

The  
Prosperity  
Paradox

How Innovation Can Lift  
Nations Out of Poverty

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FIRST EDITION

#### Library of Congress Cataloging-in-Publication Data

Names: Christensen, Clayton M., author. | Ojomo, Efosa, author. | Dillon, Karen (Editor), author.

Title: The prosperity paradox / Clayton M. Christensen, Efosa Ojomo, and Karen Dillon.

Description: First edition. | New York, NY : HarperBusiness, [2019] |

Includes bibliographical references and index.

Identifiers: LCCN 2018028690 | ISBN 9780062851826 (hardcover)

Subjects: LCSH: Economic development. | Wealth. | Poverty.

Classification: LCC HD82 .C5224 2019 | DDC 339.2—dc23 LC record available at <https://lcn.loc.gov/2018028690>

19 20 21 22 23 LSC IO 9 8 7 6 5 4 3 2 1

# Preface

## NOTES

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1. OECD stands for Organization for Economic Cooperation and Development, and is a group of thirty-five member nations, including the United States, France, Germany, and several of the world's most developed countries. "About the OECD: Members and Partners," OECD, accessed January 16, 2018, <http://www.oecd.org/about/membersandpartners/#d.en.194378>.

2. Fareed Zakaria, "Give South Korea a Gold Medal," *Washington Post*, February 8, 2018, [https://www.washingtonpost.com/opinions/give-south-korea-a-gold-medal/2018/02/08/76be5e7e-0d1a-11e8-8890-372e2047c935\\_story.html?utm\\_term=.ac6f9aa492cf](https://www.washingtonpost.com/opinions/give-south-korea-a-gold-medal/2018/02/08/76be5e7e-0d1a-11e8-8890-372e2047c935_story.html?utm_term=.ac6f9aa492cf).

3. For example, in today's dollars, America's annual income per capita in that era was approximately \$3,363, Angola's today is \$3,695, Mongolia's is \$3,694, and Sri Lanka's is \$3,844. Unless otherwise stated, GDP per capita numbers are based on 2016 figures and are retrieved from the World Bank. "GDP per capita (current US \$)," Data, The World Bank, accessed February 5, 2018, <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=AO-MN-LK>.

4. Michael Haines, "Fertility and Mortality in the United States," Economic History Association, accessed January 16, 2018, <https://eh.net/encyclopedia/fertility-and-mortality-in-the-united-states/>.

"Mortality rate, infants (per 1,000 live births)," The World Bank, accessed February 21, 2018, <https://data.worldbank.org/indicator/SP.DYN.IMRT.IN>.

5. Much has been written about the question of how the West became prosperous and, more generally, how poor countries can become prosperous. We recognize that there is a large body of important work in this field. Several books and papers provide very important insight to these questions. The fundamental work is Joseph Schumpeter's *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle* (1934, translated from the original 1911 German transcript). In this book, Schumpeter helps us see clearly the role of innovation and the entrepreneur in economic development. As entrepreneurs innovate, or create new products or new methods of production, they disturb the "circular flow" in an economy, a process which describes a state of equilibrium in society. Although this perpetual "disturbance"—a process marked by new innovations—does come with some measure of instability and uncertainty, the end result is often a more prosperous society. For example, the car destabilized the horse and carriage and electric railcars, but has made us more prosperous. For Schumpeter, entrepreneurs—the Henry Fords of the world—are the stars in the economic development story. As you'll read throughout this book, we certainly agree.

In the last half century, must-reads for those interested in the ascendancy of the West include Douglass North and Robert Thomas's *The Rise of the Western World*:

*A New Economic History* (1973), Nathan Rosenberg's and Luther E. Birdzell's *How the West Grew Rich: The Economic Transformation of the Industrial World* (1986), and David Landes's *The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor* (1999). David Landes provides rich economic history and stresses several factors, including geography and culture, that helped Europe prosper. North and Thomas summarize their argument as follows, "Efficient economic organization is the key to growth; the development of an economic organization in Western Europe accounts for the rise of the West." In essence, they helped bring to light the importance of institutions and property rights.

In addition, several seminal papers have shed light on this topic. For instance, we have learned from Robert Lucas's *Making a Miracle* (1993), Ricardo Hausmann and Dani Rodrik's *Economic Development as Self-Discovery* (2002), and Richard Nelson and Edmund Phelps's *Investment in Humans, Technological Diffusion, and Economic Growth*. In their own way, each of these economists have helped simplify, in varying degrees, the complexity inherent in the topic of economic growth and development. This has helped us better understand some of the ingredients necessary for sustained economic growth. Robert Lucas helps us understand the importance of on-the-job "learning by doing" in increasing the productivity of economies. Lucas additionally explains that the main features of the East Asian miracles have all "involved sustained movement of the workforce from less to more sophisticated products," beyond increased efficiencies in the production of existing products. Hausmann and Rodrik explain that, while it is important for entrepreneurs within a country to learn what they're good at making, the social returns often outweigh the private returns. This is because, on paper, firms that learn how to develop innovations that can solve a societal problem can be easily copied by "second-entrants," which has the effect of strongly diluting *a priori* incentives to take on the arduous work of developing the innovation in the first place. As such, this makes investments in the kind of learning that leads to structural economic change difficult. In these circumstances, development professionals and policy makers can play a significant role. Nelson and Phelps focus on human capital and technology diffusion. In effect, they hypothesize that "in a technologically progressive or dynamic economy, production management is a function requiring adaption to change and that the more educated a manager is, the quicker he will be to introduce new techniques of production."

In this book we focus on the impact that market-creating innovations have on creating and sustaining economic prosperity. In Chapter 2, we provide both a definition and a categorization for the word innovation, and explain how different types of innovation impact economies.

6. Press Release, "World Bank Forecasts Global Poverty to Fall Below 10% for First Time; Major Hurdles Remain in Goal to End Poverty by 2030," The World Bank, October 4, 2015, <http://www.worldbank.org/en/news/press-release/2015/10/04/world-bank-forecasts-global-poverty-to-fall-below-10-for-first-time-major-hurdles-remain-in-goal-to-end-poverty-by-2030>.

7. In some ways, China's meteoric development over the past fifty years won't

come as a surprise to students of history. The wheelbarrow, soil science, cardboard, the magnetic compass, deep drilling for natural gas, knowledge of circulation of blood, paper and printing, gun powder, and hundreds of other inventions are attributed to the Chinese. It was the Europeans who were playing catch up in the Middle Ages. In the 1500s for instance, China's economy accounted for 25% of global GDP. But by 1950, it was only 5%. Today, however, as China is making a comeback, its share of global GDP hovers around 19%.

Still, China's recent economic growth is spectacular, especially considering the hundreds of millions of people who have been lifted out of poverty. The conventional story of China's growth is that discontinuities in policy initiated by Deng Xiaoping in the late 1970s unleashed the previously dormant economic giant. This is certainly true to a point. However, it is not possible to tell the story of China's rise without emphasizing the initiative of entrepreneurs and other citizens. MIT's Yasheng Huang explains that China's economic policy in the 1980s actually favored entrepreneurship and market-driven solutions as we saw a significant rise in Town and Village Enterprises in the country. He calls the 1980s "the Entrepreneurial Decade." However, by the 1990s, the country's economic policy shifted more toward a state-led, top-down approach with the rise of many state-owned enterprises. While the economy still grew, Huang explains that this type of growth was not as robust and inclusive as China's growth in the 1980s.

Even then, we still see China on the ascent. Just recently, the *Washington Post* published a piece titled "China increasingly challenges American dominance of science." The authors note that an increasing number of scientists in some of the most prestigious institutions in the United States are leaving to set up labs in China. Although the United States still spends roughly half a trillion dollars on scientific research annually, China is close behind and is on track to surpass the US by the end of 2018. And for the first time, in 2016, annual scientific publications from China outnumbered those from the United States. China's economy is a far cry from where it was in the 1960s and 1970s, and seems to be returning to its dominance in the yesteryears.

Yasheng Huang, *Capitalism with Chinese Characteristics: Entrepreneurship and the State* (New York: Cambridge University Press, 2008).

Ben Guarino, Emily Rauhala, and William Wan, "China increasingly challenges American dominance of science," *Washington Post*, June 3, 2018, [https://www.washingtonpost.com/national/health-science/china-challenges-american-dominance-of-science/2018/06/03/c1e0cfe4-48d5-11e8-827e-190efaf1f1ee\\_story.html?noredirect=on&utm\\_term=.99a54422d595](https://www.washingtonpost.com/national/health-science/china-challenges-american-dominance-of-science/2018/06/03/c1e0cfe4-48d5-11e8-827e-190efaf1f1ee_story.html?noredirect=on&utm_term=.99a54422d595).

Philip Auerswald, "China's sudden fall and slow recovery," *New York Times*, August 11, 2008, <https://www.nytimes.com/2008/08/11/opinion/11iht-edauerswald.1.15175911.html>.

8. In 1990, there were approximately 282 million people living in poverty, representing about 55 percent of sub-Saharan Africa's population. In 2013, that number was 401 million, roughly 42 percent of the population. "Poverty head-count ratio at \$1.90 a day (2011 PPP)," Data, The World Bank, accessed March 13, 2018, <http://povertydata.worldbank.org/poverty/region/SSF>.

9. Deirdre McCloskey's *Bourgeois* series provides a detailed overview of economic history and an analysis of the many suggested causes of economic growth. In the second of the three, *Bourgeois Dignity: Why Economics Can't Explain the Modern World*, McCloskey details many of the widely held theories—institutions, transportation infrastructure, foreign trade, slavery, thrift, capital accumulation, the Protestant work ethic, expropriation, human capital (education), geography or natural resources, science, and a few others—on what might have caused the economic transformation brought about by the Industrial Revolution and suggests that they all miss the mark. This particular 592-page volume explains why, as interesting and plausible as all these explanations seem, they are not responsible for bringing us toilets, air conditioners, automobiles, and mobile phones. Deirdre McCloskey, *Bourgeois Dignity: Why Economics Can't Explain the Modern World* (Chicago: University of Chicago Press, 2010), 34–35.

10. This amount does not include private funds spent by some of the world's heavily endowed foundations and organizations, such as the Bill and Melinda Gates Foundation, the Skoll Foundation, the Omidyar Network, and many others.

"ODA 1960-16 Trends," Official Development Assistance 2016, Compare Your Country, accessed February 1, 2018, <http://www2.compareyourcountry.org/oda?cr=20001&lg=en&page=1#>.

11. Many of the countries in the above table have received official development assistance for poverty eradication programs from the World Bank and several other development institutions. Niger, for instance, has received \$2.9 billion worth of World Bank aid since 1964, but in 2015 its per capita income was less than half what it was in the 1960s. "Urban Water and Sanitation Project," The World Bank, <http://www.worldbank.org/projects/P117365/urban-water-sanitation-project?lang=en>.

12. Jamie Skinner, "Why every drop counts: tackling rural Africa's water crisis," IIED briefing, accessed February 1, 2018, <http://pubs.iied.org/pdfs/17055IIED.pdf>.

# An Introduction to the Prosperity Paradox

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## NOTES

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1. Now part of Bharti Airtel Limited.
2. “Number of unique mobile subscribers in Africa surpasses half a billion, finds new GSM study,” GSMA, accessed February 1, 2018, <https://www.gsma.com/newsroom/press-release/number-of-unique-mobile-subscribers-in-africa-surpasses-half-a-billion-finds-new-gsma-study/>.
3. By “market,” we mean *a system that enables the making, buying, and selling of a product or service*.
4. “Aid at a glance charts,” Development Finance Statistics, OECD, accessed April 23, 2018, <http://www.oecd.org/dac/stats/aid-at-a-glance.htm>.
5. Clayton Christensen, *The Innovator’s Dilemma: When New Technologies Cause Great Firms to Fail* (New York: HarperCollins Publishers, 2000).

This definition is consistent with Schumpeter’s writing in *The Theory of Economic Development* defining innovation as taking an invention and placing it firmly into a market, a process which leads to *development* or *the production of new combinations*. In Chapter 2, Schumpeter writes, that “to produce means to combine materials and forces within our reach. To produce other things, or the same things by a different method, means to combine these materials and forces differently” (65). This is important because innovation is often mistaken for invention, or something entirely new. For the purpose of economic development, this isn’t the case. According to Schumpeter, one of the illustrations of this process of combination is “the opening of a new market, that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before.” In essence, it does not matter that something existed in another country in so far as it is new to the country where it is being introduced, it is bound to have development impact.

Ricardo Hausmann at Harvard and César Hidalgo at MIT provide data showing that the prosperity of an economy is directly correlated with the amount of know-how in the nation. In their research, they refer to this concept as “economic complexity,” which is a “measure of the amount of capabilities and know-how that goes into the production of any given product. Products are vehicles for knowledge. [Their] theory and supporting empirical evidence explain why the accumulation of productive knowledge is the key to sustained economic growth.” But

accumulating productive knowledge is not easy, and is often quite expensive. In addition, knowledge accumulation is not enough, it must be dynamic accumulation. Sidney Winter at the Wharton School of Business at the University of Pennsylvania has written extensively about the evolution of organizational capabilities. His research helps explain that one of the reasons for business success is an organization's ability to develop dynamic capabilities. But he also explains that developing those capabilities is no easy feat. See *Toward a Neo-Schumpeterian Theory of the Firm* (1968), *Understanding Dynamic Capabilities* (2003), and *Deliberate Learning and the Evolution of Dynamic Capabilities* (2002).

Joseph A. Schumpeter, *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle* (Cambridge: Harvard University Press, 1934), 65.

Ricardo Hausmann et al., *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, 2nd ed. (Cambridge: MIT Press, 2013).

6. We delve into more detail about this in Chapters 8 and 9, which tackle *institutions* and *corruption* respectively, but consider how Mancur Olson put it in his book, *Power and Prosperity*: “When we shift from what is best for prosperity to what is worst, the consensus would probably be that when there is a stronger incentive to take than to make—more gain from predation than from productive and mutually advantageous activities—societies fall to the bottom.” Olson then goes on to highlight the virtues and importance of entrepreneurship, due to the unpredictable nature of society. He writes, “Because uncertainties are so pervasive and unfathomable, the most dynamic and prosperous societies are those that try many, many different things. They are societies with countless thousands of entrepreneurs who have relatively good access to credit and venture capital. There is no way a society can predict the future, but if it has a wide enough span of entrepreneurs able to make a broad enough array of mutually advantageous transactions, including those for credit and venture capital, it can cover a lot of the options—more than any single person or agency [or government] could ever think of.” In effect, if we harness the power of entrepreneurs to develop more and more market-creating innovations, this can—and indeed does—lead to better and better governance.

Mancur Olson, *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships* (New York: Basic Books, 2000), 1, 188-189.

Iqbal Quadir, who founded the Legatum Center for Development and Entrepreneurship at MIT, puts it this way in his article in the *Innovations* journal, “Western intellectuals from Adam Smith to Georg Simmel to Max Weber have recognized that commerce has positively transformed governments, cultures, and behavior by making people more rational and mutually accountable.”



# Not All Innovations Are Created Equal

## NOTES

1. Ronald Coase, “Address at Markets, Firms and Property Rights: A Celebration of the Research of Ronald Coase Conference,” published on April 20, 2012, video, 25:40, <https://www.youtube.com/watch?v=ZAqo6n79QIs>.

2. Christensen, Raynor, and McDonald (2015) offer a concise summary: “Disruption describes a process whereby a company with fewer resources is able to successfully challenge established incumbent businesses. Specifically, as incumbents focus on improving their products and services for their most demanding (and usually most profitable) customers, they exceed the needs of some segments and ignore the needs of others. Entrants that prove disruptive begin by successfully targeting those overlooked segments, gaining a foothold by delivering more-suitable functionality—frequently at a lower price. Incumbents, chasing higher profitability in more-demanding segments, tend not to respond vigorously. Entrants then move upmarket, delivering the performance that incumbents’ mainstream customers require, while preserving the advantages that drove their early success. When mainstream customers start adopting the entrants’ offerings in volume, disruption has occurred.” The type of innovation most likely to be disruptive is market-creating innovation (as we’ll see in examples throughout this book).

See also Clayton M. Christensen, *The Innovator’s Dilemma: When New Technologies Cause Great Firms to Fail* (Boston: Harvard Business School Press, 1997).

3. In a 2017 World Bank publication titled *The Innovation Paradox: Developing-Country Capabilities and the Unrealized Promise of Technological Catch-Up*, authors Xavier Cirera and William F. Maloney suggest that “innovation capacity appears to be the more critical policy priority for economic development.” The report goes on to suggest that “equating innovation policy to frontier science and technology policy will lead to frustration and waste if the firm dimension is neglected . . . without a corps of capable firms to take these ideas to market, these investments will yield little in terms of growth.” Our hope is that the categorization we offer here helps further the Bank’s work and helps us better understand how important firms are to economic development.

Xavier Cirera and William F. Maloney, *The Innovation Paradox: Developing-Country Capabilities and the Unrealized Promise of Technological Catch-Up* (Washington, DC: World Bank), doi:10.1596/978-1-4648-1160-9. License: Creative Commons Attribution CC BY 3.0 IGO.

4. The World Economic Forum publishes an annual report titled “Global Competitiveness Report,” where the organization ranks countries based on their competitiveness. One of the metrics used to measure a country’s competitiveness is its “innovation.” Institutions, infrastructure, health, and education are others. For assessing a country’s innovation, the report measures things such as investment in research and development, patent applications, and a country’s ability to provide new or unique products.

Alex Gray, “These are the ten most innovative countries in the world,” *World Economic Forum*, October 11, 2017, <http://www.weforum.org/agenda/2017/10/these-are-the-10-most-innovative-countries-in-the-world/>.

5. Understanding how different types of innovations impact an economy is critical because there are several distinct actors in an economy. My friend Lant Pritchett, a highly respected former World Bank economist and professor of International Development at Harvard’s Kennedy School of Government, provided me with a helpful conceptual framework for thinking about why poor economies have such a difficult time breaking out of their economic rut—and where innovation might make a profound difference. Pritchett identifies four primary entities in an economy: what he calls “rentiers,” “magicians,” “power brokers,” and “workhorses.”

**Rentiers** are resource extraction or agricultural firms that mainly export to world markets. They are often subject to regulatory rents. Think oil companies and diamond miners. **Magicians** are exporters that operate in highly competitive global industries. Think of the factory owners that make commoditized T-shirts and jeans. **Power brokers** are those firms that work in the domestic sector, but are also subject to “regulatory rents.” These are the big construction companies, the hoteliers who own or manage expensive hotels, the port operators, and the electricity providers. And finally, the **workhorses**. These are the less-than-glamorous firms that operate in the highly competitive domestic environments. From the petty trader on the side of the road to the hairdresser in her home, these make up a majority of the world’s poor. They are workhorses.

“Regulatory rents are defined as those derived from some discretionary action of government, such as: offering licenses for commercial use of a resource (e.g. mining); bestowing firm-specific (rather than industry-specific) tax advantages; market exclusivity; or application of applicable regulations. It could also be derived from deliberate government inaction, such as permitting monopolies to charge prices significantly above marginal cost, or not enforcing anti-trust law or pursuing competitive markets when it would be appropriate for consumer welfare.”

Lant Pritchett, Kunal Sen, and Eric Werker, *Deals and Development: The Political Dynamics of Growth Episodes* (Oxford: Oxford University Press, 2018).

6. We view economics as a nested system. The global economy contains national economies, which are composed of industries, which in turn contain corporations. Corporations are composed of business units, which are organized around teams, which define how employees coordinate their work. Employees, in turn, make and sell products and services to consumers, who have preferences that define what they will and will not do. Scholars in the two traditional branches of economics—macro and micro—build models of how the global and national systems work on the one end, and at the other end how individuals prioritize and make decisions. However, most economic activity actually occurs somewhere between these two ends of the nested system: namely, in companies. Aside from welfare payments and people employed in government entities, companies essentially *are* the economy. Companies create and eliminate jobs, and pay wages and taxes. They implement government policy. They choose to invest or not invest. They respond to changes in interest rates. Companies build economies' infrastructure, and in many ways companies *are* our infrastructure.

7. Economists have long understood the importance of innovation, or what they often refer to as *technical change*, in spurring economic growth. For example, in 1956, Stanford economist Moses Abramovitz published a landmark paper, "Resource and Output Trends in the United States Since 1870," that highlighted the link between innovative activity and long-term economic development. In his paper, Abramovitz analyzed the United States' growth from 1870 to 1950 and found that capital and labor accounted for roughly 15 percent of the growth. Productivity or what is now called technology, innovation, or technical innovation, he asserted, accounted for the remaining 85 percent. Abramovitz wrote that "since we know little about the causes of productivity increase, the indicated importance of this element may be taken to be some sort of measure of our ignorance about the causes of economic growth in the United States and some sort of indication of where we need to concentrate our attention."

Moses Abramovitz, "Resource and Output Trends in the United States Since 1870," *National Bureau of Economic Research* (1956), <http://www.nber.org/chapters/c5650.pdf>.

In parallel, Massachusetts Institute of Technology's Robert Solow also reached a similar conclusion as Abramovitz while using different methods and analyzing different time periods. Among Solow's works is a 1957 article, "Technical Change and the Aggregate Production Function," that sheds light on the impact that technological innovation can have on economic growth. Solow was awarded the Nobel Prize in Economics in 1987 for his contributions to the world's understanding of

economic growth. After this insight, the quest to further understand how technological innovation impacted economic growth, and the belief that it did, took off.

Robert Solow, “Technical Change and the Aggregate Production Function,” *The Review of Economics and Statistics* 39, no. 3 (August 1957), 312–320, <https://faculty.georgetown.edu/mh5/class/econ489/Solow-Growth-Accounting.pdf>.

Economists have traditionally looked at growth through the lens of productivity: aggregating all the assets in an economy and multiplying that by a production (or an innovation) function. While mathematically valid, thinking about growth through the benchmark of productivity is less helpful when thinking about policies and programs for economies that are made of people with varying capabilities and cultures, and living in different contexts.

8. In most poor countries, the distribution of money, power, and influence tips disproportionately to the rentiers and power brokers. They run the economies and have little to no incentive to change the system. The majority of the poor—the workhorses, in Pritchett’s language—in our world toil and labor incessantly only to find themselves perpetually living a life of struggle and suffering. The question then becomes, how do we give more power and influence to the workhorses?

Or maybe a better question to ask is how do we find and nurture, to borrow Pritchett’s metaphor, a few “thoroughbreds” among the workhorses—companies that have the potential to create a new market through innovation and scale? We call them “thoroughbreds” because they are the individuals or organizations that can develop market-creating innovations with the potential to change the dynamics of an economy.

9. This is unlike what Sir Thomas Lipton did in 1890 when he purchased a tea garden in modern-day Sri Lanka and began producing tea. Sir Lipton thought the price of tea was too high and that he could offer it for less money to many more tea drinkers.

10. There are instances when companies include features in a new product, charge more, but find many new consumers ready to pull said product into their lives. This tends to happen when the new feature has the potential to upend or displace an existing product on the market. For example, when Apple added the global positioning satellite (GPS) feature to its phones, the company effectively rendered the use of stand-alone GPS devices obsolete.

11. “Toyota Camry Awards,” 2018 Camry Overview, Toyota, accessed February 16, 2018, <https://www.toyota.com/camry/awards>.

12. It is important to note that, at one point, models of the Toyota Camry were growing exponentially in the United States, but over time the market saturated and sales began to level out. In other words, the Camry filled out the concentric circle where it was targeting new customers who could afford its product, and now it struggles for market share with other brands such as Honda's Accord or Hyundai's Sonata.

"Monthly and annual sales figures for the Toyota Camry in the US," Toyota Camry, Carsalesbase.com, accessed February 16, 2018, <http://carsalesbase.com/us-car-sales-data/toyota/toyota-camry/>.

13. The "resource curse"—a phenomenon that explains how many nations endowed with natural resources such as oil, gas, gold, diamonds, and many others often end up with less democracy, less economic growth, and effectively less prosperity than nations without these natural resources—has been widely studied in economics. It is sometimes referred to as the "paradox of plenty." In using resource extraction as an example here, we don't focus on the already widely studied macroeconomic effects of natural resources endowments. Instead, we focus on the profit-maximization and cost-reduction incentives of a typical manager in this industry who finds herself selling commodities for which the global market sets a price. For more on the resource curse, see Jeffrey Frankel's paper, *The Natural Resource Curse: A Survey* (2010).

14. "U.S. Field Production of Crude Oil," Petroleum and Other Liquids, U.S. Energy Information Administration, accessed April 6, 2018, <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPUS2&f=A>.

15. "Employment, Hours, and Earnings from the Current Employment Statistics Survey (National)," Databases, Tables & Calculators by Subject, Bureau of Labor Statistics, accessed April 6, 2018, <https://data.bls.gov/pdq/SurveyOutputServlet>.

16. Micheal Eboh, "Unemployment: Oil sector employs 0.01% of Nigerian workforce," *Vanguard*, June 3, 2014, <http://www.vanguardngr.com/2014/06/unemployment-oil-sector-employs-0-01-nigerian-workforce/>.

17. Iqbal Quadir of MIT explains it this way: "Every innovation spurs a complex chain of reactions, but entrepreneurs push consistently toward lower costs and larger markets. This saves known resources or creates new ones, puts price pressures on existing products, and engages more people in the economy." He later goes on to write that "today's innovations may show up in unexpected ways and places, but they follow the same pattern and are no less spectacular than they were in Henry Ford's

day.” In effect, as entrepreneurs make products simpler and more affordable, more and more people in society not only buy and use them, but also are employed in their creation. This process leads to a more vibrant and prosperous economy.

Iqbal Quadir, “Inclusive Prosperity in Low-Income Countries,” *Innovations* 9, no. 1/2 (2014): 65-66.

18. Apple’s iPhone is often pointed to as an example of the vulnerability of global jobs—there’s even an inscription on the back of every iPhone: *Designed by Apple in California. Assembled in China*. But the iPhone actually provides a better illustration of the importance of local jobs that can’t be easily shopped around to the lowest bidder. “Designed” actually encompasses an array of local jobs that have to be done near Apple’s home base in California. It includes the work of thousands of engineers and scientists who scour the globe developing new materials; the product managers, who conduct market research and generate product requirements; and the retail staff trained to introduce and explain the devices to end consumers. “Apple creates value, and thus U.S. jobs, through the design and development of its products, not because of where they’re built,” a recent analysis in *Bloomberg Businessweek* concluded. “All these aspects are part of the iPhone’s product design, and explain how Apple can charge significant mark-ups and take the lion’s share of the industry’s profits. Its 38 percent gross margin puts the rest of the smartphone market to shame.”

19. According to data from the World Bank, global net foreign portfolio investments (FPI) were approximately \$173 billion. These investments are more short-term, liquid, and volatile. FPIs target equities, bonds, and other financial assets. The absolute value (inflows and outflows) totaled just under \$2.4 trillion. So, even if we accounted for the shorter-term FPI, it is clear that the amount of cross-border investments is a very small percentage of the global assets under management.

20. Matt Harding, “Op-Ed: The Internet will fail and the TV will never compete with the radio,” *Digital Journal*, April 25, 2010, <http://www.digitaljournal.com/article/291152>.

21. A study conducted by Christopher Blattman at Columbia University and Jeannie Annan of the International Rescue Committee suggests that providing job training and employment opportunities could help curb crime in a region. On the surface, it makes sense. The more legitimate opportunities people in a community have to solve the problems that engaging in crime enables them to solve, such as providing the resources necessary to live a comfortable life, the less likely they are to engage in

crime. If you look at some of the most crime-infested areas in our world, even in the United States, they are often areas where many are devoid of opportunity. While this is not the only reason people engage in crime, it is often a major one. The study found that a wage boost of as little as 40 cents a day was enough to entice former Liberian mercenary soldiers to shift more time toward their new (honest) occupation and away from violence or other criminal activities. And the assurance that more earnings would arrive in the future was particularly effective in combating illegal activity.

Gillian B. White, "Can Jobs Deter Crime?," *The Atlantic*, June 25, 2015, <https://www.theatlantic.com/business/archive/2015/06/can-jobs-deter-crime/396758/>.

22. Ibid.

23. Milton Friedman, "Milton Friedman on Charlie Rose," video, 53:57, <https://charlierose.com/videos/19192>.

# In the Struggle Lies Opportunity

Organization/Innovation	Nonconsumption and Impact
<b>Safaricom/M-PESA</b> —a mobile money platform that enables the storage, transfer, and saving of money without owning a bank account	<p><b>Nonconsumption:</b> More than 85 percent of Kenyans did not have access to banking services before M-PESA. It took the Kenyan banking system more than one hundred years to build roughly 1,200 bank branches in the country.</p> <p><b>Impact:</b> More than twenty-two million Kenyans have pulled M-PESA into their lives since its release in 2007. The service currently transacts upward of \$4.5 billion monthly. More than forty thousand M-PESA agents now exist across Kenya, increasing their incomes as a result. Millions of Kenyans can now access other financial services products, such as loans and insurance. These products were historically unavailable to them.</p>
<b>Tolaram/Indomie noodles</b> —a tasty, inexpensive, and easy-to-cook meal that can be prepared in less than three minutes	<p><b>Nonconsumption:</b> With tens of millions of Nigerians living on less than \$2 a day, the ability to afford three meals a day is difficult for many in the country.</p> <p><b>Impact:</b> Tolaram now sells more than 4.5 billion packets of noodles in Nigeria annually. The company runs thirteen manufacturing plants, has enabled tens of thousands of jobs, has invested over \$350 million in Nigeria, and contributes tens of millions of dollars to the Nigerian economy annually. Before the company began selling noodles in Nigeria, few Nigerians had heard of the food.</p>
<b>Celtel/mobile telephony</b> —a pay-as-you-go mobile phone service that enables customers to purchase cell phone minutes for as little as 25 cents	<p><b>Nonconsumption:</b> In 2000, of the eight hundred million people who lived in Africa, approximately 2.5 percent, fewer than twenty million, had mobile phones. The Democratic Republic of Congo, for instance, with a population of more than fifty-five million people, had only three thousand phones. There were fewer than one million telephone lines for Nigeria's 126 million people.</p> <p><b>Impact:</b> The telecommunications market in Africa today adds more than \$150 billion to the African economy annually. By 2020, the industry is forecast to support 4.5 million jobs, provide \$20.5 billion in taxes, and add more than \$214 billion of value to African economies.<sup>14</sup> The proliferation of mobile telephony has also enabled other technologies, such as M-PESA's mobile money platform and Micro-Ensure's insurance services. It is now being leveraged as an education platform and used to provide mobile health services as well.</p>



Organization/Innovation	Nonconsumption and Impact
<p><b>Galanz/microwave ovens</b>—an inexpensive microwave oven (~\$45) for the average Chinese citizen</p>	<p><b>Nonconsumption:</b> In the early 1990s, there were fewer than one million microwave ovens in China. China's population then was over 1.1 billion people.</p> <p><b>Impact:</b> From fewer than one million microwaves in the early 1990s in China, today more than thirteen million microwave ovens are sold domestically in China. Galanz has a 43 percent market share of the microwave oven market. The company employs more than forty thousand people and has now ventured into air conditioners, refrigerators, washing machines, dishwashers, and several other household appliances. As a result of the proliferation of microwave ovens in China, the frozen foods industry has also boomed. Some estimates suggest it has reached more than \$10 billion. Think about all the jobs, productivity, income, regulations, and development that supports.</p>
<p><b>Fyodor Biotechnologies/urine malaria test (UMT)</b>—a nonblood malaria test that costs less than \$2 and gives results in less than twenty minutes</p>	<p><b>Nonconsumption:</b> More than two hundred million people annually contract malaria globally. In the regions still susceptible to malaria, whenever most people get a fever, they immediately assume it is malaria and take malaria medications. In order to properly diagnose the disease, sick patients must visit a doctor for a blood test, something many cannot afford. Annually, over five hundred million laboratory blood tests are performed globally.</p> <p><b>Impact:</b> The Fyodor UMT solves this problem by providing a simple noninvasive way to diagnose malaria so that people don't falsely medicate fevers that don't end up being malaria. Even though Fyodor is new and recently released the UMT, the company is already ramping up the production and distribution of this test so it can reach millions of people for whom a simple malaria test is not possible.</p>
<p><b>Ford Motor Company/Ford Model T</b>—an affordable car for the average American</p>	<p><b>Nonconsumption:</b> In 1900, there were only eight thousand cars registered in the United States. Typical cars back then were very difficult to drive and only wealthy Americans could afford them.</p> <p><b>Impact:</b> From 1909 to 1924, Ford sold more than ten million cars, fundamentally changing the landscape of America. He created tens of thousands of jobs, paid better wages than the competition, and initiated some social programs for employees. The Model T also spurred other industries, such as insurance, distribution, and home and road construction, as people were able to move out to suburbs. It was a game changer.</p>

Organization/Innovation	Nonconsumption and Impact
<p><b>EarthEnable/earthen floors</b>—affordable hardened floors that are one-fifth the cost of cement</p>	<p><b>Nonconsumption:</b> More than 80 percent of homes in Rwanda have dirt floors. These floors are breeding grounds for mosquitoes and many other parasites. Concrete floors would be a solution, but they are just too expensive for most Rwandans, where the GDP per capita is just \$703.</p> <p><b>Impact:</b> Although just a few years old, Earth-Enable has already provided more than half a million square feet of flooring in over three hundred villages in Rwanda.</p>
<p><b>Clinicas del Azúcar/diabetes treatment</b>—affordable and convenient diabetes treatment in Mexico</p>	<p><b>Nonconsumption:</b> Today, diabetes is the number one cause of death and amputations in Mexico, claiming the lives of more than eighty thousand people annually. Since 1990, the number of Mexicans with diabetes has more than tripled from 5.6 million to more than 16 million. But the \$1,000-a-year treatment is too expensive for most Mexicans, and the health-care delivery system is also very inconvenient.</p> <p><b>Impact:</b> Clinicas del Azúcar has reduced the cost of diabetes treatment from \$1,000 to roughly \$250 a year. Their integrated solution has also resulted in a 60 percent reduction in diabetes-related complications, such as blindness, amputations, and kidney failure. 95 percent of the more than fifty thousand patients they have treated had never received specialized diabetes care. They are opening two new clinics every three months.</p>
<p><b>Grupo Bimbo/bread</b>—affordable, quality bread</p>	<p><b>Nonconsumption:</b> Quality affordable bread was hard to find in Mexico before Grupo Bimbo, the world's largest bakery, decided to create a new market for different breads that targeted the average Mexican.</p> <p><b>Impact:</b> Today, Grupo Bimbo grosses more than \$14 billion annually, operates 165 plants in 22 countries, and employs more than 128,000 people globally. With a market capitalization of over \$11 billion, Bimbo also owns more than one hundred brands and sells its products in Ecuador, Colombia, and Peru, as well as in the United States, the United Kingdom, and China. The company pays its lowest-paid employee more than double the minimum wage in Mexico.</p>

Organization/Innovation	Nonconsumption and Impact
<p><b>Opticas Ver De Verdad/prescription lenses</b>—affordable prescription lenses and eye-care services for the average Mexican</p>	<p><b>Nonconsumption:</b> Approximately 43 percent of Mexicans have a visual deficiency for which they need corrective eyeglasses. Existing solutions, which on average cost \$75, are too expensive. So many Mexicans go without glasses, effectively living without good sight.</p> <p><b>Impact:</b> Since opening its first store in December 2011, Ver De Verdad has performed more than 240,000 eye tests and has sold over 150,000 pairs of glasses. With an average sale price of approximately \$17 per frame, the company is making bad eyesight a thing of the past in Mexico. It plans to operate over 330 stores across the country by 2020.</p>
<p><b>MicroEnsure/insurance</b>—affordable insurance for millions of people living on less than \$3 a day</p>	<p><b>Nonconsumption:</b> Insurance is grossly underconsumed by many in low-income countries. North America, Western Europe, Japan, and China (fewer than 34 percent of global population) are responsible for more than 81 percent of premiums. The Middle East and Africa, for instance, are responsible for just 1.6 percent, while Asia (excluding China and Japan) is responsible for 11 percent. There were practically no insurance products in their current form designed for those in low-income countries.</p> <p><b>Impact:</b> MicroEnsure is a misnomer; it is a misleading name for a company whose innovation, in just over a decade of operation, has insured more than fifty million nonconsumers of insurance in Bangladesh, Ghana, Kenya, India, Nigeria, and several other countries. More than 85 percent of its customers had never purchased an insurance product until MicroEnsure came to the scene.</p>

## NOTES

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1. In his seminal work, *The Fortune at the Bottom of the Pyramid: Eradicating Poverty through Profits*, the late business school professor C. K. Prahalad explains the vast potential in developing products and services for those at the bottom of the pyramid (BoP). The BoP represents some of the poorest people in our world, most of whom earn less than \$2 a day. Professor Prahalad helped us understand that serving the poor can be profitable for many companies that often overlook them as consumers. Although many who are poor are often nonconsumers of existing products and services on the market due to cost, the cost of a product represents just one constraint to nonconsumption. Since nonconsumption is characterized by struggle and not income bracket, this highlights a couple of things. First, the income bracket of a person can be a proxy for struggle, but they are not the same thing. Second, focusing on nonconsumption characterized by struggle allows you to develop solutions that are useful for high-income, low-income, and middle-income people who struggle with the same problem. This subtle difference in developing innovations exclusively for the poor and developing innovations to target nonconsumers is important to consider.

C. K. Prahalad, *The Fortune at the Base of the Pyramid: Eradicating Poverty through Profits* (Upper Saddle River, NJ: Prentice Hall, 2006).

2. From the World Bank's website on methodologies for calculating growth: "Growth rates are calculated as annual averages and represented as percentages. Except where noted, growth rates of values are computed from constant price series. Three principal methods are used to calculate growth rates: least squares, exponential endpoint, and geometric endpoint. Rates of change from one period to the next are calculated as proportional changes from the earlier period." It is clear that these future calculations are dependent on past economic data, which is primarily based on demographics of a region. For example, one of the methods, "least-squares growth rate," is used when there is a "sufficiently [historical] long-time series" in order to ensure accuracy. But since the nonconsumption economy is hard to see, it is difficult to include it in these calculations.

"Data Compilation Methodology," Data, The World Bank, accessed February 19, 2018, <https://datahelpdesk.worldbank.org/knowledgebase/articles/906531-methodologies>.

3. We do not imply here that there are exactly two distinct parts of an economy and once you belong in one, the consumption economy, for instance, you belong to every consumption economy that exists within that economy. For example, if we decided to categorize based on income, we could say that individuals who made over \$75,000 in the United States were part of the consumption economy. However, within that, there are likely people for whom certain products on the market are still too expensive, even though they would benefit from owning the products. As a result, this model is helpful from the innovator's perspective because it helps her understand why potential consumers—nonconsumers—are not purchasing her product.
4. "FDI Flows," Data, OECD, accessed February 19, 2018, <https://data.oecd.org/fdi/fdi-flows.htm>.
5. "Cutting the Cord," *The Economist*, October 7, 1999, <http://www.economist.com/node/246152>.
6. "Number of mobile phone subscriptions worldwide from 1993 to 2017 (in millions)," Statista, accessed February 19, 2018, <https://www.statista.com/statistics/262950/global-mobile-subscriptions-since-1993/>.
7. Scott D. Anthony, Mark W. Johnson, Joseph V. Sinfield, and Elizabeth J. Altman, *The Innovator's Guide to Growth: Putting Disruptive Innovation to Work* (Boston: Harvard Business Press, 2008), 45–60.
8. In our book *Competing Against Luck: The Story of Innovation and Customer Choice*, my coauthors, my longtime collaborator, Bob Moesta, and I provide a more detailed overview of the Theory of Jobs to Be Done.  
Clayton Christensen, Taddy Hall, Karen Dillon, and David Duncan, *Competing Against Luck: The Story of Innovation and Customer Choice* (New York: HarperCollins, 2016).
9. Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47, no. 2 (March 1979): 263–92.
10. Galanz served as a contract manufacturer for several microwave companies. As part of the contract manufacturing agreements, Galanz was able to run the manufacturing lines for its own purposes after it had delivered on its contract obligations. On the one hand, this gave Galanz a low-cost entry into the microwave business. The company did not have to invest in much manufacturing technology. But this was not enough to sell to the average Chinese customer. Galanz also had to develop the local sales, distribution, and support in order to successfully target non-consumption in China.

11. De Xian, "Innovative firm leads in microwave market," *China Daily News*, December 19, 1996, [http://www.chinadaily.com.cn/epaper/html/cd/1996/199612/19961219/19961219010\\_1.html](http://www.chinadaily.com.cn/epaper/html/cd/1996/199612/19961219/19961219010_1.html).

12. As detailed in a Samsung Economic Research Institute study conducted by the Beijing office, Galanz did many other things to ensure its product was affordable for the average Chinese. For example, when the average company spent roughly \$800 million to \$1 billion developing a magnetron, the main component in a microwave oven, Galanz spent around \$400 million. The company also focused on efficient management practices that reduced its costs of operation by 5–10 percent when compared with competitors. In addition, Galanz's purchase practices, where it purchased supplies in bulk and paid immediately, helped reduce its costs of parts and supplies. Altogether, Galanz focused on making its operations cost effective because it was targeting nonconsumption in China.

"Microwave Oven Maker Needs Reheating: Galanz's Low Pricing Stalls," Samsung Economic Research Institute (Beijing Office), February 29, 2008.

13. "About Galanz: Profile," Galanz, accessed April 6, 2018, [http://www.galanz.com/about/about\\_detail.html](http://www.galanz.com/about/about_detail.html).

14. "Number of unique mobile subscribers in Africa surpasses half a billion, finds new GSM study," GSMA, accessed February 1, 2018, <https://www.gsma.com/newsroom/press-release/number-of-unique-mobile-subscribers-in-africa-surpasses-half-a-billion-finds-new-gsma-study/>.

Chapter 4

# Pull Versus Push

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## *A Tale of Two Strategies*

### NOTES

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1. Rama Lakshmi, "India is building millions of toilets, but that's the easy part," *Washington Post*, June 4, 2015, [https://www.washingtonpost.com/world/asia\\_pacific/india-is-building-millions-of-toilets-but-toilet-training-could-be-a-bigger-task/2015/06/03/09d1aa9e-095a-11e5-a7ad-b430fc1d3f5c\\_story.html?utm\\_term=.d28251385c4e](https://www.washingtonpost.com/world/asia_pacific/india-is-building-millions-of-toilets-but-toilet-training-could-be-a-bigger-task/2015/06/03/09d1aa9e-095a-11e5-a7ad-b430fc1d3f5c_story.html?utm_term=.d28251385c4e).
2. Ibid.
3. "The CLTS approach," Community-Led Total Sanitation, accessed March 15, 2018, <http://www.communityledtotalsanitation.org/page/clts-approach>.
4. In his book *Kicking Away the Ladder: Development Strategy in Historical Perspective*, Chang shows that many of the investments that poor countries are making in hopes of generating economic growth are being made at a different stage of development than was the case for countries that are now prosperous. They are often made too soon and as a consequence, are not yet sustainable.  
Ha-Joon Chang, *Kicking Away the Ladder: Development Strategy in Historical Perspective* (London: Anthem Press, 2007).
5. "Chronic Diseases; The Leading Causes of Death and Disability in the United States: Chronic Disease Overview," Centers for Disease Control and Prevention, accessed February 5, 2018, <https://www.cdc.gov/chronicdisease/overview/index.htm>.
6. Mirele Matsuoka De Aragao, "Economic Impacts of the FIFA World Cup in Developing Countries," Honors Theses, Paper 2609, April 2015, [https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=3609&context=honors\\_theses](https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=3609&context=honors_theses).
7. Madhura Karnik, "TCS is quietly transforming itself to take on India's emerging tech scene," *Quartz*, July 3, 2017, <https://qz.com/1000424/tcs-is-quietly-transforming-itself-to-take-on-indias-emerging-it-scene/>.
8. The Tolaram Group was founded in Malang, Indonesia, in 1948. It began by trading textiles and fabrics and has since evolved into a manufacturing, real estate, infrastructure, banking, retail, and e-commerce conglomerate.
9. Gillian B. White, "Can Jobs Deter Crime?," *The Atlantic*, June 25, 2015,

<https://www.theatlantic.com/business/archive/2015/06/can-jobs-deter-crime/396758/>.

10. Tolaram is also creating other new markets in Nigeria for other fast-moving consumer goods, such as bleach and vegetable oil. Before Tolaram released its Hypo bleach product, fewer than 5 percent of Nigerians used bleach to wash their clothes. Tolaram reports that over the past few years, leveraging its manufacturing and distribution prowess, it has expanded that market sixfold, reaching 30 percent of the population.

11. Many of these investments were made over the span of three decades, unless otherwise stated. The exchange rate for the Nigerian naira to the US dollar has changed drastically during this period. In 1995, for example, one US dollar exchanged for approximately 22 Nigerian naira. At the time of writing, one US dollar exchanged for about 360 Nigerian naira.

12. In their paper “The Educator’s Dilemma: When and how schools should embrace poverty relief,” Michael Horn and Julia Freeland Fisher provide an excellent example of how Gustavus Franklin Swift integrated his operations in order to make beef more affordable and accessible to tens of thousands of people at a time when it was not common practice to move meat across state lines in the United States. They explain, “For centuries, companies have been driven to integrate activities that were not at their core in order to reach new heights of performance and distribution. Gustavus Franklin Swift’s approach to marketing and selling beef, for example, reflected his willingness to integrate beyond the late 19th-century’s model of raising, butchering, and selling beef on an exclusively local basis. At that time, because there was no technology for transporting meat long distances, the beef industry lacked significant economies of scale. Swift saw an opportunity to integrate backward and forward: he centralized butchering in Kansas City, which meant he could process beef at a very low cost. Then Swift designed the world’s first ice-cooled railcars. He even made and sold ice cabinets to retail shops throughout the Midwest and Northeast so that once the beef arrived, it would stay fresh. One key to Swift’s ability to market beef in far flung regions was the ability to assure customers that the beef was still safe to consume, given that it had traveled all the way from the stockyards of Chicago to the market. Because a clear understanding of refrigeration and meatpacking processes did not exist at the time, Swift had to control the entire process to ensure that the temperature and storage practices remained sound. In other words, Swift had to expand beyond his so-called core competencies and introduce new, interdependent lines of business in order to revolutionize the beef industry.”

Michael B. Horn and Julia Freeland Fisher, “The Educator’s Dilemma:



When and how schools should embrace poverty relief,” Clayton Christensen Institute for Disruptive Innovation, accessed May 1, 2018, <https://www.christenseninstitute.org/wp-content/uploads/2015/06/The-Educators-Dilemma.pdf>.

In *The Innovator’s Solution: Creating and Sustaining Successful Growth*, my coauthor Michael Raynor and I dedicate a whole chapter (Chapter 5) to the interdependence and modularity theory.

Clayton M. Christensen and Michael E. Raynor, *The Innovator’s Solution: Creating and Sustaining Successful Growth* (Boston: Harvard Business Review Press, 2003), 125–126.

13. Elvis Ondieki, “M-Pesa transactions rise to Sh15bn daily after systems upgrade,” *Daily Nation*, May 8, 2016, <https://www.nation.co.ke/news/MPesa-transactions-rise-to-Sh15bn-after-systems-upgrade/1056-3194774-llu8yjj/index.html>.

14. “World Development Indicators: The information society,” The World Bank, accessed February 20, 2018, <http://wdi.worldbank.org/table/5.12>.

15. Rebecca Moudio, “Nigeria’s film industry, a potential gold mine?,” *U.N. AfricaRenewal Online*, May 2013, <http://www.un.org/africarenewal/magazine/may-2013/nigeria%E2%80%99s-film-industry-potential-gold-mine>.

16. Efosa Ojomo, “Obsession with ending poverty is where development is going wrong,” *Guardian*, February 8, 2017, <https://www.theguardian.com/global-development-professionals-network/2017/feb/08/obsession-with-ending-poverty-is-where-development-is-going-wrong>.

# America's Innovation Story

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## NOTES

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1. Robert J. Gordon, *The Rise and Fall of American Growth: The U.S. Standard of Living Since the Civil War* (New Jersey: Princeton University Press, 2016), 1.

2. In 1890, more than half of New Yorkers lived in “crowded, small, poorly ventilated apartments from which windows looked out on stinking air shafts.” Children often urinated on the walls in many apartment buildings and plumbing pipes were infested “with holes that emitted sewer gasses so virulent they were flammable.”

Robert J. Gordon, *The Rise and Fall of American Growth: The U.S. Standard of Living Since the Civil War* (New Jersey: Princeton University Press, 2016), 97, 103.

3. *Ibid.*, 57.

4. “Rate: Number of Crimes per 100,000 Inhabitants,” 2016 Crime in the United States, Department of Justice: FBI, accessed March 8, 2018, <https://ucr.fbi.gov/crime-in-the-u.s/2016/crime-in-the-u.s.-2016/tables/table-11>.

5. Faith Jaycox, *The Progressive Era* (New York: Facts on File, Inc., 2005), 79.

6. *Ibid.*, 267.

7. *Ibid.*, 22.

8. Jack Beatty, *Age of Betrayal: The Triumph of Money in America, 1865–1900* (New York: Alfred A. Knopf, 2007), 3.

9. Isaac Merritt Singer was not, by all accounts, a very nice man. He fathered twenty-four children with his wife and various mistresses. He repeatedly pushed backers and partners aside in his ascent, and he was known for his personal flamboyance. But his drive also played a role in pioneering business practices where he saw opportunity, including translating Singer owners’ manuals into fifty different languages. As we describe, what Singer’s innovation enabled changed the world.

10. A popular song at the time of Singer’s rise was this ditty about the stressful life of women seamstresses before the sewing machine’s proliferation.

### **Song of the Shirt**

*With fingers weary and worn,  
With eyelids heavy and red,  
A woman sat, in unwomanly rags,  
Plying her needle and thread—  
Stitch! Stitch! Stitch!  
In poverty, hunger, and dirt  
And still with a voice of dolorous pitch—  
Would that its tone could reach the rich!—  
She sang this “Song of the Shirt!”*

11. Many experts who knew a whole lot more about tailoring and the industry than Singer did, thought Singer would fail. Who could blame them? Edwin Wildman writes in his book *Famous Leaders of Industry*, “People were skeptical of the sewing machine . . . and quite often [Singer] was ‘shown the door’ the moment he mentioned his business. He [Singer] was advised by Mr. Blodgett, who was a tailor by trade and knew more about sewing than Singer possibly could, to give up manufacturing . . . Blodgett further told Singer that he was positive that sewing machines would never come into use . . .”

Edwin Wildman, *Famous Leaders of Industry: The Life Stories of Boys Who Have Succeeded* (Boston: The Page Company, 1921), 251–252.

12. There were many sewing machine “inventors” jockeying for market dominance in Singer’s era, and they were quick to grab patents (from a largely undiscerning patent office) to stake their claims. Legal battles flourished, threatening to bankrupt virtually all of the sewing machine companies at the time, including Singer. Eventually many patent holders of specific innovations on sewing machines pooled together and agreed to allow the use of their patents in exchange for a share of the proceeds of any sales generated. This is how Elias Howe, who is credited with the first patent of a sewing machine, finally became wealthy. Previously, he had utterly failed to commercialize his invention, showing that perhaps even more important than technical innovation is business model innovation.

13. Geoffrey Jones and David Kiron, “Globalizing Consumer Durables: Singer Sewing Machine before 1914,” Harvard Business School Case 804-001, October 2003. (Revised January 2017.)

14. Singer’s story is especially noteworthy because in the late 1800s, he created a truly global company, setting up manufacturing, distribution, and sales offices in America, Russia, Scotland, England, Germany, Austria, and several other countries. Note that these countries were at

varying levels of development, each with its own unique infrastructures, institutions, and culture. Russia, for instance, was considered an “undeveloped wasteland” at the time. But Singer’s firm was able to internalize a lot of risk and pull in the necessary infrastructure to sell his products in the region. As a result, his firm succeeded in Russia without government help and despite the government’s efforts to impose high tariffs on the company. His focus, however, remained clear—to create a new market by getting as many sewing machines into the hands of Russian nonconsumers as possible.

Consider how Singer’s strategy of targeting nonconsumption enabled the company’s success in Russia. The country was so poor that Singer would have had to sell almost all its machines on credit; Russia’s legal system, capital markets, and credit institutions were underdeveloped even for that era; Russia was also experiencing economic and political turmoil; the country did not have the skilled labor force that was important to Singer’s operations; and the country’s landmass was large, with a dispersed population. Does that remind you of any poor countries or emerging markets today?

But Singer not only built a factory in Russia, he also created Russia’s largest commercial enterprise with thousands of stores and a staff of more than twenty-seven thousand. Through a series of managerial and organizational innovations, including hiring unskilled workers and training them (building an education infrastructure), the Singer operation in Russia became one of the most successful within the Singer corporation.

15. Building an international organization is no small feat today, even with how globally connected we are, considering improvements in telecommunications and transportation technology. Singer, however, was able to accomplish this in the 1800s, when no such technologies existed. Similarly, many emerging markets today have at least comparable or better infrastructures than America did during Singer’s rise. The question remains, what business model innovations should innovators in these regions execute in order to target nonconsumption?

16. Quentin Skrabec, *The 100 Most Significant Events in American Business: An Encyclopedia* (Santa Barbara: Greenwood, 2012), 39.

17. *Ibid.*, 38.

18. “Singer Railway Station,” Overview, Gazetteer for Scotland, accessed February 24, 2018, <http://www.scottish-places.info/features/featurefirst11985.html>.

19. Rose Eveleth, “How Many Photographs of You are Out There in the World?,” *The Atlantic*, November 2, 2015, <https://www.theatlantic.com/technology/archive/2015/11/how-many-photographs-of-you-are-out-there-in-the-world/413389/>.

20. Wet labs are labs where chemicals are handled in liquid and sometimes volatile forms.

21. “About us: George Eastman,” Heritage, Kodak, accessed February 27, 2018, <https://www.kodak.com/corp/aboutus/heritage/georgeeastman/default.htm#>.

22. “George Eastman, Easy-to-Use Cameras,” Who Made America?, PBS, accessed February 27, 2018, [http://www.pbs.org/wgbh/theymadeamerica/whomade/eastman\\_hi.html](http://www.pbs.org/wgbh/theymadeamerica/whomade/eastman_hi.html).

23. As impressive as George Eastman’s prowess for business and innovation was, his generosity was perhaps even more noteworthy. George Eastman gave. The first act of generosity Eastman displayed was an outright gift of a “substantial sum of his own money” to all his employees in 1889. More acts followed, including a “wage dividend,” where employees benefited beyond their wages in accordance with the company dividend. That was not normal practice during that time. Eastman truly believed that organizations rose and fell on the backs of the loyalty and ingenuity of employees. He exemplified this belief in 1919 by giving a third of his stock, worth \$10 million (or \$146.3 million in 2017 dollars), to his employees. Soon after, he instituted retirement annuity programs, life insurance plans, and disability benefits for his staff. But generosity was in his blood and, as such, was not limited to his employees. Eastman gave up to \$20 million to the Massachusetts Institute of Technology (MIT) and millions more to the University of Rochester, Hampton University, and Tuskegee University. He also financed many dental clinics in various cities in the US and Europe, including Rochester, London, Paris, Rome, and Brussels.

“About us: George Eastman,” Heritage, Kodak, accessed February 27, 2018, <https://www.kodak.com/corp/aboutus/heritage/georgeeastman/default.htm#>.

24. Henry Ford, *My Life and Work* (New York: Garden City Publishing, 1922), 31.

25. Although we go into more detail on the relationship between innovation and infrastructures and institutions later, consider the following. American intellectual property law was not advanced (and this is even overstating it) in the mid-1800s. Cambridge economist Ha-Joon Chang

notes that “patents were granted without proof of originality,” leading to importation of already-patented technologies and rent-seeking by racketeers who sought to profit from already-existing innovations. Bankruptcy law in America was also nonexistent, or immature at best. It wasn’t until 1898 that Congress adopted a lasting federal bankruptcy law. Earlier attempts created significant stress on the court systems. Additionally, most manufacturing in the 1860s was done by unincorporated firms as there was not yet a federal law granting limited liability for entrepreneurs.

26. Ford would later attend Goldsmith, Bryant & Stratton Business College (now called Detroit Business Institute) in Detroit. Whatever “education” Ford received growing up was contextual in nature. He learned to fix things around the farm until he moved to Detroit, where he found work as a mechanic’s apprentice.

27. In retrospect, the idea of an affordable car is sensible. However, at the time it was considered nonsensical. Several of Ford’s investors pulled out because they couldn’t see how he could succeed. Only rich people drove, and mainly for the purposes of joyriding. Long-distance transportation was largely by rail or sea. Shorter-distance transportation was by horse and carriage. Most people lived around where they worked. But Ford foresaw a future that many didn’t.

28. “Is the recession heralding a return to Henry Ford’s model?,” *The Economist*, March 27, 2009, <http://www.economist.com/node/13173671>.

29. “State Motor Vehicle Registrations (1900–1995),” U.S. Department of Transportation Federal Highway Administration, accessed March 1, 2018, <https://www.fhwa.dot.gov/ohim/summary95/mv200.pdf>.

30. Earl Swift, *Big Roads* (New York: Houghton Mifflin Harcourt, 2011).

31. *Ibid.*, 255.

32. Even as cars were making their way all across America, many states still had a hard time building roads. Swift points out that “just about every state [in America] was desperate for better roads but exasperated by its inability to provide them. The cost of bringing highways up to even minimal surface standards was beyond the means of most and the technical capabilities of many.” We discuss the relationship between innovation and infrastructures in Chapter 10.

*Ibid.*, 24, 38.

33. Adam Przeworski’s study on this is quite comprehensive and clear. As citizens gain economic independence, political liberties and democratic freedoms follow. Summarizing Przeworski’s research, Fareed Zakaria

notes in his book *The Future of Freedom: Illiberal Democracy at Home and Abroad*, “In a democratic country that has a per capita income of under \$1,500 (in today’s dollars), the regime on average had a life expectancy of just eight years. With between \$1,500 and \$3,000, it survived on average for about eighteen years. Above \$6,000 it became highly resilient. The chance that a democratic regime would die in a country with an income above \$6,000 was 1 in 500. Once rich, democracies become immortal.” And so, on the one hand, one could applaud the American government for its ingenuity in promoting democratic values, or one could applaud the innovators who work tirelessly to increase incomes that, thereafter, render democracies stable.

Fareed Zakaria, *The Future of Freedom: Illiberal Democracy at Home and Abroad* (New York: W. W. Norton & Company, Inc., 2007), 69–70.

34. Daniel Gross, “Henry Ford Understood That Raising Wages Would Bring Him More Profit,” *The Daily Beast*, January 6, 2014, <https://www.thedailybeast.com/henry-ford-understood-that-raising-wages-would-bring-him-more-profit>.

35. Steven C. Stanford, “Henry Ford—An Impact Felt,” Henry Ford Heritage Association, March 1, 2018, <http://hfha.org/the-ford-story/henry-ford-an-impact-felt/>.

36. “Henry Ford Quotations: Popular Research Topics,” Collections & Research, The Henry Ford, accessed April 7, 2018, <https://www.thehenryford.org/collections-and-research/digital-resources/popular-topics/henry-ford-quotes/>.

37. It is no coincidence that the price of steel dropped significantly during the late 1800s and early 1900s. In 1872, a ton of steel cost \$56, but by 1900, steel prices had dropped to \$11.50. As market-creating innovations spread in the United States, transportation became more important to move products around. For instance, the number of miles of railroad track, of which steel is a major component, increased from 30,626 in 1860 to 193,346 in 1900. This resulted in a significant drop in freight costs from 20 cents per ton-mile in 1865 to 1.75 cents per ton-mile in 1900. As more Americans pulled steel into their lives (railroads, automobiles, buildings), innovators were incentivized to make the product cheaper. Andrew Carnegie, one of the most influential innovators of the nineteenth and twentieth centuries, was responsible for a majority of the efficiency innovations in this industry. He consolidated the industry and took advantage of economies of scale.

Michael Dahlen, “The Rise of American Big Government: A Brief History of How We Got Here,” *The Objective Standard*, January 28, 2014,

<https://www.theobjectivestandard.com/issues/2009-fall/rise-of-american-big-government/>.

38. "Fact #962: January 30, 2017 Vehicles per Capita: Other Regions/Countries Compared to the United States," Vehicle Technologies Office, Office of Energy Efficiency & Renewable Energy, January 30, 2017, <https://energy.gov/eere/vehicles/fact-962-january-30-2017-vehicles-capita-other-regionscountries-compared-united-states>.

39. Daniel Kadlec, "America's Banker A.P. Giannini," *TIME*, March 8, 2017, <http://content.time.com/time/magazine/article/0,9171,989772-2,00.html>.

40. "A. P. Giannini, Branch Banking," Who Made America?, PBS, accessed March 1, 2018, [http://www.pbs.org/wgbh/theymadeamerica/who-made/giannini\\_hi.html](http://www.pbs.org/wgbh/theymadeamerica/who-made/giannini_hi.html).

41. Ralph J. Christian, "Statement of Significance," form for United States Department of the Interior, accessed March 2, 2018, <https://npgallery.nps.gov/pdfhost/docs/NHLS/Text/78000754.pdf>.

42. Alex E. McCalla and Warren E. Johnston, "Giannini: A Retrospective," Giannini Foundation for Agricultural Economics, accessed March 2, 2018, [https://s.giannini.ucop.edu/uploads/giannini\\_public/7b/9e/7b9e282b-f8dd-4250-bdd7-9cd42235c269/apgiannini-book-a-retrospective.pdf](https://s.giannini.ucop.edu/uploads/giannini_public/7b/9e/7b9e282b-f8dd-4250-bdd7-9cd42235c269/apgiannini-book-a-retrospective.pdf).

43. Jerry Useem, "20 That Made History," *Fortune*, June 27, 2005.

44. Richard Morin, "UNCONVENTIONAL WISDOM," *Washington Post*, November 15, 1998, [https://www.washingtonpost.com/archive/opinions/1998/11/15/unconventional-wisdom/24f94e64-5010-4ca1-9786-8c5c30bf6a68/?utm\\_term=.a3c06a9278ea](https://www.washingtonpost.com/archive/opinions/1998/11/15/unconventional-wisdom/24f94e64-5010-4ca1-9786-8c5c30bf6a68/?utm_term=.a3c06a9278ea).

45. Farmers, pickers, and canners were very important to Bank of America's business. In 1919, more than half of the \$74 million the bank loaned out went to farmers.

46. Henry Louis Gates Jr., "Madam Walker, the First Black American Woman to Be a Self-Made Millionaire," PBS, accessed March 9, 2018, <http://www.pbs.org/wnet/african-americans-many-rivers-to-cross/history/100-amazing-facts/madam-walker-the-first-black-american-woman-to-be-a-self-made-millionaire/>.



## Chapter 6

# How the East Met the West

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### NOTES

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1. William K. Tabb, *The Postwar Japanese System: Cultural Economy and Economic Transformation* (Oxford: Oxford University Press, 1995), 14.
2. That stereotype has long since washed away. In fact, it did so rather swiftly. When Marty McFly, the main character in the 1985 hit movie *Back to the Future*, finds himself accidentally launched back in time to 1955, his partner laments that a key circuit in the car they're trying to repair broke because it's labeled "Made in Japan." McFly doesn't understand the reference. "What are you talking about? All the best stuff is made in Japan."
3. Sony Corporation 50th Anniversary Project Team, *Genryū: Sony 50th Anniversary* (Tokyo: Sony Corporation, 1996).
4. Jeffrey Alexander, *Japan's Motorcycle Wars: An Industry History* (Vancouver: UBC Press, 2009), 36.
5. Toyota, "Resumption of automobile exports and Toyota in Okinawa," 75 Years of Toyota, accessed March 30, 2018, [http://www.toyota-global.com/company/history\\_of\\_toyota/75years/text/taking\\_on\\_the\\_automotive\\_business/chapter2/section9/item2.html](http://www.toyota-global.com/company/history_of_toyota/75years/text/taking_on_the_automotive_business/chapter2/section9/item2.html).
6. At the outset, Toyota's exports to other Asian and Oceanic countries also surpassed exports to North America, even though those markets were significantly poorer than the North American market. From 1956 to 1967, for instance, Toyota exported twice as many vehicles to Asia and Oceanic countries (186,815) as it did to North America. These numbers highlight President Toyoda's commitment to a strategy of first targeting local and regional nonconsumption before going after global nonconsumption. Toyota began exporting its Corona model, the precursor to the Corolla, to North America in the 1960s and watched sales of the affordable car grow rapidly. By 1971, Toyota was exporting more than four hundred thousand cars to North America annually, and by 1980 almost eight hundred thousand.

Toyota, "Exports to the United States," 75 Years of Toyota, accessed March 30, 2018, [http://www.toyota-global.com/company/history\\_of\\_toyota/75years/text/entering\\_the\\_automotive\\_business/chapter1/section5/item5.html](http://www.toyota-global.com/company/history_of_toyota/75years/text/entering_the_automotive_business/chapter1/section5/item5.html).

7. Yukiyasu Togo and William Wartman, *Against All Odds: The Story of the Toyota Motor Corporation and the Family that Created It* (New York: St. Martin's Press, 1993), 194.

8. Ibid.

9. Alexander, *Japan's Motorcycle Wars*, 36.

10. Toyota, "Toyopet Crown: America's First Japanese Car," Toyota, December 16, 2016, <http://blog.toyota.co.uk/toyopet-crown-americas-first-japanese-car>.

"After Toyopet trauma, Corona got Toyota up to speed in U.S.," *Automotive News*, October 29, 2007, <http://www.autonews.com/article/20071029/ANA03/710290307/after-toyopet-trauma-corona-got-toyota-up-to-speed-in-u.s>.

11. David Henderson, research fellow at Stanford University's Hoover Institution and professor of economics at the Naval Postgraduate School in California, has written about the Japanese government's influence in Japan's rise. He writes in one of his pieces, "Many people believe that Japan's outstanding growth is due in large part to MITI. They believe that MITI has decided what industries the Japanese should invest in, and that MITI persuaded other Japanese government agencies to use their coercive power to get companies to go along. But the evidence goes against this view. Between 1953 and 1955 MITI did persuade the government's Japanese Development Bank to lend money to four industries—electric power, ships, coal, and steel. Some 83 percent of JDB financing over that period went to those four industries. But even with hindsight, what has not been established is whether those were good investments . . . Moreover, had MITI succeeded in preventing Sony from developing the transistor radio, and in coercively limiting the auto industry, two of Japan's most successful industries would probably have been much less successful."

David Henderson, "Japan and the Myth of MITI," *The Concise Encyclopedia of Economics*, accessed April 9, 2018, <http://www.econlib.org/library/Enc1/JapanandtheMythofMITI.html>.

12. Alexander, *Japan's Motorcycle Wars: An Industry History*, 34.

13. Ibid., 91.

14. In the 1930s, the Japanese yen was a much stronger currency than it was in the 1950s. For instance, 2,000 yen in 1935 equated to approximately 352,109 Japanese yen (\$920) in 1952.

Source: <http://www.historicalstatistics.org/Currencyconverter.html>.

15. Bryan Mezue, Clayton Christensen, and Derek van Bever, "The Power of Market Creation," *Foreign Affairs*, December 15, 2014, <https://www.foreignaffairs.com/articles/africa/2014-12-15/power-market-creation>.

16. Ezra Vogel, *The Four Little Dragons* (Boston: Harvard University Press, 1993), 42.

17. While it is true that South Korea invested significantly in "heavy" industries, such as steel and shipbuilding, the country's investment in heavy industries by itself does not account for South Korea's economic transformation from less than \$200 in per capita income in the 1950s to more than \$27,000 today. Korea's economic transformation represents a 13,400 percent increase in per capita income. Surely, the heavy industries helped, but it is difficult to make the case that they are the causes of such a significant economic transformation, followed by social and political transformation, that has happened in South Korea. Take the shipbuilding industry for example: according to an OECD report, numerically speaking, the industry now represents just under 2 percent of South Korean GDP and around 10 percent of the country's exports (the steel industry is around 2 percent as well). From an employment standpoint, the shipbuilding industry accounts for about 0.65 percent of South Korea's total employment. There is no doubt that the industry is important to the South Korean economy, but it is not enough to explain South Korea's transformation from less than \$200 in per capita income to more than \$27,000 in just over fifty years.

Council Working Party on Shipbuilding, "Peer Review of the Korean Shipbuilding Industry and Related Government Policies," *OECD* (January 2015): 7–9, [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=c/wp6\(2014\)10/final&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=c/wp6(2014)10/final&doclanguage=en).

18. Kia, "History of Kia," accessed March 30, 2018, [http://www.kia.com/worldwide/about\\_kia/company/history\\_of\\_kia.do](http://www.kia.com/worldwide/about_kia/company/history_of_kia.do).

19. "From Fish Trader to Smartphone Maker," *New York Times*, December 14, 2013, [https://archive.nytimes.com/www.nytimes.com/interactive/2013/12/15/technology/samsung-timeline.html#/#time298\\_8340](https://archive.nytimes.com/www.nytimes.com/interactive/2013/12/15/technology/samsung-timeline.html#/#time298_8340).

20. Ahn Choong-yong, "Iron and steel helped Korea's industrial take-off," *The Korea Times*, July 19, 2010, [http://www.koreatimes.co.kr/www/news/biz/2010/05/291\\_69759.html](http://www.koreatimes.co.kr/www/news/biz/2010/05/291_69759.html).

21. Bryan Mezue, Clayton Christensen, and Derek van Bever, "The Power of Market Creation."

22. Arno Tausch and Peter Herrmann, *The West, Europe, and the Muslim World* (New York: Nova Publishers, 2006), 123.
23. Gary Dynski and James Crotty, "Can the Global Neoliberal Regime Survive Victory in Asia? The Political Economy of the Asian Crisis," Political Economy Research Institute, September 1, 2000.
24. For a short piece on the idea that not all exports are created equal, see: Efosa Ojomo, "Assessing exports through the lens of innovation," Christensen Institute, June 5, 2018, <https://www.christenseninstitute.org/blog/assessing-exports-through-the-lens-of-innovation/>.

# Mexico's Efficiency Problem

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## NOTES

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1. "Vicente Fox," PBS interview Commanding Heights, interview conducted April 4, 2001, [http://www.pbs.org/wgbh/commandingheights/shared/minitext/int\\_vicentefox.html](http://www.pbs.org/wgbh/commandingheights/shared/minitext/int_vicentefox.html).
2. From the OECD website: "GDP per hour worked is a measure of labour productivity. It measures how efficiently labour input is combined with other factors of production and used in the production process. Labour input is defined as total hours worked of all persons engaged in production. Labour productivity only partially reflects the productivity of labour in terms of the personal capacities of workers or the intensity of their effort."  
"GDP per hour worked: OECD Data," OECD, accessed April 10, 2018, <https://data.oecd.org/lprdy/gdp-per-hour-worked.htm>.
3. David Johnson, "These Are the Most Productive Countries in the World," *Time*, January 4, 2017, <http://time.com/4621185/worker-productivity-countries/>.
4. In 2015, according to the Observatory of Economic Complexity, Mexico's five largest exports were cars, \$31.4 billion; vehicle parts, \$26.2 billion; delivery trucks, \$23.4 billion; computers, \$21.2 billion; and telephones, \$15.7 billion. More than 80 percent of Mexico's exports end up in the United States. See Mexico's profile on the Atlas for Economic Complexity site here: <https://atlas.media.mit.edu/en/profile/country/mex/>.
5. Mexico has maintained an average inflation rate of 3.9 percent since 2006. Real interest rates in 2015 hovered around 0.9 percent; Iceland, the United States, and Switzerland had real interest rates of 1.6 percent, 2.2 percent, and 3.3 percent respectively.
6. FDI in Mexico in 1993 was approximately \$4.3 billion; twenty years later, in 2013, it had increased more than eleven times, reaching approximately \$47.5 billion. This increase in FDI is due in part to Mexico's relatively stable macroeconomic environment.
7. The fact that Mexico doesn't simply export toys and T-shirts is important. Research by Harvard University's Ricardo Hausmann and MIT's César A. Hidalgo has helped us understand that the complexity of a country's economy (how sophisticated the products it makes are) is highly correlated with its development level. More *capable* countries that can produce more sophisticated products tend to be richer.

César A. Hidalgo and Ricardo Hausmann, “The building blocks of economic complexity,” *Proceedings of the National Academy of Sciences* 106, no. 26 (June 2009).

8. “Economy Rankings,” Doing Business, The World Bank, accessed April 2, 2018, <http://www.doingbusiness.org/rankings>.

9. For a more in-depth economic history of Mexico pre-1960, read Section 2 of “Catch-up Growth Followed by Stagnation: Mexico, 1950–2010,” written by Timothy J. Kehoe and Felipe Meza, <https://www.minneapolisfed.org/research/wp/wp693.pdf>.

10. From a business standpoint, even though Mexico has more than twice the population of Korea and enjoys the benefits we mentioned above, the country has just nine companies on a Forbes list of the one thousand biggest public companies, compared with South Korea’s thirty-one. Also, South Korea’s credit rating is currently AA2, the third highest, according to Moody’s Investors, and AA- according to Fitch. Mexico’s is A3 with a negative outlook according to Moody’s, and it is BBB+ according to Fitch. By most measures, South Korea is outperforming Mexico economically.

11. Anahi Rama and Anna Yukhananov, “Mexican government says poverty rate rose to 46.2 percent in 2014,” *Reuters*, July 23, 2015, <http://www.reuters.com/article/us-mexico-poverty-idUSKCN0PX2B320150723>.

12. Gordon Hanson, of the University of California in San Diego and the National Bureau of Economic Research, has written extensively about Mexico and the role of *maquiladoras* in their economy. His 2002 paper, “The Role of Maquiladoras in Mexico’s Export Boom,” for instance, highlights some of the risks and rewards associated with this component of the Mexican economy.

Gordon H. Hanson, “The Role of Maquiladoras in Mexico’s Export Boom,” University of California, San Diego, accessed April 30, 2018, <https://migration.ucdavis.edu/rs/more.php?id=8>.

13. The five years before NAFTA, employment in *maquiladoras* grew by 47 percent, but in the five years following the enactment of NAFTA, employment increased 86 percent. Additionally, in the mid-1980s, *maquiladoras* employed approximately 180,000 people; by 2000, the system employed more than one million and generated approximately 50 percent of Mexico’s exports. Hanson, “The Role of Maquiladoras in Mexico’s Export Boom.”

14. Gary Hufbauer, formerly of the Council of Foreign Relations and professor at Georgetown University, notes that “the transformation of the

auto industry in Mexico, as a result of NAFTA, was nothing short of dramatic. It was, in fact, the biggest transformation of any industry in all three of our countries [the United States, Canada, and Mexico].” Prior to NAFTA, auto manufacturing in Mexico was a very protected industry where cars could cost two to three times the cost of production in the United States. NAFTA, which promoted efficiency innovations in the region, reduced the cost of production dramatically. Sonari Ginton, “How NAFTA Drove the Auto Industry South,” NPR, December 8, 2013, <http://www.npr.org/templates/story/story.php?storyId=249626017>.

15. We focus on exports here because, while they are not the entirety of Mexico’s economy, they are a microcosm of it. Exports account for more than 35 percent of the Mexican GDP, the fourth highest among the world’s top twenty most populous countries and the highest of any country with a population of more than one hundred million people.

16. More broadly, Mexico exports three out of every four cars it manufactures, most of which go to the United States. Sara Miller Llana, “Mexico prepares for (Ford) Fiesta,” *The Christian Science Monitor*, June 2, 2008, <http://www.csmonitor.com/World/Americas/2008/0602/p06s02-woam.html>.

17. In 2015, about 9 percent of the crude oil imported by the United States came from Mexico. Earnings from crude oil sales represent a significant portion of Mexican exports and the Mexican economy, providing almost \$20 billion annually.

“U.S. energy trade with Mexico: U.S. export value more than twice import value in 2016,” Today in Energy, U.S. Energy Information Administration, February 9, 2017, <https://www.eia.gov/todayinenergy/detail.php?id=29892>).

18. Tim McMahon, “Historical Crude Oil Prices (Table),” InflationData.com, August 27, 2017, [https://inflationdata.com/Inflation/Inflation\\_Rate/Historical\\_Oil\\_Prices\\_Table.asp](https://inflationdata.com/Inflation/Inflation_Rate/Historical_Oil_Prices_Table.asp).

19. IGNIA Fund is a venture capital firm in Mexico dedicated to investing in innovative companies delivering high-impact goods and services to low-income populations. The company has raised funds twice. In 2008, IGNIA raised \$102 million from Omidyar Network, JPMorgan, International Finance Corporation, and the Inter-American Development Bank. In 2015, it raised a subsequent fund worth \$90 million through Mexican publicly traded certificates known as CKDs. IGNIA was also the first venture capital fund in Mexico to raise capital from Mexican pension funds, signaling investors’ “confidence in IGNIA’s track record, as well as the accelerated economic growth found at the base of the socio-economic pyramid in Mexico.”

20. “Daniel Servitje Montull & family,” *Forbes*, accessed April 30, 2018, <https://www.forbes.com/profile/daniel-servitje-montull/>.

21. Some might look at Grupo Bimbo and suggest that the company put many Mexican bakeries out of business and that, in effect, it was bad for the Mexican economy. While that is true, it misses the significant impact Grupo Bimbo has had and is having on the Mexican economy. Grupo Bimbo can be likened to the Ford Motor Company, specifically during the era of the Model T. Before the Model T, there were more than one thousand automobile manufacturers in the United States. Many of them were making custom cars for wealthy individuals. When Ford introduced the affordable Model T, almost all went out of business save a few. But it would be hard to argue that Ford was not good for the American economy as a result. Consider how he impacted steel production, glass manufacturing, R&D for engines and automobiles, regulation, agriculture, road construction, gas stations, auto-repair shops, iron ore mining, paint production, higher wages, and many other aspects of the American economy. Although bread is no Model T, Grupo Bimbo has also positively impacted the Mexican economy, even though smaller and perhaps less efficient bakeries have been put out of business. The company has improved agriculture, distribution and supply chain, and education, and has also increased wages.

22. In fact, Grupo Bimbo doesn't just pay its Mexican workers substantially more than the minimum wage in Mexico; it pays everybody, including its American, European, Latin American, and Asian workers, more. On average, Grupo Bimbo pays its lowest-ranked staff about twice the minimum wage in the countries where it conducts business. “Grupo Bimbo Annual Reports,” Grupo Bimbo, <https://www.grupobimbo.com/en/investors/financial-information/annual-information>.

23. Andrea Navarro, “This Mexican Town Paid the Price for Trump's Attacks on Ford,” *Bloomberg*, February 1, 2017, <https://www.bloomberg.com/news/articles/2017-02-01/when-trump-s-taunts-cowed-ford-this-mexico-town-paid-the-price>.



# Good Laws Are Not Enough

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## NOTES

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1. The late American political scientist Samuel Huntington defines institutions as “stable, valued, recurring patterns of behavior.” Institutions can be political, economic, or social in nature. They can also be formal (systems set up by the governing bodies) or informal and represent customs in a region (how a society celebrates weddings or childbirth). Some examples are a country’s legal system, government or public organizations, and financial systems.

2. This definition, as highlighted by Daron Acemoglu and James Robinson, MIT and Harvard economists respectively, has three important features. First, they are “humanly devised.” Second, they are “the rules of the game,” effectively setting constraints on human behavior. Third, their major effect will be through incentives.

Daron Acemoglu and James Robinson, “The role of institutions in growth and development,” *World Bank Working Paper* 1, no. 1 (January 2008).

3. In one corruption case, an aide to former prime minister Mirek Topolánek had been charged for demanding a multimillion-dollar bribe from a foreign company in return for a government defense procurement contract (Reuters, February 2016). After a lengthy trial, including a conviction that was overturned but ultimately reinstated by the country’s Supreme Court, the aide was handed a five-year jail sentence (Radio Praha, May 2017).

4. Kate Bridges and Michael Woolcock, “How (not) to fix problems that matter: Assessing and responding to Malawi’s history of institutional reform,” *World Bank Policy Research Working Paper* 1, no. 8289 (December 2017).

5. Shaking off the ways of getting things done prevalent under Communist-ruled Czechoslovakia was not solved by writing a new constitution in the country—nor was that the solution in any of the other hopeful renewed democracies in the post-Soviet era. In January 2018, more than fifty thousand people marched, in heavy snow, to the parliament building in Bucharest, Romania, chanting, “Thieves,” and holding signs that read, “Demisia,” which means “Resign” in Romanian. They were protesting the lack of law enforcement and the prevalence of corruption in their country. The situation is not much better for Hungary, as the coun-

try slid down in the Transparency International corruption rankings in 2018. So far down, in fact, that Hungary, which is a member of the EU, now has a worse corruption ranking than Montenegro, a small country that has not been allowed to join the EU partly because it is deemed too corrupt. Andrea Shalal, “Hungary slides deeper down corruption index, watchdog says,” *Reuters*, February 21, 2018, <https://www.reuters.com/article/us-global-corruption/hungary-slides-deeper-down-corruption-index-watchdog-says-idUSKCN1G52E6>.

6. Matt Andrews, an associate professor at the Center for International Development, wrote an article in the *Guardian* that highlighted this point. In the piece, Andrews writes, “Billions of dollars are spent each year on institutional reforms in development, aimed ostensibly at improving the functionality of governments in developing countries. However, evaluations by the multilateral and bilateral organisations sponsoring such reforms show that success is often limited. These evaluations reveal that as many as 70% of reforms seem to have muted results. They produce new laws that are not implemented, or new budgets that are not executed, or new units and agencies that go unstaffed and unfunded. In short, new forms may emerge but they frequently lack functionality: what you see is not what you get.”

Matt Andrews, “Why institutional reforms in the developing world aren’t working,” *Guardian*, March 8, 2013, <https://www.theguardian.com/global-development-professionals-network/2013/mar/08/institutional-reform-international-development>.

7. Kate Bridges and Michael Woolcock, “How (not) to fix problems that matter: Assessing and responding to Malawi’s history of institutional reform,” 4.

8. Bridges and Woolcock note that, of all the projects they analyzed, 92 percent of them were regulative (i.e., activities focused on strengthening laws and regulatory bodies), 3 percent were normative (i.e., activities that tried to understand cultural practices and professional norms), and 5 percent were cultural cognitive (i.e., activities education or guidance toward compliance with international standards). Their analysis shows that solutions that are overwhelmingly regulative without appreciating the cultural cognitive or normative nature of the environments in which they are implemented are often part of the problem.

Kate Bridges and Michael Woolcock, “How (not) to fix problems that matter: Assessing and responding to Malawi’s history of institutional reform,” 12–17.

9. When the 2017 World Bank Ease of Doing Business rankings came

out, Nigeria celebrated its progress. The country moved up the rankings by twenty-four points and is now the 145th “easiest country to do business with” out of the 190 countries measured. For the previous year and a half, the country had been pushing regulations and institutional reform to help it move up the rankings. When the country’s efforts were rewarded by an increase in its rankings, understandably there was excitement. But how does Nigeria moving up in the rankings affect average Nigerians for whom daily life is about making progress as they interface with the local police, the local judiciary, and the local systems in place? The response to that question could be that “the reforms will have long-term effects.” But in 2016, the Nigerian economy contracted and, as a result, shed tens of thousands of jobs. The everyday culture of how Nigerians made progress and solved their problems would remain unaffected even as the country moved up in the “rankings.” Change will come when there is a strong imperative from within the country to make the institutions reflect a new reality of doing business in Nigeria.

10. Edgar Schein, *Organizational Structure and Leadership* (San Francisco: Jossey-Bass Publishers, 1988).

11. This is one of the many reasons Sudanese entrepreneur Mo Ibrahim struggled to raise money to fund the building of his telecommunications company across Africa. The question of effective governance is so powerful for Ibrahim that he has, in the years since his success, created the Mo Ibrahim Foundation. The foundation publishes the Ibrahim Index of African Governance, an index that rates African governments on several metrics including safety and rule of law, public management, human rights, and others. See <http://mo.ibrahim.foundation/iag/>.

12. Diego Puga and Daniel Treffer, “International Trade and Institutional Change: Medieval Venice’s Response to Globalization,” *Quarterly Journal of Economics* 129, no. 2 (May 2014): 753–821, <http://www.nber.org/papers/w18288>.

13. Max Nisen, “How Globalization Created and Destroyed the City of Venice,” *Business Insider*, September 8, 2012, <http://www.businessinsider.com/the-economic-history-of-venice-2012-8>.

14. Ibid.

15. Diego Puga and Daniel Treffer, “International Trade and Institutional Change: Medieval Venice’s Response to Globalization,” 753–821.

16. A similar occurrence of increasing incomes leading to institutional change was observed in the Netherlands, another early developer.

In a seminal paper, “The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth,” Acemoglu et al. write, “Critical was the Dutch merchants’ improving economic fortunes, partly from Atlantic trade, which were used to field a powerful army against the Habsburg Empire . . . Overall, both the British and Dutch evidence, therefore, appears favorable to our hypothesis that Atlantic trade enriched a group of merchants who then played a critical role in the emergence of new political institutions constraining the power of the crown.”

Daron Acemoglu, Simon Johnson, and James Robinson, “The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth,” *American Economic Review* 95, no. 3 (June 2005): 546–579.

17. Diego Puga and Daniel Trefler, “International Trade and Institutional Change: Medieval Venice’s Response to Globalization,” 753–821.

18. Matt Andrews, *The Limits of Institutional Reform in Development: Changing Rules for Realistic Solutions* (Cambridge: Cambridge University Press, 2013), 1–3.

19. Matthew McCartney, *Economic Growth and Development: A Comparative Introduction* (London: Palgrave Macmillan, 2015), 219.

20. The late William Baumol of Princeton wrote extensively about innovation, entrepreneurship, and economic growth. Baumol was of the view that the conditions on the ground are what most affects the kinds of innovations that entrepreneurs pursue. Baumol writes, “How the entrepreneur acts at a given time and place depends heavily on the rules of the game—the reward structure in the economy—that happen to prevail.” Although we generally agree with Baumol, that the rules of the game matter, the important question we ask is “How do the rules of the game get formed? How do they get changed?” When you observe circumstances where the rules have changed, you will see that innovations, especially those that have created new markets, have been major drivers.

William J. Baumol, “Entrepreneurship: Productive, Unproductive, and Destructive,” *Journal of Political Economy* 98, no. 5 (October 1990), [http://www.jstor.org/stable/2937617?seq=1#page\\_scan\\_tab\\_contents](http://www.jstor.org/stable/2937617?seq=1#page_scan_tab_contents).

21. Although it began happening more than 150 years ago, this pattern of getting prosperity before getting institutions that can actually work for the average citizen is what we observe in the United States. As America was beginning to industrialize, many of the institutions in the country, much like in many poor countries today, worked for the rich. This is because the rich had markets that could fund their own “institutions,” but average Americans did not. Hard as it may be to believe, trains and industrial accidents regularly killed or maimed many Americans who had

little to no recourse. But as more and more Americans began developing markets for average citizens, these markets pulled in good institutions. And thus a virtuous cycle was created. Hardly ever does the enforcement of institutions, without markets, lead to the development of good institutions that are sustainable.

22. Diego Puga and Daniel Treffer, “International Trade and Institutional Change: Medieval Venice’s Response to Globalization,” 753–821.

23. “Lobbying: Overview,” OpenSecrets.org, Center for Responsive Politics, accessed March 5, 2018, <https://www.opensecrets.org/lobby/>.

24. What about countries like China, or Chile, or South Korea, that were able to develop institutions that fueled economic growth? These countries coupled the development of their institutions with intense investments in innovations that created markets. These markets ultimately paid for the creation and sustenance of the institutions. And even then, it wasn’t that straightforward. Oxford professor Matthew McCartney notes that in the 1980s, fast-growing East Asian countries had corruption scores similar to those of many “developing countries” today. South Korea, for instance, had the same measure of institutional quality as Côte d’Ivoire. He concludes that the implication of this is that “improving institutions was an outcome not a cause, of rapid growth in East Asia.”

Matthew McCartney, *Economic Growth and Development: A Comparative Introduction*, 217.

25. “New Study Reveals the Complexity of the Informal Sector,” The World Bank, July 20, 2016, <http://www.worldbank.org/en/news/feature/2016/07/20/new-study-reveals-the-complexity-of-the-informal-sector>.

26. Frank V. Cespedes, Thomas R. Eisenmann, Maria Fernanda Miguel, and Laura Urdapilleta, “IguanaFix,” Harvard Business School Case Study, November 10, 2016, 2.

# Corruption Is Not the Problem; It's a Solution

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2. "Corruption Perceptions Index 2017," Transparency International, February 21, 2018, [https://www.transparency.org/news/feature/corruption\\_perceptions\\_index\\_2017](https://www.transparency.org/news/feature/corruption_perceptions_index_2017).

3. "The monthly remuneration received by each of its officers and employees including the system of compensation as provided in its regulations," Maharashtra State Anti Corruption Bureau, accessed April 6, 2018, <http://acbmaharashtra.gov.in/>.

4. The drop in oil prices, which accounts for as much as 95 percent of the Venezuelan government's revenues, has not helped. It has caused revenues to dwindle from about \$80 billion in 2013 to around \$22 billion in 2016. Not only can the government no longer fund some basic needs, but the government has also gotten more creative in "fund-raising." For instance, some in the government have targeted food aid distribution programs, asking for bribes before containers of food can be cleared from the country's ports.

The Associated Press, "US Lawmakers Call for Action on Venezuela Food Corruption," NBC News, January 23, 2017, <http://www.nbcnews.com/news/latino/us-lawmakers-call-action-venezuela-food-corruption-n710906>.

5. Christian Goebel, "Taiwan's Fight Against Corruption," *Journal of Democracy* 27, no. 1 (January 2016): 128, [https://www.researchgate.net/publication/291821592\\_Taiwan's\\_Fight\\_Against\\_Corruption](https://www.researchgate.net/publication/291821592_Taiwan's_Fight_Against_Corruption).

6. Minxin Pei, "Corruption Threatens China's Future," *Carnegie Endowment for International Peace Policy Brief* 55, October 2017, <http://carnegieendowment.org/publications/index.cfm?fa=view&id=19628>.

7. Sul-Lee Wee, "China's Parliament Is a Growing Billionaires' Club," *New York Times*, March 1, 2018, <https://nyti.ms/2t7KA4z>.

8. Howard French, *China's Second Continent: How a Million Migrants Are Building a New Empire in Africa* (New York: Alfred A. Knopf, 2014).

9. Jeff Desjardins, "These countries are leading the way on growth," *World Economic Forum*, October 30, 2017, <https://www.weforum.org/agenda/2017/10/these-countries-are-leading-the-way-on-growth>.

10. "Corruption Perceptions Index 2017," Transparency International, February 21, 2018.
11. "Foreign direct investment, net inflows (BoP, current US\$)," The World Bank, accessed April 6, 2018, <https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD?locations=CN>.
12. "Lobbying: Overview," OpenSecrets.org, Center for Responsive Politics, accessed March 5, 2018, <https://www.opensecrets.org/lobby/>.
13. The Congressional Research Institute, an independently financed think tank focused on improving governance in the United States so it better represents Americans, has done extensive research on the effects of transparency in governments, particularly the US Congress. One of their core theses is that increasing transparency can actually "degrade the quality of a democracy." Their research shows that, as the legislative process becomes more transparent to the citizens, including lobbyists, those lobbyists can begin to influence legislators to vote in ways that don't represent the needs and wants of the American people. What this means is that, even a transparent society is not one devoid of corruption. And as such, we must continually look for ways to help people find a substitute to this economic cancer. Read more here: <http://congressionalresearch.org/index.html>.
14. Pete Hamill, "'Boss Tweed': The Fellowship of the Ring," *New York Times*, March 27, 2005, <https://nyti.ms/2jLJRNi>.
15. Faith Jaycox's book *The Progressive Era* provides an account of some of Tammany Hall's (New York City's Democratic Party machinery) corrupt practices. The organization was involved in "police corruption, including widespread shakedowns, voter intimidation and election fraud, collaboration with rent-raking landlords and strikebreaking employers, and maltreatment of new immigrants." When a case was brought against it by some reformers in New York City, the governor refused to fund an investigation into the organization. The investigation was funded by the Chamber of Commerce and other "Good Government Clubs," as they were known at the time. These clubs sprang up all over the United States in response to the government's growing corruption. These Good Government Clubs were funded by concerned citizens who wanted better representation from their governments.

Faith Jaycox, *The Progressive Era* (New York: Facts on File, 2005), 80.
16. Jack Beatty, *Age of Betrayal* (New York: Vintage Books, 2008), xvi.
17. President Woodrow Wilson was a prolific writer, even before he

became president. He wrote often about the state of government in the United States and on corruption. In August 1879, the influential journal *International Review* published one of Wilson's essays, which he wrote while an undergraduate student at Princeton. In it, the future president wrote, "Both State and National legislatures are looked upon with nervous suspicion, and we hail an adjournment of Congress as a temporary immunity from danger." Wilson later goes on to write in a speech titled "Government and Business": "What is it that is wrong with the business of this country? In the first place, certain monopolies, or virtual monopolies, have been established in ways which have been unrighteous and have been maintained in ways that were unrighteous; and have been used and intended for monopolistic purposes."

Woodrow Wilson, *The New Freedom: A Call for the Emancipation of the Generous Energies of a People* (New York: Doubleday, Page & Company, 1913), 240.

18. Larry Schweikart, *The Entrepreneurial Adventure: A History of Business in the United States* (Fort Worth: Harcourt College Publishers, 2000), 153–154.

19. Earl Swift, *The Big Roads: The Untold Story of the Engineers, Visionaries, and Trailblazers Who Created the American Superhighways* (Boston: Houghton Mifflin Harcourt, 2011).

20. Lawrence Friedman, *A History of American Law*, 3rd revised ed. (New York: Simon & Schuster, 2005).

21. During the time when Isaac Singer released his sewing machine, innovators were more likely to be sued for their innovations than to sell their products. Lawsuits were so commonplace that Singer and a group of other innovators created the first-ever "Patent Pool." The notion that, somehow, America's business environment was predictable and law and order was respected is not quite true.

In addition, during the time of the railroad construction, there was widespread speculation and dealings with members of Congress. Many members of Congress took advantage of this opportunity to line their pockets by granting favors to the highest bidders.

22. Edward L. Glaeser and Andrei Shleifer, "The Rise of the Regulatory State," 419.

23. Ralph V. Turner and Richard Heiser, *The Reign of Richard Lionheart: Ruler of the Angevin Empire, 1189–1199* (London: Routledge, 2000), 12.

24. Sir John Fortescue and Charles Plummer, *The Governance of En-*



*gland: The Difference between an Absolute and a Limited Monarchy* (Oxford: Clarendon Press, 1885): 24.

25. Deirdre McCloskey, *Bourgeois Dignity: Why Economics Can't Explain the Modern World* (Chicago: University of Chicago Press, 2010), 317.

26. Harvard University professor Robert Bates provides a brilliant summary about the evolution of institutional development in Europe in his short book *Prosperity & Violence*. He peels the covers and goes behind the scenes to show us how Europe's courts and parliaments were developed. In both cases, the connection between growing and thriving markets and the ability for the State to generate more revenue by developing these new institutions is apparent.

Robert Bates, *Prosperity & Violence* (New York: W.W. Norton & Co., Inc., 2010), 41, 52.

27. Ibid.

28. In their paper, "Predictable Corruption and Firm Investment," economist Krislert Samphantharak and political scientist Edmund Malesky write that predictability of bribes is at least as important for a firm's investment decisions as the amount of bribes firms pay, provided the amount is not prohibitively expensive.

Krislert Samphantharak and Edmund J. Malesky, "Predictable Corruption and Firm Investment: Evidence from a Natural Experiment and Survey of Cambodian Entrepreneurs," *Quarterly Journal of Political Science* 3 (March 31, 2008): 227–267.

J. Edgar Campos also comes to the same conclusion that, in terms of how corruption impacts investments, predictability matters. He explains this in his paper "The Impact of Corruption on Investment: Predictability Matters."

29. Choe Sang-Hun, "Park Geun-hye, South Korea's Ousted President, Gets 24 Years in Prison," *New York Times*, April 6, 2018, <https://nyti.ms/2Heh68v>.

30. Mushtaq H. Khan, "State Failure in Developing Countries and Institutional Reform Strategies," *Annual World Bank Conference on Development Economics—Europe 2003*, [http://eprints.soas.ac.uk/3683/1/State\\_Failure.pdf](http://eprints.soas.ac.uk/3683/1/State_Failure.pdf).

Matthew McCartney, *Economic Growth and Development: A Comparative Introduction* (London: Palgrave Macmillan, 2015), 217.

31. Edward L. Glaeser and Andrei Shleifer, "The Rise of the Regulatory State," 420.

32. Philip Auerswald, *The Coming Prosperity: How Entrepreneurs Are Transforming the Global Economy* (Oxford: Oxford University Press, 2012), 58.

Karim Khoja, "Connecting a Nation: Roshan Brings Communications Services to Afghanistan," *Innovations* 4, no. 1 (Winter 2009): 33-50, <https://www.mitpressjournals.org/doi/pdf/10.1162/itgg.2009.4.1.33>.

# If You Build It, They May Not Come

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## NOTES

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1. “Plans for a weirdly unfinished highway in Cape Town,” *The Economist*, April 12, 2017, <https://www.economist.com/news/middle-east-and-africa/21720649-road-nowhere-may-finally-reach-end-plans-weirdly-unfinished-highway>.

2. Chiponda Chimbelu, “Poor infrastructure is key obstacle to development in Africa,” *Deutsche Welle*, July 26, 2011, <http://p.dw.com/p/122ya>.

3. Yale University professor William Rankin explains in “Infrastructure and the international governance of economic development” that in the 1950s, “debates about development aid shifted attention from an economic definition of infrastructure towards one framed more in terms of general prerequisites.” He goes on to further write that “early development theory is often portrayed as infrastructure-centric; if there is a single theory that stands for the economic thought on development in the 1950s, it is the ‘big push’, where a huge infusion of lumpy infrastructure capital is seen as necessary for overcoming the vicious circle of low productivity, low savings rate and low investment thought to exist in underdeveloped countries . . . Only in the context of international debate about economic development after the Second World War did the term infrastructure become a label for the technical-political systems required for growth and modernity . . . But nowhere in these earlier uses of infrastructure can one find the idea that large-scale engineering systems, especially those of transportation and communication, together constitute a supportive base for other kinds of economic activity. It is only in the 1950s discussion about international financing for economic development that infrastructure becomes recognizable as a concept relating engineering to larger socioeconomic concerns.”

This has significant implications for economic development, especially in poor countries. If infrastructures are now considered prerequisites for development, then technically there can be no development without first developing one’s infrastructures. And because the prevailing model is “the government must provide the infrastructure,” poor countries find themselves on an economic development treadmill, running as fast as they can but not going anywhere.

4. Earl Swift, *The Big Roads: The Untold Story of the Engineers, Visionaries, and Trailblazers Who Created the American Superhighways* (Boston: Houghton Mifflin Harcourt, 2011), 33.

5. Andrew Degrandpre and Alex Horton, “Ghost schools and goats: 16 years of U.S. taxpayer waste in Afghanistan,” *Chicago Tribune*, August 21, 2017, <http://www.chicagotribune.com/news/nationworld/ct-us-afghanistan-spending-20170821-story.html>.

6. The story of the Mufindi Pulp and Paper Project is profiled in Robert Calderisi’s book *The Trouble with Africa: Why Foreign Aid Isn’t Working*. In it, Calderisi explains that Tanzania did not have the technical expertise to manage such a big project, and the World Bank staffers did not include training or capacity building into the project cost.

Robert Calderisi, *The Trouble with Africa: Why Foreign Aid Isn’t Working* (New York: St. Martin’s Griffin, 2006).

7. Chris McGreal, “A month ago, the hospitals were overflowing. Now they lie empty,” *Guardian*, December 6, 2008, <https://www.theguardian.com/world/2008/dec/06/zimbabwe-cholera-hospitals>.

8. Oxford Dictionary definition of “infrastructure.” Many definitions of infrastructure are not much different from this one: <https://en.oxforddictionaries.com/definition/infrastructure>.

9. The idea that infrastructure must come before development is understandable. In a paper by César Calderón and Luis Servén, titled “Infrastructure and Economic Development in Sub-Saharan Africa,” the authors conclude that there is “robust evidence that infrastructure development—as measured by an increased volume of infrastructure stocks and an improved quality of infrastructure services—has a positive impact on long-run growth and a negative impact on income inequality.” They also note that “since most African countries are lagging in terms of infrastructure quantity, quality, and universality of access, the tentative conclusion is that infrastructure development offers a double potential to speed up poverty reduction in Sub-Saharan Africa: it is associated with both higher growth and lower inequality.”

Reading a paper like that can lead policy makers to make significant investments in increasing the infrastructure stock in the country. Although infrastructures are usually a good thing, we hope to show in this chapter that, if they are not connected to a market, they will be very difficult to maintain.

César Calderón and Luis Servén, “Infrastructure and Economic Development in Sub-Saharan Africa,” World Bank Group, Policy Research Working Paper 4712, September 2008, <https://openknowledge.worldbank.org/handle/10986/6988>.

10. In referring to infrastructures in England and how they contributed to the Great Divergence, economist Deirdre McCloskey put it this way:

infrastructures “changed locations, not amounts. They increased efficiency, but did not increase incomes by a factor of two or sixteen or a quality-corrected one hundred.” Deirdre McCloskey, *Bourgeois Dignity: Why Economics Can’t Explain the Modern World* (Chicago: University of Chicago Press, 2010), 343.

11. Pritchett goes on to note that the average adult in a poor country today is getting more years of education than the average adult in a developed country did in 1960. But it is clear that the education infrastructures in many of today’s poor countries are not worth as much as those in 1960s developed countries and that these newly constructed education infrastructures are not preparing people for the future. Lant Pritchett, *The Rebirth of Education: Schooling Ain’t Learning* (Washington, DC: Center for Global Development, 2013).

12. “World Development Report 2018: Learning to Realize Education’s Promise,” The World Bank, accessed May 3, 2018, doi:10.1596/978-1-4648-1096-1, 5.

13. Ibid., 5–6.

14. Dayo Adesulu, “Graduate unemployment, time-bomb in Nigeria,” *Vanguard*, June 4, 2015, <https://www.vanguardngr.com/2015/06/graduate-unemployment-time-bomb-in-nigeria/>.

15. “Did Kenya get a loan to build a railway or vice versa?,” *The Economist*, March 22, 2018, <https://www.economist.com/news/middle-east-and-africa/21739227-chinese-backed-nairobi-mombasa-line-may-never-make-money-did-kenya-get>.

16. Simon Romero, “Grand Visions Fizzle in Brazil,” *New York Times*, April 12, 2014, <https://nyti.ms/2HoVtCo>.

17. Bent Flyvbjerg’s research on the development and evolution of megaprojects, into which category many infrastructure projects fall, is vast. Flyvbjerg lists the following indisputable and unavoidable principles, iron laws as they are called, of megaprojects. First, Flyvbjerg’s research finds that nine out of ten megaprojects incur cost overruns, and many of such overruns surpass 50 percent of the original budgeted amount. These overruns are not specific to any particular geography and have stayed relatively constant over the past seventy years. For example, the Denver International Airport was 200 percent over budget. In fact, some industries have been studied so much that there are expected overruns. The rail industry is one, where the average rail project is expected to be approximately 45 percent over budget, while road construction proj-

ects are expected to be about 20 percent over budget. Second, Flyvbjerg notes that nine out of ten megaprojects are late. When many large-scale projects are proposed, their costs and schedules are inputs that are used to estimate the short- and long-term economic and societal benefits of the projects. As a result, nine out of ten megaprojects overestimate their economic and social benefits. After modeling many large-scale projects, Flyvbjerg found that a one-year delay can increase the cost of a project by up to 4.6 percent. Few projects illustrate this point more perfectly than Boston's Big Dig Central Artery/Tunnel Project, which rerouted a central highway in the city into a newly constructed tunnel. In 1982, the price tag for the Big Dig was \$2.8 billion (approximately \$7 billion today), but according to the *Boston Globe*, when all is said and done, the project will cost about \$24 billion. The project was also nine years behind schedule. Boston's Big Dig, however, was not an anomaly. Third, and perhaps most surprising, is that cost overruns are a problem for both public and private sector projects. Flyvbjerg provides the Channel Tunnel, a thirty-one-mile rail tunnel linking the UK and France. Euro-tunnel, the private owners of the tunnel, estimated that cost overruns would likely not surpass 10 percent. Construction costs were 80 percent over budget, while financing costs were 140 percent over budget. The British economy has lost \$17.8 billion from the project, with investors reaping a whopping -14.5 percent on their investment.

Bent Flyvbjerg, "What You Should Know about Megaprojects and Why: An Overview," *Project Management Journal* 45, no. 2 (April–May 2014): 6–19.

18. V. Kasturi Rangan, "The Aravind Eye Hospital, Madurai, India: In Service for Sight," Harvard Business School Case 593-098, April 1993. (Revised May 2009.)

19. Ibid.

20. Larry Schweikart, *The Entrepreneurial Adventure: A History of Business in the United States* (Fort Worth: Harcourt College Publishers, 2000), 97.

21. Jack Stewart, "America Gets a D Plus for Infrastructure, and a Big Bill to Fix it," *Wired*, March 9, 2017, <https://www.wired.com/2017/03/america-gets-d-plus-infrastructure-big-bill-fix/>.

22. Larry Schweikart, *The Entrepreneurial Adventure: A History of Business in the United States*, 98.

# From Prosperity Paradox to Prosperity Process

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3. Robert F. Graboyes, “High Quality and Low Price Coverage at Narayana and Health City Cayman Islands,” *Inside Sources*, September 13, 2017, <http://www.insidesources.com/high-quality-low-price-converge-narayana-health-city-cayman-islands/>.
4. Tarun Khanna, V. Kasturi Rangan, and Merlina Manocaran, “Narayana Hrudayalaya Heart Hospital: Cardiac Care for the Poor (A),” HBS No. 505-078 (Boston: Harvard Business School Publishing, 2011): 20.
5. “Investor Presentations: Investor Presentation—May 2017,” Narayana Health, accessed April 26, 2018, <https://www.narayanahealth.org/sites/default/files/download/investor-presentations/Investor-Presentation-May-2017.pdf>.
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7. Sasha Banks-Louie, “How a Small Clinic Is Having a Big Impact on Healthcare in Brazil,” *Forbes*, September 26, 2017, <https://www.forbes.com/sites/oracle/2017/09/26/how-a-small-clinic-is-having-a-big-impact-on-healthcare-in-brazil/#358d9e1f3ab5>.

*Appendix*

# The World Through New Lenses

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## NOTES

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1. Break-bulk cargo is a process by which goods are loaded into a truck and driven to a port warehouse where workers, called longshoremen, unload the goods from the truck and store them in a warehouse or in a shipping vessel, if one is available.
2. Charles Duhigg, Aaron Bird, and Samantha Stark, “The Power of Outsiders,” *New York Times*, video, accessed January 29, 2018, <https://www.nytimes.com/video/business/100000004807604/the-power-of-outsiders.html>.
3. At the time, to grow the bacteria longer than forty-eight hours would have been inefficient. Existing rules, conventional wisdom, and accepted science suggested that the specimens would have been useless for their purposes. As such, there was good reason for the experts to grow the bacteria for no more than two days.
4. Marshall Barry and Paul C. Adams, “*Helicobacter Pylori*: A Nobel Pursuit?” *Canadian Journal of Gastroenterology* 22, no. 11 (2008): 895–896.
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6. “Electronic Devices: Washing Machine Market Share & Size, Industry Analysis Report, 2025,” Grand View Research, December 2016, <https://www.grandviewresearch.com/industry-analysis/washing-machine-market>.
7. “Press Room: Washing Machine Market Size to Reach USD 42.16 Billion By 2025,” Grand View Research, December 2016, <https://www.grandviewresearch.com/press-release/global-washing-machine-market>.
8. An Indian company, Metro Electronic Lab, has developed a portable washing machine that retails for roughly \$40. The machine attaches to a bucket, weighs less than 5 pounds (2.2kg), and can wash 6.6 pounds of clothes in six-minute cycles. See more here: <http://www.waterfiltermanufacturer.in/handy-washing-machine.html#handy-washing-machine>.
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