 percent of GDP; in Mexico, that figure is just 53 percent.

Much of this 18-point gap is in transportation and water systems (Exhibit 21). Road density is just 0.11 kilometers per square kilometer, compared with 0.40 kilometers in China and 0.67 kilometers in the United States. Furthermore, there is a large gap in water supply capacity: today the gap amounts to 15,000 cubic hectometers, and it is expected to increase to 23,000 cubic hectometers by 2030. The efficient distribution of water represents an additional challenge. Over the next 20 years, an additional 30 million to 40 million people will need access to drinking water.

Exhibit 21

Mexico's biggest gaps are in transport and water infrastructure



SOURCE: McKinsey Global Institute analysis

In addition to raising infrastructure investment to support GDP, expanding infrastructure investment could help Mexico achieve the following three strategic goals:

- **Serve a growing consuming class.** Mexico's growing middle class will have significant impact on infrastructure needs. This includes more demands on transportation infrastructure to carry goods and deliver services as well as greater road capacity to carry consumer vehicles.

- **Create inclusive growth.** Investments in roads, transit, and water systems can help ensure that all Mexicans have an opportunity to benefit from the nation's economic growth. An important step is improving the connectivity of underdeveloped neighborhoods, regions, and states.

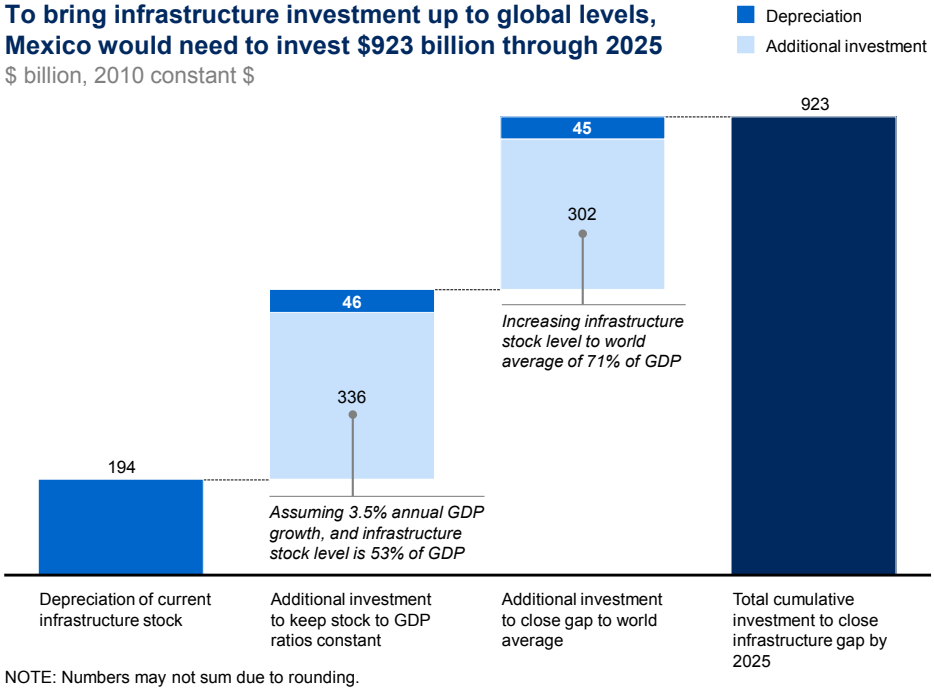
- **Improve Mexico's ability to serve global markets.** Increasing labor costs in Asia and decreasing energy costs in North America enhance Mexico's ability to compete for global business. To take full advantage of these trends, it is important to have the infrastructure to transport goods quickly while keeping costs as low as possible.

Assuming a GDP growth target of 3.5 percent per year, we estimate that it would take $923 billion to build the infrastructure to support economic growth through 2025. Simply to maintain the current infrastructure stock and account for its depreciation, Mexico would need to spend $194 billion, or about $15 billion a year. It would take an additional $382 billion, including $46 billion for depreciation, to accommodate growth. To close the infrastructure gap would require an additional $347 billion, including $45 billion of depreciation charges. Altogether, this would require spending of $71 billion per year on infrastructure through 2025 (Exhibit 22).

Exhibit 22

To bring infrastructure investment up to global levels, Mexico would need to invest $923 billion through 2025

$ billion, 2010 constant $



NOTE: Numbers may not sum due to rounding.
SOURCE: McKinsey Global Institute analysis

Mexico has already committed to investing in infrastructure. In July 2013, President Peña Nieto announced the government's infrastructure plan, the *Programa de Inversiones en Infraestructura de Transportes y Comunicaciones 2013–2018*. We estimate that it would involve total spending of $658 billion to 2025, which would increase Mexico's infrastructure stock by 5 percentage points, to 58 percent of GDP, reducing the gap to the global average to about 12 percent of GDP.

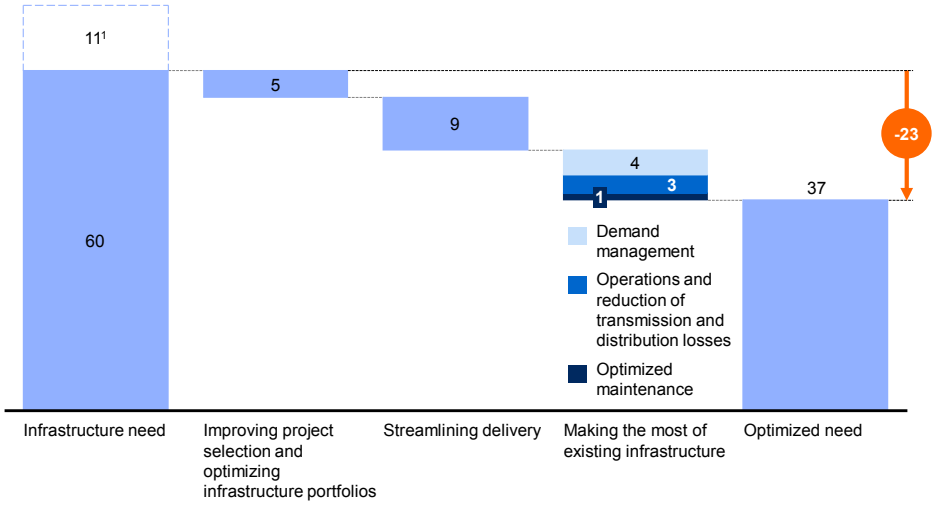
In Mexico, as in many nations, government's ability to fund infrastructure improvements today is limited by growth and fiscal constraints. However, it is possible to increase the productivity of infrastructure investments through careful project selection and scoping, better project management, and increased capacity of existing investments, rather than building new infrastructure, when possible. Together, these measures can improve the productivity of infrastructure investments (delivered capacity per dollar invested) by as much as 40 percent.[84] In Mexico, we estimate that this could reduce the total investment required to close the infrastructure gap from $60 billion per year to $37 billion per year (Exhibit 23).

Exhibit 23

Global best practices could reduce the cost of infrastructure investment

Mexico's infrastructure investment need and how it could be reduced, yearly average, 2013–25

$ billion, constant 2010 $



1 Telecom investment need beyond the scope of this paper.
NOTE: Numbers may not sum due to rounding.
SOURCE: McKinsey Global Institute analysis

- **Improved project selection.** Chile, South Korea, and the United Kingdom have realized savings of 15 to 20 percent on infrastructure investments by carefully selecting projects based on clear metrics. In Chile, all proposed projects go to the Ministry of Planning's National Public Investment System, which uses standard forms, procedures, and metrics to evaluate each project, and rejects 25 to 35 percent of them.

- **Streamlined delivery.** More efficient delivery can generate savings of as much as 25 percent on new projects. The savings come from streamlining

84 For more information on methodology and assumptions, see *Infrastructure productivity: How to save $1 trillion a year*, McKinsey Global Institute, January 2013.

approval, engineering, procurement, and construction processes. Avoiding the delays that often arise in infrastructure projects can create additional benefits. For example, because of delays in construction on the Mexican side, a new bridge between El Paso, Texas, and Ciudad Juárez is not doing the intended job of reducing the long delays that trucks face at the US-Mexico border, which is a drag on productivity.

- **Making the most of existing infrastructure.** It is typically much more expensive to build new infrastructure than to expand or extend the use of existing assets. This can be accomplished three ways: improved asset utilization; optimized maintenance; and more extensive use of demand-management techniques. For example, rather than investing in new roadways (which tend to attract more traffic), it is possible to accommodate more vehicles and increase speed by adding "intelligent transportation systems." Computerized signaling technology, for example, can adjust road speed or control access based on traffic conditions. Congestion pricing is another strategy.

Invest in education and training

To support a larger modern sector and to give poor Mexicans the skills they need to join the formal economy and earn higher wages, Mexico needs to raise educational attainment and achievement. It can do so by having more students complete secondary and post-secondary education and improving the quality of education. One reason informality and low-paying traditional businesses persist is that the average Mexican has only nine years of schooling and very limited opportunities for employment in the formal economy.

Today, only 36 percent of Mexican adults aged 25 to 64 have earned high school diplomas or the equivalent, less than half the OECD average.[85] And only 33 percent of Mexican high school graduates go on to university-level institutions; just 3 percent receive post-secondary vocational training. Across OECD economies, 62 percent of secondary-school graduates continue their academic education and 13 percent enroll in vocational programs. In Chile and Argentina, tertiary education enrollment rates exceed 70 percent.

Mexico also lags behind other nations in educational achievement—what its students learn. In the 2012 Programme for International Student Assessment (PISA) tests sponsored by the OECD in 65 countries and regions, Mexican 15-year-olds ranked 53rd, even though Mexico allocates a relatively high share of its public spending to education (Exhibit 24). The percentage of low achievers on the PISA math test in Mexico (54.7 percent) was twice the OECD average, and only 0.6 percent of Mexicans were high achievers—compared with 12.6 percent of all OECD students. Mexican students had similar results on PISA reading and science tests. Further, Mexican students have a low level of English proficiency, which can be a handicap for employment in a globalizing economy.

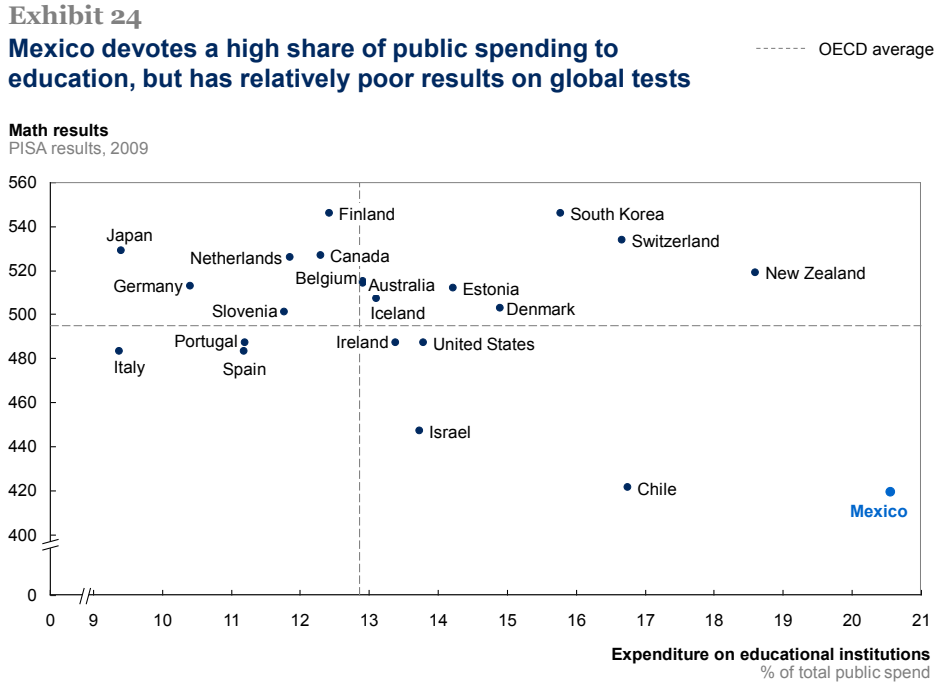
85 For more information on skills in Mexico, see *Education to employment: Designing a system that works*, McKinsey Center for Government, December 2012.

The PISA data indicate that the education system is not turning out college-ready students in sufficient numbers to meet the demands of a modern economy. Indeed, even now 40 percent of Mexican employers surveyed by McKinsey who say they cannot fill entry-level positions say that the main reason is a lack of skills among recent graduates. Another symptom of the problem is soaring youth unemployment, which rose by 70 percent from 2002 to 2009; as of 2011, 23 percent of Mexicans aged 15 to 24 were not in school, not employed, or out of the labor force.

For modern Mexico to flourish—and for Mexicans to avoid employment in the informal economy—the nation will need to address the limitations of its educational system. More than two-thirds of Mexican parents say that they expect their children to finish college, but even for qualified students the barriers are high. In a survey, 65 percent of young Mexicans said that the cost of post-secondary education and the difficulty of working and pursuing further education have kept them from further study.[86]

Exhibit 24

Mexico devotes a high share of public spending to education, but has relatively poor results on global tests



SOURCE: *Education at a glance 2011: OECD indicators*, OECD; Programme for International Student Assessment results, 2009, OECD; McKinsey Global Institute analysis

There are proven ways for nations to improve their school systems and raise both high school completion rates and educational achievement.[87] There are also strategies for making post-secondary education more affordable and accessible for working students. These are long-term efforts that would require many years and a large government commitment. In the near term, however, there are other ways to raise the skills of Mexican workers.

86 Ibid.

87 See, for example, Mona Mourshed, Chinezi Chijioke, and Michael Barber, *How the world's most improved school systems keep getting better*, McKinsey & Company, November 2010.

This would involve:

- **Employer-sponsored training.** Employers can do their part to raise skill levels with customized training programs. In Mexico, Unilever runs the Academia de Aprendizaje de Unilever, which offers employees 7,600 different training modules, mostly delivered online; 95 percent of management-level employees used the system in 2011.[88] The McDonald's University program takes high-potential front-line employees and trains them for management positions. Employers also can use the apprenticeship model, pre-hiring students and sponsoring their education to ensure that they develop the necessary skills for full-time employment.

- **Build high-quality vocational training.** One of the most effective ways to address the skills gap in the near term is to improve and focus vocational training, which can help provide workers with the skills to work in more productive enterprises and can help reduce youth unemployment. One way to improve vocational training quickly is to find successful commercial trade schools to operate training centers in Mexico. Employers and higher education systems can work with these training providers to develop standardized curricula and tailor electives to fit industry needs. Training should be conducted in short but intensive courses. As an example, the Mexican automotive industry and Ministry of Education are establishing the Center for Dual Specialization in Puebla in conjunction with the German Chamber of Commerce.

- **Improve labor market matching.** The process of connecting candidates to jobs can be improved in several ways. To facilitate matching, the government can work with employers to identify employment gaps by industry and facilitate building a pipeline of qualified candidates whose skills match the needs of the labor market. Educators can also work directly with employers to secure job placement slots and match qualified students with companies, extending the typical recruitment model to include educators.

88 Unilever de Mexico.

□ □ □

Mexico's efforts over the past 30 years to create an environment to encourage growth have helped expand the modern sector and make Mexican industries globally competitive. With the additional measures we describe above, Mexico can create an environment that will multiply opportunities for smaller enterprises to compete in the modern sector, for Mexico's leading companies (domestic and multinational) to continue to flourish, and for more Mexicans to benefit from economic growth.



4. Implications

The measures we outline in this report to bridge the gap between the modern and traditional Mexicos and promote strong productivity gains in companies of all sizes can put Mexico on a faster growth trajectory. We estimate that these initiatives can enable the Mexican economy to reach—or even exceed—the 3.5 percent growth target. These are aggressive goals, considering the long trend of slow productivity growth in Mexico. Yet, our bottom-up analysis indicates that while they are ambitious, these goals are not unrealistic.

It will take consistent effort from both the government and the private sector to lift Mexican productivity. The reform agenda of the Peña Nieto administration includes initiatives on competition, telecommunications, financial services, education, labor, energy, and fiscal issues—several of which are relevant to the productivity-improvement efforts we outline in this report. We have not evaluated these measures since they were being adopted or proposed during our research. However, for any reforms to have impact they will need to be translated into specific legislation and rules that encourage companies to invest and create jobs in the modern formal economy. And, critically, policies must be vigorously enforced. How well the rules are crafted, implemented, and enforced will determine whether Mexico can move beyond a two-speed economy that continues to fall short of expectations, and emerge as a single, more dynamic economy that is capable of sustained growth.

A successful growth agenda is far more than a set of reforms and government initiatives. Ultimately it will be Mexico's private sector that brings about the changes needed across industries to raise productivity. Leading corporations—both domestic and foreign—have an opportunity to reap benefits by being catalysts of change through their supply chains and interactions with partners and customers. Mid-sized companies, with better access to financing and fewer barriers in their way, can aspire to improve and grow. And with changing incentives, operators of traditional businesses will have the option to join the formal economy or move on to better opportunities. Mexico can unleash the energy and talent of traditional Mexico—the way that NAFTA and other market-opening reforms have sparked the success of modern Mexico—and reverse the current labor flow from modern firms to traditional ones.

While this analysis highlights the economic incentives that have contributed to the current low level of growth, we acknowledge that the roots of weak productivity performance extend to longstanding practices. For example, the practice of protecting local companies from competition was central to the import-substitution policies of the Mexican Miracle period, and this legacy endures long after the policy regime has changed. It will take time to change institutional practices and build new capabilities. Yet there is no alternative: if Mexico is to seize the opportunity to get back on a higher growth trajectory, the companies that operate within the law will need to have a fair opportunity to succeed, and those who break the rules will need to suffer the consequences.

Achieving 3.5 percent productivity growth

If Mexico can address the productivity challenge of traditional enterprises and allow the modern sector to flourish, we estimate that there are more than enough opportunities to raise productivity to the level needed to reach or exceed the target 3.5 percent GDP growth if the measures we identify in the sectors we studied are applied widely. In the auto manufacturing industry, this would require that traditional operators that can make the transition into the modern sector raise their productivity by 2025 to the level of Mexico's 90th-percentile companies today. Large modern manufacturers would need to improve their productivity by 3.5 percent annually. Together, this could yield an average 4.6 percent annual productivity growth rate across Mexican auto manufacturing through 2025.

The potential for faster productivity growth in food processing is even higher: an estimated 5.3 percent annually through 2025. This is achievable if traditional players modernize operations and raise their average productivity to what are now 90th-percentile levels (about 50 percent of the US average today) and if modern players continue to improve productivity by at least 2 percent annually.

In food and beverage retailing, we estimate that implementing the measures we describe in Chapter 2 could raise productivity by 4.3 percent a year to 2025. This assumes that modern stores increase their market share to 75 percent of food and beverage revenue, that traditional retailers reach 35 percent of the productivity of US mom-and-pop stores, and that Mexico's modern retailers reach 90 percent of 2009 US modern retailing productivity. (See the appendix for more detail on estimated productivity projections.)

What policy makers, business leaders, and Mexican citizens can do to fuel productivity growth

Shifting to productivity-led growth will not only allow Mexico to achieve a faster rate of economic growth, but it is also necessary if the nation is to raise wages and living standards. Based on our industry analyses, there are three critical priorities that policy makers, business leaders, and Mexican citizens need to get right in order for Mexico to meet its growth target. The first set of initiatives is aimed at formalizing and revitalizing the traditional sector to halt the effects of declining productivity and reverse the rise of employment in labor-intensive informal work. Next we address the issue of expanding access to capital, which is essential for the creation of a thriving SME sector. Finally, we consider the ways in which Mexico can ensure that its large modern companies, both old and new, will continue to thrive and remain globally competitive.

- **Help traditional enterprises evolve into modern, formal SMEs.** With appropriate government actions to make informality less attractive, assistance from the private sector, and efforts by small business owners, many of Mexico's traditional enterprises can evolve into modern companies. The government's role is to address barriers to the entry and growth of modern and formal businesses. This will require changing the policies and practices that put formal and modern companies at a competitive disadvantage and removing the regulatory incentives that encourage companies to remain very small and informal. Mexico also needs to simplify bureaucratic processes

to make it easier for companies to enter the formal sector, including by streamlining the steps to register a business and employees and to obtain permits.

Critically, the success of any policy change depends on enforcement: both the efficiency and integrity of how regulations are enforced can be improved significantly, and business owners need to see that violations are discovered and violators are prosecuted. This will require efficient new processes in federal and local agencies, including putting services online for easy access and self-service, and a far greater effort to identify and punish violators. Moving to digital payments in all transactions can help with enforcement. Brazil sped up this transition by offering tax breaks to businesses that provide digital receipts. This creates electronic records that, through big-data analytics, can be used to uncover violations.

To implement more sophisticated regulatory mechanisms, the government will need to invest in training and management. It should also consider redoubling efforts to root out corruption within agencies and among field inspectors. The field interviews conducted in the course of compiling our industry case studies suggest that without these changes, the growth of informality in Mexico is unlikely to abate, and the cost advantages of informality will continue to discourage the growth of modern, formal companies.

The modern private sector can also do its part. Modern companies can be catalysts for the improvements that can bring small and medium-sized companies into the modern sector. Large, globally competitive manufacturers, for example, can train their Mexican suppliers to improve quality and gain expertise in new technologies. Modern players can integrate suppliers more closely with their operations or even consider opportunities to consolidate fragmented supplier markets. Leading modern companies can work with one another and with local and national governments to build and expand industry clusters, creating centers of excellence and innovation that can help their operations and foster knowledge-sharing with SMEs. Modern players could explore ways to establish long-term supplier relationships and tighter links with SMEs, including investments in technology and training that can become competitive strengths for all involved. Finally, food producers can be more proactive in working with their small corner-store customers to identify and facilitate productivity improvements.

Making it easy and attractive to formalize is essential. Most owners of small businesses undoubtedly would like to see their enterprises and incomes grow, but the effort required to move up into the formal economy can seem daunting, and the rewards may not be clear. Formality opens doors to new opportunities for both companies and the economy. As growing concerns with audited books that comply with legal requirements, small formal companies are in a position to attract capital and a broader range of customers, including large global players. By contrast, informal operators can obtain financing only on the least attractive terms and have little recourse if a partner in a contract reneges or a customer refuses to pay. Operating outside the legal system, traditional players also must rely on mutual trust—the lack of which severely limits collaboration between such companies today. Formal businesses, even small ones, do not have to rely on trust: they can enforce contracts. This means that they are more likely to work with one another and may be more

likely to band together in buying consortia and cooperatives to gain economies of scale. A growing population of formal companies can also mean less friction and greater efficiency across the economy.

- **Improve access to capital, particularly for mid-sized companies.** Today, limited access to capital severely constrains the capacity of Mexico's SMEs to grow, create good formal jobs, and aspire to join the next generation of leading companies. There are concrete steps that the government and the private sector—both the financial-services industry and large corporations—can take to raise lending activity and close the funding gap.

  Mexico can address the regulatory challenges that contribute to limited financing. These include strengthening support for creditors, such as procedures and guarantees to recover collateral, and expanding the types of data that credit bureaus use for rating risks. Government can push to improve credit reporting, potentially by establishing a single public credit record system that would ensure that comprehensive and reliable credit histories are available for individuals and companies. One option to speed up the transition would be to provide support for auditing and collateral registration for startups, which would provide greater transparency to lenders and investors and, at the same time, encourage formalization. Improving the collateral registration system, especially for real estate, and introducing certificates of collateral could improve access to credit. The World Bank, for example, recommends that nations set up Unified Secured Transactions Registries that track security interests in movable assets such as office equipment and vehicles.

  Mexico's financial industry has a critical role to play in enabling SMEs to take off. One way is for banks to go back to the traditional model of "growing" their clients—starting out with small credits and serving companies with a wider range of services as they get bigger. Banks can also use big-data analytics and new sources of credit-rating data such as rent payments to find new opportunities to grant credit, while managing their own risks.

  Finally, Mexico's large modern companies have opportunities to bridge the financing gap. As in other countries, large customers in Mexico today demand and get payment terms that are costly to SMEs. The practice of stretching payments to 30 days and beyond is particularly costly in Mexico's constrained credit environment: stretching payments to 60 or even 120 days can wreak havoc on the cash flow of a growing concern. Instead, large modern operations with access to low-cost financing elsewhere could consider opportunities to provide financing for their suppliers and customers. In manufacturing, modern customers can expand their supplier-support relationships to include financing (with interest) for investments in technology and equipment, for example. Store owners may also be able to qualify for franchise financing, another way in which large companies can help finance smaller ones.

- **Continue to make Mexico a place where world-class companies prosper.** Through decades of policy reform and trade agreements such as NAFTA, Mexico has become an attractive place for world-class companies to locate operations as well as an incubator for new world-class organizations. For Mexico to continue to grow as a global production location and for all of its modern corporations to prosper, policy makers need to continue to invest in infrastructure, improve the cost and reliability of energy, expand the pool of

skilled workers, and ensure safety and security. Another priority is to remove barriers to job growth in all modern and formal companies by reducing the remaining inflexibilities in labor laws.

The private sector has a key role to play. The investment climate remains favorable despite crime concerns; multinationals continue to invest in Mexico as a core production location for the North American market, and leading companies such as Nestle and Pepsico have recently announced multibillion-dollar expansion plans. Mexico's global firms can continue to invest in Mexico and create jobs. The business community can further contribute to the policy making process by sharing its perspective on the priority efforts needed for Mexico's growth and helping to provide a fact base, proposed solutions, and assessments of legislation as the reform process continues.

Significant progress toward the three goals described here will be necessary for Mexico to meet its growth targets. But crafting the right policies is only the start. It will take sustained focus on execution and enforcement to turn legislation into tangible progress. Public officials, business leaders, and Mexicans themselves need to agree to a change in the status quo that promises dramatic improvement across the society.

□ □ □

Mexico faces a productivity challenge that will not wait. As the growth of the labor force declines, productivity must make the larger contribution to GDP. This means that the two Mexicos will need to begin to move ahead together. The measures outlined in this report provide a path to greater productivity growth. And by helping the people who own traditional businesses and who toil in the informal economy to raise their productivity and find their way into the modern sector, Mexico can ensure that when growth accelerates, it will be inclusive.



Appendix: Technical notes

In this appendix we provide more detail on the data and methodology used in this report. The material covers the following topics:

1. Estimating traditional and modern Mexico
2. Calculating the productivity potential through 2025
3. Calculating the capital gap

1. Estimating traditional and modern Mexico

At the national level, we use company sizes as a proxy for traditional and modern enterprises, defining companies with ten or fewer employees as mainly traditional, companies with 11 to 500 employees as mid-sized, and those with 500 or more employees as modern enterprises. To estimate the productivity growth of different company sizes, we compare data from Mexico's economic census for the years 1999 and 2009. The data contain value added and people employed by company size for both years according to different company size clusters. Value-added figures were adjusted to 2003 prices to eliminate inflation effects.

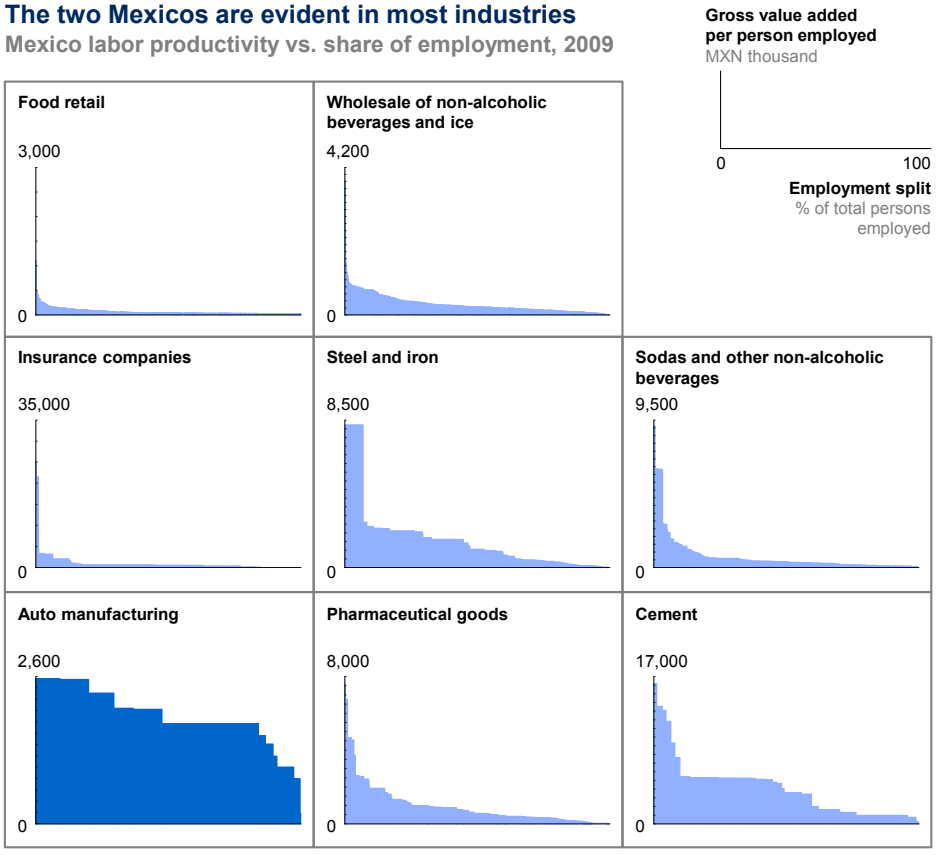
At a sector level, for manufacturing and retail, we use sector-specific data from the economic census to show the productivity differences between modern and traditional Mexico. We used the five-digit NAICS codes reported at the municipality level, which allowed for the greatest granularity, and, in many cases, yielded details at the firm level. In order to benchmark these figures against the United States, we applied sector-specific deflators from Instituto Nacional de Estadística y Geografía and used the market exchange rate from the International Monetary Fund. The market exchange rate was used for both food and automotive because of the highly tradable nature of these goods.

We found that across industries, the pattern of two Mexicos holds true, with the exception of a few highly capital-intensive industries such as auto assembly (Exhibit A1).

Exhibit A1

The two Mexicos are evident in most industries

Mexico labor productivity vs. share of employment, 2009



NOTE: Not to scale.

SOURCE: *Censos Económicos 2009*, Instituto Nacional de Estadística y Geografía; McKinsey Global Institute analysis

2. Calculating the productivity potential through 2025

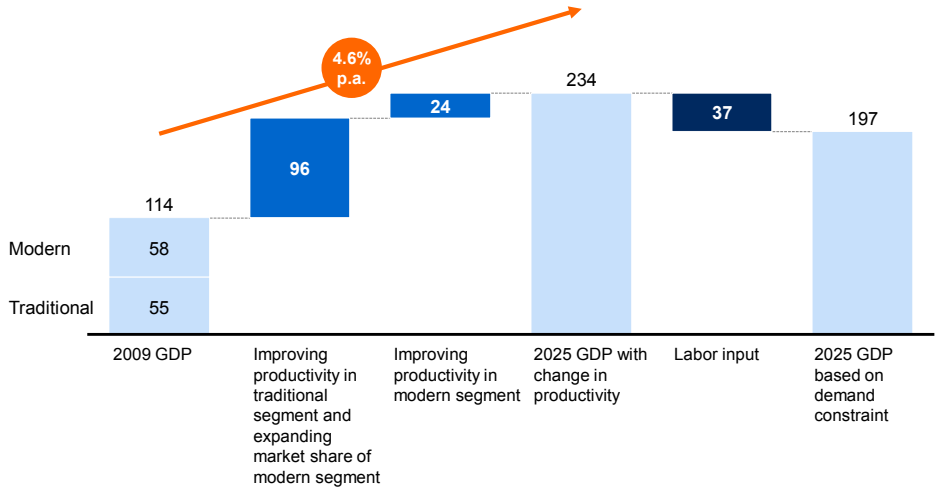
To understand how Mexico can raise productivity, we first look at how productivity initiatives would play out in the manufacturing and retail sectors that we analyzed. We begin by looking at projected demand through 2025 and the potential for productivity improvement over that period. Where there are gaps—where the rate of productivity growth exceeds growth in demand, for example—adjustments would be made to workforce levels. The results of our calculations are shown in Exhibit A2.

Exhibit A2

How Mexico could reach productivity growth of 4.6 percent per year

Food and beverage retail,[2] food processing, and automotive total gross value added

$ billion, constant prices, purchasing power parity



1 We have calculated productivity improvements based on US benchmarks given Mexican constraints. Labor input is a residual between productivity potential and market demand estimates.
2 Gross production.
NOTE: Numbers may not sum due to rounding.
SOURCE: *Encuesta Nacional de Ingresos y Gastos de los Hogares 2010*, Instituto Nacional de Estadística y Geografía (INEGI); Canback Global Income Distribution Database; *Censos Económicos 2009*, INEGI; US Bureau of Economic Analysis; Euromonitor; McKinsey Global Institute analysis

THE POTENTIAL CONTRIBUTION OF MANUFACTURING TO HIGHER PRODUCTIVITY GROWTH

We expect demand for Mexico's auto manufacturing output to continue to grow at a healthy pace, driven by rising domestic sales as well as demand for exports to North and South America. According to IHS Global Insight automotive forecasts, Mexico could be producing roughly five million vehicles a year in 2025—almost double the 2.6 million vehicles produced in 2011, which equates to 4 percent annual growth for the sector.

We also estimate that Mexico can continue to raise the productivity of auto manufacturing by two means: traditional operators transitioning into the modern sector and raising their productivity to what is currently the industry's 90th-percentile level, and modern-sector manufacturers raising productivity by 3.5 percent annually. This would yield a productivity growth rate of 4.6 percent a year across Mexican auto manufacturing. These gains translate into a total auto sector capacity of $71 billion of output (in gross value added) per year in

2025, which could be accomplished with minimal change in employment from today's levels.

In food processing, IHS Global Insight projects that demand will rise from $37 billion annually in 2011 to $60 billion in 2025, an annual growth rate of 3.1 percent. We project that the industry can raise productivity by as much as 5.3 percent annually over this period if enough traditional players modernize operations to raise their average productivity to what is now the 90th-percentile level (about 50 percent of the US average today) and if modern players continue to improve productivity by at least 2 percent annually. This would result in the capacity to produce $84 billion worth of processed food in 2025. Because the forecast demand is less than what can be produced based on the 5.3 percent annual rate of productivity growth, we expect that approximately 525,000 excess workers would need to shift into other sectors.

TOTAL POTENTIAL PRODUCTIVITY IMPROVEMENTS IN FOOD AND BEVERAGE RETAILING

We estimate that implementing the measures we describe in Chapter 2 could raise productivity in food and beverage retailing by 4.3 percent annually to 2025. This assumes that modern stores increase their market share to 75 percent of food and beverage revenue, that traditional retailers reach 35 percent of the 2009 US traditional convenience store productivity level, and that Mexico's modern retailers reach 90 percent of 2009 US retail productivity. This would give the industry the capacity to reach $79 billion in output by 2025. Since projected demand is only about $67 billion, we would expect that roughly 345,000 workers would shift to other sectors of the economy.

To estimate demand for food and beverages in 2025, we start with an estimate of GDP growth, which determines spending in two ways—overall consumption, and shifts in food consumption based on rising incomes. Over the next 12 years, as GDP grows, income distribution will shift, producing more middle- and upper-income households. The share of household spending devoted to food typically falls as incomes rise; Mexican households with annual incomes of less than $5,000 spend 49 percent of income on food today, and households earning more than $20,000 per year spend 23 percent of income on food. Using a business-as-usual GDP growth estimate of 2 percent annually, we calculate that total consumption in the Mexican economy would likely rise at a 3.4 percent annual rate, to reach approximately $1 trillion in 2025 (Exhibit A3). However, we estimate that food and beverage sales will grow at only 3 percent annually, reflecting the effect of changing spending patterns with rising incomes.

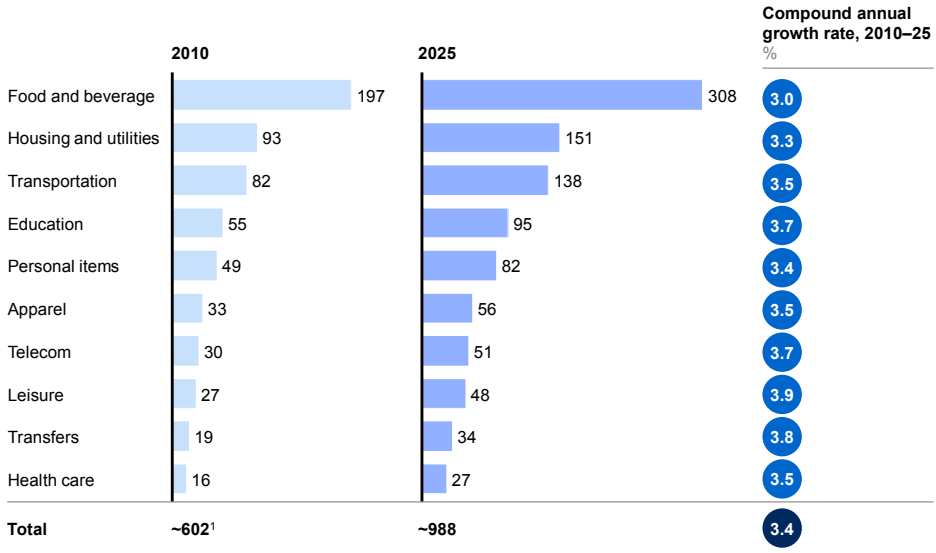
To measure output in retail, we use gross production data from Instituto Nacional de Estadística y Geografía's economic census rather than value added. Gross production includes intermediate consumption. Intermediate consumption refers to all goods and services needed by an economic unit to carry out production (this includes security, cleaning, gardening, and maintenance), which is considerably larger for modern retailers than for traditional food and beverage shops. We assume that modern retailers generate value for the economy by hiring full-time employees to provide these services.

Exhibit A3

Consumption is expected to grow at 3.4 percent a year, to become a ~$1 trillion market by 2025

Annual consumer spend

$ billion, 2005 purchasing power parity



1 According to the World Bank, household final consumption expenditure in 2010 was ~$874 billion (2005 purchasing power parity). The difference could be explained by financial services and discrepancies between bottom-up and top-down analyses.

NOTE: Numbers may not sum due to rounding.

SOURCE: *Encuesta Nacional de Ingresos y Gastos de los Hogares 2010*, Instituto Nacional de Estadística y Geografía; Canback Global Income Distribution Database; McKinsey Global Institute analysis

3. Calculating the capital gap

To estimate the gap in funding needs due to restricted access to capital, we use three main sources. We use the economic census from 2009 to estimate the total number of firms in each size cluster according to number of employees. We use World Bank Enterprise Survey data to estimate how well different types of companies are served with credit. The McKinsey Global Banking Profit Pools database was used to estimate total financing need as a percentage of a company's revenue. The estimate of a $60 billion credit gap for small and mid-sized enterprises is our rough measure of the gap between Mexico's current pool of bank credit to such businesses and the pool we would expect to see if SMEs that report facing credit constraints had access to standard levels of financing (defined as the average among the companies of their size that report being unconstrained). In simpler terms, we interpret this as the difference between what SMEs need and what they have access to today.



Bibliography

"500 Empresas de Expansión," *Expansión*, June 2013.

Alejandro, Guerrero, and César Rivera, "Mexico: Total productivity changes at the principal container ports," *CEPAL Review*, volume 99, December 2009.

Antmann, Pedro, *Reducing technical and non-technical losses in the power sector*, World Bank, July 2009.

Arias-Vazquez, Francisco Javier, Jean N. Lee, and David Newhouse, *The role of sectoral growth patterns in labor market development*, World Bank policy research working paper number 6250, October 2012.

Arizala, Francisco, Eduardo Cavallo, and Arturo Galindo, *Financial development and TFP growth: Cross-country and industry-level evidence*, Inter-American Development Bank working paper number 682, June 2009.

Ashby, Nathan, and Miguel A. Ramos, "Foreign direct investment and industry response to organized crime: The Mexican case," *European Journal of Political Economy*, volume 30, June 2013.

Atkin, David, *Endogenous skill acquisition and export manufacturing in Mexico*, NBER working paper number 18266, August 2012.

Busso, Matías, María Victoria Fazio, and Santiago Levy, *(In)formal and (un)productive: The productivity costs of excessive informality in Mexico*, Inter-American Development Bank working paper number IDB-WP-341, August 2012.

Busso, Matiás, Lucía Madrigal, and Carmen Pagés, *Productivity and resource misallocation in Latin America*, Inter-American Development Bank working paper number IDB-WP-306, April 2012.

Cabral, René, and Andre Varella Mollick, "Intra-industry trade effects on Mexican manufacturing productivity before and after NAFTA," *The Journal of International Trade & Economic Development: An International and Comparative Review*, volume 20, number 1, February 2011.

Castañeda, Sergio, "Los cuatro fantásticos del retail," *Alto Nivel*, December 2012.

Castellano, Martín, Ramón Aracena, and Julia Smearman, *Mexico: Lifting trend growth*, Institute of International Finance research note, October 2013.

Chiquiar, Daniel, and Manuel Ramos-Francia, *A note on Mexico and US manufacturing industries' long-term relationship*, Banco de México, working paper number 2008–08, July 2008.

Chiquiar, Daniel, and Manuel Ramos-Francia, *Competitiveness and growth of the Mexican economy*, Banco de México, working paper number 2009–11, November 2009.

Conferencia regional sobre smart grids, Secretaría de Energía de México (Secretariat of Energy, Mexico), October 2010.

Cogeneración de energía eléctrica en Petróleos Mexicanos, Pemex, October 2010.

De Andrade, Gustavo Henrique, Miriam Bruhn, and David McKenzie, *A helping hand or the long arm of the law? Experimental evidence on what governments can do to formalize firms*, World Bank policy research working paper number 6435, 2013.

De Hoyos, Rafael E., and Leonardo Iacovone, *Economic performance under NAFTA: A firm-level analysis of the trade-productivity linkages*, World Bank policy research working paper number 5661, May 2011.

Doing business 2014: Understanding regulations for small and medium-size enterprises, World Bank, October 2013.

Euromonitor International, *Packaged food in México*, January 2013.

Farrell, Diana, Antonio Puron, and Jaana K. Remes, "Beyond cheap labor: Lessons for developing economies," *McKinsey Quarterly*, February 2005.

Foster, Lucia, John Haltiwanger, and C. J. Krizan, *The link between aggregate and micro productivity growth: Evidence from retail trade*, NBER working paper number 9120, August 2002.

George, Katy, Sree Ramaswamy, and Lou Rassey, "Next-shoring: A CEO's guide," *McKinsey Quarterly*, January 2014.

Guthrie, Amy, "SABMiller: Mexico antitrust beer ruling 'did not go far enough,'" *The Wall Street Journal*, July 12, 2013.

Gutierrez, Eva, *Fostering sound financial sector development*, World Bank Mexico policy note–draft, July 28, 2012.

Haltiwanger, John C., Eric Bartelsman, and Stefano Scarpetta, *Microeconomic evidence of creative destruction in industrial and developing countries*, World Bank, 2004.

Hamilton, James D., *Historical oil shocks*, NBER working paper number 16790, 2011.

Hanson, Gordon H., *Understanding Mexico's economic underperformance*, Woodrow Wilson International Center for Scholars and Migration Policy Institute, August 2012.

Hanson, Gordon H., "Why isn't Mexico rich?" *Journal of Economic Literature*, volume 48, number 4, December 2010.

Haugh, David, Roselyne Jamin, and Bruno Rocha, *Maximising Mexico's gains from integration in the world economy*, OECD economic department working paper number 657, December 2008.

Hausmann, Ricardo, Cesar A. Hidalgo, Sebastian Bustos, Michele Coscia, Alexander Simoes, and Muhammed A. Yildirim, *The atlas of economic complexity: Mapping paths to prosperity*, Center for International Development, Harvard University, and Macro Connections, Massachusetts Institute of Technology Media Lab, 2011.

Hsieh, Chang-Tai, and Peter J. Klenow, *The life cycle of plants in India and Mexico*, NBER working paper number 18133, June 2012.

Hsieh, Chang-Tai, and Peter J. Klenow, "Misallocation and manufacturing TFP in China and India," *Quarterly Journal of Economics*, volume 124, number 4, November 2009.

Iacovone, Leonardo, Beata Smarzynska Javorcik, Wolfgang Keller, and James R. Tybout, *Supplier responses to Wal-Mart's invasion of Mexico*, NBER working paper number 17204, July 2011.

IHS SupplierBusiness, *The Mexican automotive supplier report*, 2012 edition.

Instituto Nacional de Estadística y Geografía (National Institute of Statistics and Geography, Mexico), *Censos económicos 1999*.

Instituto Nacional de Estadística y Geografía, *Censos económicos 2009*.

Isaksson, Anders, *World productivity database: A technical description*, UN Industrial Development Organization staff working paper number 10/2007, December 2007.

Kehoe, Timothy J., and Felipe Meza, "Catch-up growth followed by stagnation: Mexico, 1950–2010," *Latin American Journal of Economics*, volume 48, number 2, November 2011.

Levy, Santiago, "La política social que viene: Santiago Levy," *El Economista*, July 5, 2012.

Levy, Santiago, *Progress against poverty: Sustaining Mexico's Progresa-Oportunidades program*, Brookings Institution Press, 2006.

Lewis, William W., *The power of productivity: Wealth, poverty, and the threat to global stability*, University of Chicago Press, 2004.

Loayza, Norman V., and Luis Servén, eds., *Business regulation and economic performance*, World Bank, 2010.

Longid, Frank, "Wal-Mart probes Mexico license as NYT reports bribery," Bloomberg, Dec. 18, 2012.

López-Acevedo, Gladys, *Wages and productivity in Mexican manufacturing*, World Bank policy research working paper number 2964, January 2003.

Maccanico, Yasha, "Using the Italian crisis to impose control: A shift towards a fiscal surveillance state?" *Statewatch Journal*, volume 23, number 1, March 2013.

McKinsey Advanced Industries Practice, *Supplier perspective: How automotive suppliers create value*, 2012.

McKinsey Center for Government, *Education to employment: Designing a system that works*, December 2012.

McKinsey Global Institute, *Big data: The next frontier for innovation, competition, and productivity*, June 2011.

McKinsey Global Institute, *Disruptive technologies: Advances that will transform life, business, and the global economy*, May 2013.

McKinsey Global Institute, *Fueling sustainable development: The energy productivity solution*, October 2008.

McKinsey Global Institute, *Game changers: Five opportunities for US growth and renewal*, July 2013.

McKinsey Global Institute, *Growth and renewal in the Swedish economy*, McKinsey Global Institute, May 2012.

McKinsey Global Institute, *Infrastructure productivity: How to save $1 trillion a year*, January 2013.

McKinsey Global Institute, *Manufacturing the future: The next era of global growth and innovation*, November 2012.

McKinsey Global Institute, *New horizons: Multinational company investment in developing economies*, October 2003.

McKinsey Global Institute, *Open data: Unlocking innovation and performance with liquid information*, October 2013.

McKinsey Global Institute, *Ten IT-enabled business trends for the decade ahead*, May 2013.

McKinsey Global Institute, *Thailand: Prosperity through productivity*, February 2002.

McKinsey Global Institute, *Urban world: Cities and the rise of the consuming class*, June 2012.

McKinsey Sustainability and Resource Productivity Practice, *Pathways to a low-carbon economy: Version 2 of the global greenhouse gas abatement cost curve*, 2009.

McMillan, Margaret, and Dani Rodrik, *Globalization, structural change, and productivity growth*, International Food Policy Research Institute discussion paper number 01160, February 2012.

Mollick, André Varella, and René Cabral Torres, *Productivity effects on Mexican manufacturing employment before and after NAFTA*, Center for International Development, Harvard University, CID working paper number 152, November 2007.

Montes-Rojas, Gabriel, and Mauricio Santamaria, "Sources of productivity growth: Evidence from the Mexican manufacturing sector," *North American Journal of Economics and Finance*, volume 18, August 2007.

Mourshed, Mona, Chinezi Chijioke, and Michael Barber, *How the world's most improved school systems keep getting better*, McKinsey Social Sector Practice, November 2010.

Mourshed, Mona, Diana Farrell, and Dominic Barton, *Education to Employment: Designing a System that Works*, McKinsey Social Sector Practice, December 2012.

OECD economic surveys: Mexico 2011, OECD Publishing, May 2011.

OECD economic surveys: Mexico 2013, OECD Publishing, May 2013.

OECD review of regulatory reform: Mexico—Towards a whole-of-government perspective to regulatory improvement, OECD Publishing, June 2013.

Pagés, Carmen, ed., *La era de la productividad*, Banco Interamericano de Desarrollo, 2010.

Prospectiva del sector eléctrico 2011–2026, Secretaría de Energía de México (Secretariat of Energy, Mexico), 2012.

Reuters, "Mexico president sees foreign direct investment at record high," October 10, 2013.

Rubio, Luis, *Mexico matters: Change in Mexico and its impact upon the United States*, Wilson Center Mexico Institute, 2013.

Sislen, David, Taimur Samad, Sarah Anthony, Luke Haggarty, and Igor Artemiev, *Cutting red tape in Lima: How municipal simplification improves investment climate*, World Bank en breve number 99, January 2007.

Solís Manjarrez, Leopoldo, *La realidad económica mexicana: Retrovisión y perspectivas*, 3rd ed., México, El Colegio Nacional, Fondo de Cultura Económica, 2000.

Tavera, Jacqueline, and Carmen Murillo, "A dream of the few," *Expansión*, October 2013.

Wilson, Christopher E., Eric L. Olson, Miguel R. Salazar, Andrew Selee, and Duncan Wood, *New ideas for a new era: Policy options for the next stage in US-Mexico relations*, Wilson Center Mexico Institute, January 2013.

World Bank Enterprise Survey, 2010.

World Economic Forum, *The global competitiveness report 2012–2013: Full data edition*, 2012.

Related McKinsey Global Institute research



Game changers: Five breakout opportunities for US growth and renewal (July 2013)

MGI set out to look for catalysts that can reignite growth in the US economy. This report identifies five "game changers" that can add hundreds of billions of dollars to annual GDP and create millions of new jobs by 2020. These game changers present exceptional opportunities today due to changing factor costs, new technologies, and lessons on what policies work.



Online and upcoming: The Internet's impact on aspiring countries (January 2012)

This report explains how the Internet today connects about two billion people worldwide. Half of these are in the "aspiring world"—countries as varied as Algeria, South Africa, China, Iran, and Mexico. These rapidly developing economies have diverse populations and great economic potential. In these countries, the Internet offers even greater potential than in the developed world.



Urban world: The shifting global business landscape (October 2013)

The rise of developing economies is changing where and how the world does business. For the past three decades, they have been a source of low-cost but increasingly skilled labor. Their fast-growing cities are filled with millions of consumers, who provide a new growth market for global corporations at a time when much of the developed world faces slower growth as a result of aging and other factors.



Beyond Korean style: Shaping a new growth formula (April 2013)

South Korea is a global powerhouse, but slowing income growth and soaring costs for housing and private education are putting stress on the nation's middle class. The country can relieve these cost pressures through new home-financing schemes and education reforms—and can create new high-paying jobs by building up the service and small-business sectors.



Urban world tablet app (May 2013)

An unprecedented wave of urbanization is driving the most significant economic transformation in history, as the center of economic gravity shifts decisively east. MGI's new app offers an intuitive sense of this new urban world, showcasing GDP, population, and income levels for more than 2,600 cities worldwide in 2010 and 2025. Available for iPad, iPhone, and Android.

www.mckinsey.com/mgi

E-book versions of selected MGI reports are available at MGI's website, Amazon's Kindle bookstore, and Apple's iBookstore.

Download and listen to MGI podcasts on iTunes or at www.mckinsey.com/mgi/publications/multimedia/

McKinsey Global Institute
March 2014
Copyright © McKinsey & Company
www.mckinsey.com/mgi
@McKinsey_MGI
McKinseyGlobalInstitute