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SUSTAINABLE DEVELOPMENT GOALS REPORT: Mexico 2030

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Sustainable Development Goals Report: Mexico 2030

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Executive Summary

Mexico has a large and globally-integrated economy, home to both a burgeoning middle class and internationally competitive firms. At the same time, the vast majority of Mexicans work informally and many live in poverty or lack social security. The country has made great strides in expanding its economy, reducing poverty, and improving the health and education of its population. But it continues to face enduring development challenges, including persistent inequality, low productivity, and lagging infrastructure, which hold it back from widespread prosperity. This report explores Mexico's current development trajectory to 2030 across areas of human and economic development. It then presents four alternative scenarios designed to help explore the impacts of different policy approaches. Using the International Futures (IFs) modeling platform, these scenarios are evaluated in terms of their ability to accelerate Mexico's development progress and help the country achieve the targets set by the United Nations' Sustainable Development Goals (SDGs).

Along the Current Path, a scenario representing the 'most likely' development course, Mexico will continue to face sluggish economic growth and lagging human development. Between today and 2030, Mexico's GDP is projected to grow an average of 2.4 percent per year, reaching over $1.8 trillion. This will occur alongside continued population expansion, contributing an additional 16 million people by 2030. As a result, annual GDP per capita growth in the same period will average less than 1 percent annually. Even with a growing labor force and sizeable economy, Mexico is held back by informality, inequality, weak governance, and poor infrastructure. In 2030, 9.4 million people will still be living on less than $3.10 a day.

Several alternative scenarios created for this report explore different approaches to advancing Mexico's development. These scenarios were informed by Mexico's *Proyecto de Nación 2018-2024* and refined further during a workshop held in Mexico City in September of 2018. The following scenarios are analyzed: (1) *Economic Development* models a strategy of increasing investments and boosting Mexico's competitiveness by improving physical and human capital. It also includes components expanding energy and agricultural production. (2) *Social Development and Education*, also referred to as 'Social Development,' focuses on improvements in health and education and alleviating poverty through welfare transfers. (3) *Governance* targets broad issues like combatting corruption, improving the regulation of business and commerce, and reducing societal violence.

Table 1 shows summary results of this analysis. By 2030, GDP is 15 percent greater in the *Economic Development* scenario than it is along the *Current Path* and 34 percent greater by 2050. The *Economic Development* scenario also results in the greatest increases in GDP per capita and government revenues. The *Social Development* scenario, on the other hand, produces the largest human development gains; by 2030, life expectancy lengthens by over a year and over 3 million fewer people are living in poverty compared with the *Current Path*. However, by 2050 the *Economic Development* scenario results in a greater overall reduction in the poverty rate. The *Governance* scenario leads to the greatest gains in labor productivity – 12 percent higher than the *Current Path* in 2030 and 30 percent higher in 2050. Low labor productivity is often identified as one of Mexico's major growth constraints and is intertwined with issues of informal economic activity, corruption, and business regulation. Accordingly, directly intervening in this area leads to increases in GDP, GDP per capita, and government revenues nearly as impressive as the *Economic Development* scenario.

But the SDGs are meant to be pursued collectively, taking advantage of interlinkages and synergies between goals and minimizing trade-offs. With this in mind, a fourth scenario, the *Integrated Push*, combines the interventions in the other three scenarios and allows us to illustrate the benefits of a comprehensive development program. As can be seen in the sections below, the *Integrated Push* scenario yields the most significant gains

across all presented indicators. In some cases, the gains achieved with an *Integrated Push* exceed the sum of those made under alternative scenarios on their own, emphasizing that intervention packages may work together, generating synergies and unlocking higher levels of development.

Table 1: Effects of different scenarios on select indicators in 2030 and 2050 for Mexico.

	2015	2030				2050			
	Current Path	Current Path	Econ	Soc	Gov	Current Path	Econ	Soc	Gov
GDP *billion USD*	1,296	1,857	2,134	1,931	2,081	2,998	4,024	3,222	3,899
GDP growth rate *5-year lagged average*	2.9	2.7	4.2	3.2	4.2	2.1	2.5	2.1	2.6
Labor productivity *thousand USD per worker*	22.8	27.7	28.7	28.8	31.0	39.7	47.8	42.3	51.3
GDP per capita *thousand USD*	16.7	18.8	20.7	19.3	20.3	23.5	28.6	24.4	27.9
Government revenue *billion USD*	296	645	746	713	733	1,068	1,504	1,227	1,412
Education *average years 15+*	9.2	10.1	10.1	10.2	10.1	11.2	11.3	11.7	11.3
Life expectancy *years*	77.0	78.6	78.9	80.2	79.2	81.2	81.7	82.8	82.0
HDI *index*	0.76	0.79	0.79	0.80	0.79	0.83	0.85	0.86	0.85
Poverty *million people*	13.4	9.4	7.6	6.3	7.7	5.0	2.4	2.6	2.6

Darker colors show more "positive" outcomes. Coloring compares each scenario outcome to the Current Path in the specified year. Scenario abbreviations: 'Econ' is Economic Development, 'Soc' is Social Development and Education, 'Gov' is Governance. GDP and revenue figures are in 2011 US dollars. HDI is the Human Development Index, a UN composite index measuring achievement across life expectancy, average education years, and gross national income (GNI) per capita. Poverty refers to the population living on less than $3.10/day. Source: IFs 7.36.

Mexico is already on track to meet a number of SDG targets. It is projected to cut the prevalence of undernourishment to below 3 percent and to reach near full primary net enrollment by 2030, for example. But other SDGs will be more difficult. Even in the *Integrated Push* scenario, the country does not meet the secondary enrollment target of 97 percent by 2030. While this does not mean these goals are impossible, it does imply that they will require a more transformative effort beyond what has been modeled here.

With the comprehensive development program simulated in the *Integrated Push* scenario, the Mexican government is projected to have nearly $250 billion in additional annual revenue at its disposal by 2030 and $850 billion more by 2050. With these additional resources, the government will be better equipped to address issues of inequality, support marginalized populations, and enhance infrastructure. Moreover, increased resources, a more capable population, improved government effectiveness, and a commitment to renewable energy could all prove essential in the pursuit of the SDGs related to environmental sustainability. Successful achievement of Mexico's development goals will require an integrated, long-term approach. In describing the potential outcomes and trade-offs from different development scenarios, this report makes clear that the policy choices made in the country today will be critical to shaping its ability to meet development goals in the future.

Contents

The Frederick S. Pardee Center for International Futures

The Frederick S. Pardee Center for International Futures is based at the Josef Korbel School of International Studies at the University of Denver. The Pardee Center specializes in helping governments, international organizations, and private sector organizations think strategically about the future. The Pardee Center focuses on exploring past development trends, understanding the inter-relationships that drive development outcomes, and shaping policies that achieve development outcomes.

International Futures (IFs) is a free and open-source quantitative tool for thinking about long-term futures. The platform helps users to understand dynamics within and across global systems and to think systematically about potential trends, development goals, and targets. While no software can reliably predict the future, IFs forecasts — which are calculated using data and a mix of quantitative modelling approaches — offer a broad and transparent way to think about the trade-offs in policymaking.

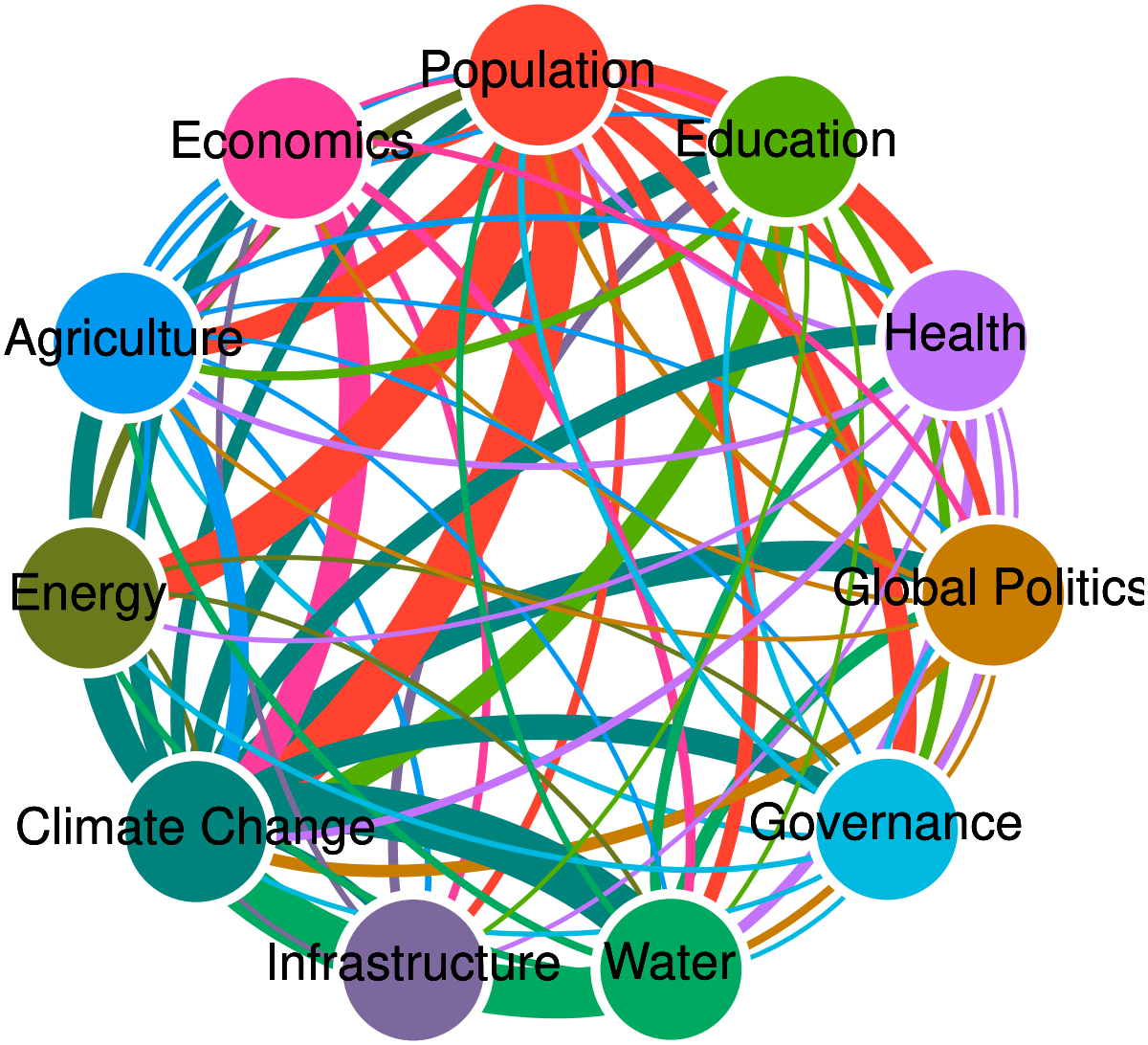
There are three main avenues for analysis in IFs: historical data analysis (cross-sectional and longitudinal) of more than 4,000 series, Current Path analysis (how dynamic global systems seem to be developing), and alternative scenario development (exploring if-then statements about the future). To do this, IFs integrates relationships across 186 countries and 12 core systems, including: agriculture, demographics, economics, education, energy, environment, finance, governance, health, infrastructure, international politics, and technology. The sub-models for each system are dynamically connected, so IFs can simulate how changes in one system may lead to changes across all others. As a result, IFs endogenizes more variables and relationships from a wider range of key development systems than any other model in the world.

IFs is developed by the Frederick S. Pardee Center for International Futures, based at the Josef Korbel School of International Studies at the University of Denver in Colorado, USA. It was originally created by Professor Barry B. Hughes. Learn more about IFs or download the tool for free at pardee.du.edu.

Pardee Center and UNDP SDG Collaboration

This report is part of a broader, long-term collaboration between the Pardee Center and UNDP to assess SDG attainment and prospects across a variety of countries using IFs. The Pardee Center has also worked with UNDP Moldova, Brazil, and Egypt. As part of this collaboration, the Pardee Center has developed a new SDG dashboard in IFs that shows Current Path forecasts for SDG indicators for 186 countries and the prospects for meeting those targets at the country level. While not every SDG indicator is forecast in IFs, the Pardee Center has also pulled in over 200 data series that align directly with every SDG indicator across the 17 major SDG goals. This allows users to see a current (2015) value for every SDG indicator in all 186 countries. For more information on the SDG dashboard and instructions on its use see our wiki at pardee.du.edu/wiki/sdg_dashboard.

Figure 1: Stylistic representation of models in IFs.



Introduction

Mexico is home to the second-largest population and second-biggest economy in Latin America. The middle class has grown to over 50 million people and is projected to grow by an additional 20 million by 2030. It is the leading importer and exporter in the Latin America region, is ranked by the World Bank (2018) as the top Latin American country for doing business, and has been a member of the Organization for Economic Cooperation and Development (OECD) for nearly a quarter of a century.

But true and inclusive prosperity has been elusive. GDP growth has slowed, averaging roughly 2 percent annually since 2000. Moreover, in a country where the top 20 percent earn ten times as much as the bottom 20 percent (OECD, 2017c), the benefits of that growth are not shared equally. Over 13 million Mexicans live in poverty, using the international standard of less than $3.10 a day, and over 53 million people live in poverty according to Mexico's own multidimensional poverty measure (CONEVAL, 2017).

Mexico—along with 192 other sovereign members of the United Nations—has committed to following the Sustainable Development Goals (SDGs). The SDGs make up the most recent global commitment to end poverty, enhance prosperity, and promote sustainable development to the year 2030. Organized around 17 broad goals, the SDGs represent a global development agenda and an important consideration for Mexico's own national development strategy.

Mexico has demonstrated its dedication to the SDGs through the creation of numerous agencies designed to implement the 2030 Agenda at the national, state, and local levels, such as the Specialized Technical Committee on the Sustainable Development Goals (CTEODS), the Senate Working Group for Monitoring the Legislative Implementation of the SDGs, and the National Council for the 2030 Agenda for Sustainable Development (Federal Government of Mexico, 2018). But achieving the goals will require overcoming significant development challenges, including persistent inequality, high levels of informality, underdeveloped infrastructure, and widespread corruption.

This report analyzes Mexico's current development trajectory to 2030 and explores prospects for meeting the SDGs under several alternative scenarios. The report is organized as follows: First, we examine Mexico's development path thus far and expected trajectory to the year 2030 and beyond. Then, the Scenarios section presents the four alternative scenarios constructed for this report: (1) Economic Development, (2) Social Development and Education, (3) Governance, and (4) Integrated Push. The specific interventions made as a part of each scenario are listed in the Scenario Assumptions sections. Finally, the Results and Discussion section explores scenario outcomes in relation to each other and their broader implications for Egypt's development.

Mexico's Current Path

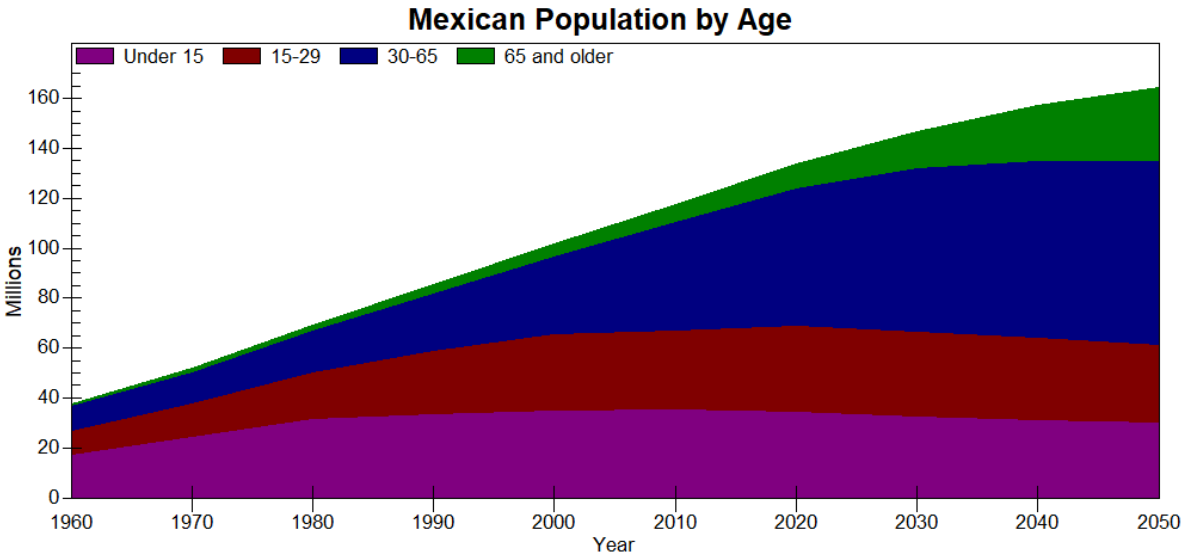
The IFs Current Path is a dynamic forecast which serves as the 'most likely' development path for the country. While, in some cases, the Current Path will look like a continuation of historical patterns, it is not a simple linear extrapolation. Rather, it is made up of many deeply integrated projections, with variables interacting within and across development systems. The Current Path assumes no major policy changes, no unforeseen man-made or natural disasters, and no technological breakthroughs that would fundamentally change the course of development. Thus, it provides a look at Mexico's current and expected development trajectory. It will later serve as a comparison for the alternative scenarios presented in this report, each of which model a departure from

current trends. The following sections present a contextual analysis of Mexico's development trends in key areas, including Current Path forecasts to 2030 and beyond.

Demographics

With just under 126 million people in 2015,[1] Mexico is the second-most populous country in Latin America, behind Brazil. The country's population has more than tripled since 1960 and is projected to grow to 146.9 million by 2030. Currently, over 65 percent of Mexicans are of working age (from 15 to 64), a figure that is projected to peak at nearly 68 percent in 2030. This demographic structure offers the opportunity to seize a 'demographic dividend,' defined as the potential economic growth from having a large labor force and relatively few dependents to take care of. Not only are more people working, which itself supports growth, but with fewer mouths to feed, adults can save and invest more in the health and education of their children as well as in business opportunities.

Figure 2: Population by age group for Mexico along the Current Path



Source: Historical data from the United Nations World Population Prospects (UNDESA, 2017). Forecast from IFs 7.36.

This demographic transition has been noted as an important factor in the growth of many Asian economies over the past few decades (Bloom & Williamson, 1998). But across Latin America, transitioning countries have failed to capture the same growth and prosperity that has been associated with favorable demographic patterns in East Asia (Terrazas, Papademetriou, & Rosemblum, 2011). The World Bank and IMF (2016) have classified Mexico as an early-dividend country – one in which the demographic transition is solidly underway but has not yet peaked.

[1] The IFs model and database are the most frequently used sources of data and forecasts in this report. If no external attribution is provided for an in-text statistical reference, the source is*: International Futures (IFs) modeling system, Version 7.36. Frederick S. Pardee Center for International Futures, Josef Korbel School of International Studies, University of Denver, Denver, CO.* The IFs historical database houses over 4,500 data series. Primary sources and metadata can be found by accessing the IFs system.

Thus, it will need to focus on stimulating sustainable growth by funneling the growing labor supply into productive jobs, encouraging savings, and investing in physical and human capital.

It is important that Mexico take advantage of its demographic situation today, as the population will age rapidly in the coming decades. In 2015, roughly 7 percent of Mexico's population was over the age of 65. By 2030, this will grow to 10 percent and continue to over 18 percent by 2050. Like many developing countries, Mexico is aging more quickly than today's rich countries did in the past (UNDESA, 2015). A progression that took place over 100 years in France will occur in Mexico in less than a quarter of the time. As a country ages, labor force participation rates eventually fall, the population's healthcare needs shift, and the demand on pension and social security systems increases (Bloom, Canning, & Fink, 2011). All of these changes put additional pressure on an economy. And with a growing elderly population on the horizon, it would be advisable to improve and solidify the pension system and reduce informality to increase contributions (OECD, 2016).

Economy

Mexico's economy is the second-largest in Latin America, fifteenth in the world, and has demonstrated impressive resilience over the past few decades, maintaining macroeconomic stability in the face of external challenges. Between 1990 and 2015, the country's GDP nearly doubled from $663 to $1,296 billion[2] and GDP per capita grew from $12,185 to $16,672. The economy is open to trade and globally well-integrated, unemployment in 2017 was at an 11-year low (Harrup, 2017), and foreign direct investment was up 11 percent from 2016 (Gomez, 2018).

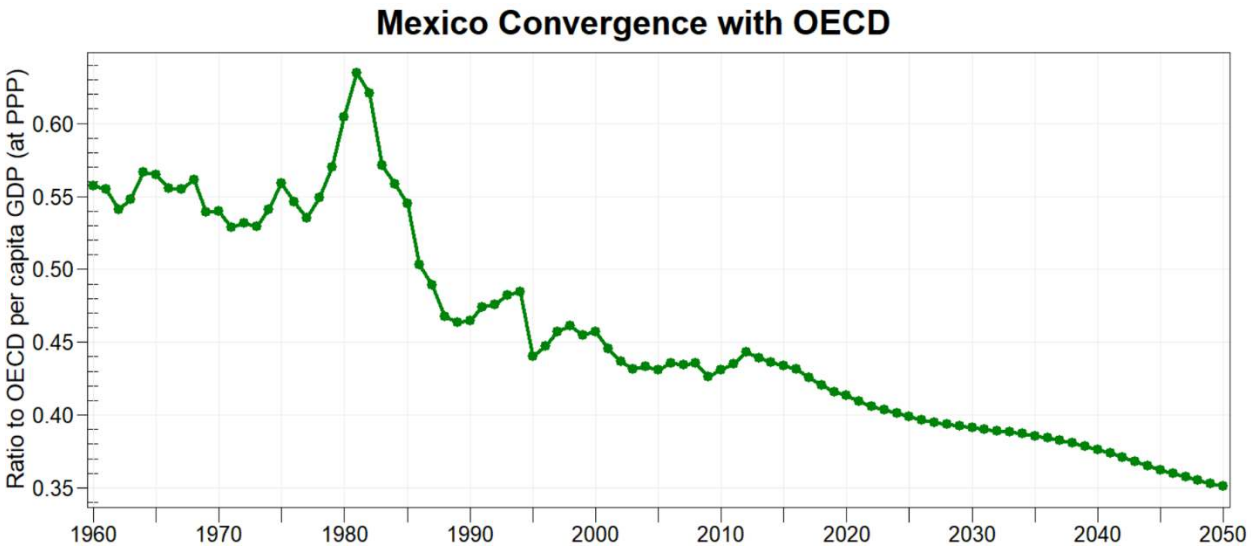
Still, overall growth has been disappointing. From 2014 to 2017, GDP grew just 2.1 percent per year, with growth in 2017 being the lowest the country has seen in four years. GDP per capita growth averaged just 1.2 percent annually from 1996 to 2015, even while the Mexican labor force was expanding more quickly than the population at large. Figure 3 shows Mexico's GDP per capita as a share of the OECD average GDP per capita over time. The theory of economic convergence predicts that countries with lower levels of development will grow more rapidly, beginning to catch up with richer countries. But in fact the opposite has been occurring with Mexico, as it has been falling behind other OECD countries. Along the Current Path, this trend is projected to continue through and beyond the horizon.

One of the biggest barriers keeping Mexico from economic prosperity appears to be low productivity. For roughly three decades, productivity in Mexico decreased at an average annual rate of 0.7 percent (Government of Mexico, 2013) and was a drag on GDP per capita growth from roughly 2000 to 2013 (OECD, 2017a). While Mexico's most productive firms are internationally competitive, the gap between the country's leading firms and the rest is growing (Dougherty & Escobar, 2016). A report from the McKinsey Global Institute refers to this as a dualistic

[2] Throughout this report, unless otherwise specified, GDP and all currency figures are measured in 2011 US dollars. There are two ways to measure GDP and/or per capita output. Market exchange rates (MER) measure the value of output in local currencies against prevailing market exchange rates for the US dollar (in 2011 dollars). Purchasing power parity (PPP) is calculated for each country relative to its cost of living and inflation rates. It considers how much of one currency would have to be converted into that of another country to buy a comparable basket of goods and services in that country. GDP measurements in PPP tend to be higher, particularly for developing countries. Unless otherwise noted, GDP measurements from IFs are in MER and GDP per capita measurements from IFs are in PPP.

"two-speed economy" in which a handful of high-tech and globally competitive firms operate alongside many more small, unproductive, and often informal enterprises (Bolio et al., 2014, p. 1).

Figure 3: Convergence with OECD GDP per capita (at PPP in 2011 USD) for Mexico, 1960-2030.



Source: Historical data from the World Development Indicators (World Bank, 2017). Forecast from IFs 7.36

Mexico's productivity problem is complex but clearly linked to excessive informality and an ineffectual business and regulatory environment. Broadly, informality refers to economic activity that operates outside of a country's legal and regulatory framework. According to the latest data, 56.6 percent of employment in Mexico is informal, just under half of which is employed in the informal sector (INEGI, 2018b). Compared to their formal counterparts, informal firms are typically much smaller and considerably less productive (La Porta & Shleifer, 2008). In Mexico, formal firms are 59 to 84 percent more productive on average than informal firms (Busso, Fazio, & Algazi, 2012). Additionally, informal firms pay far less in taxes, so a large informal sector lowers government revenue and constrains capacity.

While the informal economy is typically expected to shrink as a country develops (La Porta & Shleifer, 2014), this transition hasn't occurred in Mexico, where the problem is systemic. Informality in Mexico is linked to problems with business regulation in general. For instance, a tiered social insurance obligation on the part of employers incentivizes firms to hire informally (Antón, Hernández, & Levy, 2013; Levy, 2018). And a size-dependent corporate income tax structure discourages firm growth (Levy, 2018). Altogether, a system that perpetuates low productivity and high informality has implications for all aspects of development. Low levels of productivity keep the country from fully taking advantage of a youthful working population today, thus preventing Mexico from turning a demographic dividend into sustainable growth, and lowering the returns to education. Concurrently, a high level of informality narrows the tax base and facilitates corruption, constraining the government's capacity and thus its ability to provide for a rising middle class and aging population.

Poverty and inequality

The Mexican government has been especially innovative when it comes to tackling poverty, starting one of the world's first national conditional cash transfer (CCT) programs, *Prospera* (formerly called *Progresa* and then

Oportunidades) in 1997. The program ramped up quickly and, by the end of the 2014 fiscal year, *Prospera* had benefitted 6,129,125 households in over 2,000 municipalities (Dávila Lárraga, 2016). Mexico's CCT programs have proven successful in reducing poverty (Fiszbein et al., 2009) and inequality (Soares, Guerreiro Osório, Veras Soares, Medeiros, & Zepeda, 2009). In addition, they have been shown to reduce child labor (Fiszbein et al., 2009), increase educational enrollment and attainment (Fiszbein et al., 2009; Kugler & Rojas, 2018), enhance employment prospects of participants (Kugler & Rojas, 2018), and improve children's health outcomes (Gertler, 2004; Leroy, Ruel, & Verhofstadt, 2009).

Mexico was also the first country to institute a national multidimensional poverty measure, the Mexican Multidimensional Poverty Index (MPI), constructed by the Council for the Evaluation of Social Policy (CONEVAL) and adopted in 2009. The MPI includes indicators on income, education, housing, social cohesion, and access to health services, social security, food, and basic housing (CONEVAL, 2009). People are said to be in conditions of poverty if their income is below the poverty line *and* they lack access to at least one social right (the indicators listed above), while those in extreme poverty have incomes below the extreme poverty line and lack access to at least three social indicators. In 2016, according to CONEVAL (2017), 43.6 percent of the population was considered in poverty, 50.6 percent had incomes below the poverty line, and 70.4 percent lacked access to at least one social right, with the most prevalent being a lack of access to social security.

Mexico's multidimensional methodology is important as it considers not just income but the livelihoods and deprivations of the population. However, there are several challenges to applying this measure to IFs. For one, several components are not modeled at all, such as living in a structure with sufficient space and quality. Moreover, the model cannot discern deprivations by income level. For this reason, although the MPI is the standard measure of poverty in Mexico, this report will refer to the international definition of the those living on less than $3.10 per day ($1.90 for extreme poverty).

Using international thresholds, Mexico has made considerable strides in addressing extreme poverty. The country was successful in achieving the MDG 1 target of halving the population living on less than $1.25 a day, which fell from 9 percent in 2000 to 3.3 percent in 2015. In 2015, 10.6 percent of the population lived in poverty (less than $3.10/day) and 3.3 percent in extreme poverty (less than $1.90/day). By 2030, the percentage of the population living in extreme poverty is expected to be halved again, while the population in poverty is forecast to be cut to 5.9 percent. At that rate, poverty alleviation in Mexico is projected to be faster than that in Latin America broadly.

Table 2: Poverty and inequality indicators for Mexico, the LAC region, and OECD countries in 2015 and 2030.

	Mexico		Latin America and the Caribbean		OECD	
	2015	2030	2015	2030	2015	2030
Percent of population in extreme poverty (living on less than $1.90/day)	3.3	1.4	4.1	3.2	0.8	0.3
Percent of population in poverty (living on less than $3.10/day)	10.6	5.9	10.9	8.2	3.1	1.7
Gini coefficient	0.43	0.41	0.47	0.45	0.38	0.36

Source: Initialized using historical data from the World Development Indicators (World Bank, 2017). Forecasts from IFs 7.36

Inequality is also a problem. In 2015, Mexico was the second-most unequal country in the OECD according to the Gini index, behind the only other Latin American member, Chile. Globally it ranked 45th out of 186 countries in IFs.

The richest quintile earns ten times more than the poorest quintile, compared to the OECD average of 5.4 (OECD, 2017c). According to a recent survey, 60 percent of respondents consider the gap between the rich and the poor to be a very big problem (Vice & Chwe, 2017). IFs forecasts this to improve but just barely, with the Gini falling .02 points by 2030.

Disparities also exist between regions, between men and women, and by ethnicity. Poverty is ten times higher in the poorest states than the richest (World Bank, 2013), while those in the worst-faring states are four times more likely to be at risk of poverty, seven times more likely to drop out of school, and seven times more likely to work more hours for lower wages than those in the most fortunate states (OECD, 2017c). Indigenous populations are especially disadvantaged, with 77.6 percent of the indigenous population in moderate or extreme poverty by national standards (CONEVAL, 2017). Although Mexico is a leader in women's representation in politics, with the 2018 elections resulting in gender parity in Parliament, the country still has much to improve in terms of gender equality. The country has a female labor force participation rate of just 44 percent (INEGI, 2018b) and a gender pay gap of over 16 percent (OECD, 2017b). IFs forecasts the female labor participation rate to remain relatively flat out to 2030.

Infrastructure

Over the past 30 years, improvements in transportation in Mexico, where 57 percent of freight is transported via roads, have increased access to markets, boosted employment, and furthered economic specialization (Blankespoor, Bougna, Garduno-Rivera, & Selod, 2017). But roads remain the source of the country's biggest infrastructure gap. The Global Infrastructure Hub estimates that Mexico needs to more than quadruple road investments to meet its current needs (Global Infrastructure Hub, n.d.).

In 2015, Mexico had 1,166km of paved roads per capita, a figure which has only grown slightly from 984km in 1990. This is commensurate with Latin America on the whole but far below the OECD average of 8,870km in 2015. By 2030, paved roads per capita are expected to increase by a little over 20 percent, to 1,430km. By 2030, 45 percent of all roads will be paved, up from 27 percent in 2015. For comparison, only 20 percent of roads in Latin America and the Caribbean are paved.

Another notable challenge for the country's infrastructure is water access. On a national scale, Mexico appears able to meet its water demands and just 1.3 percent of the population lacks access to safe water. But this is complicated by an inefficient water management system and numerous water supply challenges (Silva Rodríguez de San Miguel, Trujillo Flores, & Lambarry-Vilchis, 2018). Already 16 percent of the country's aquifers are being overexploited and the majority of the country's water supply is in the southern region, far from the urban centers where demand is highest (Duran-Encalada, Paucar-Caceres, Bandala, & Wright, 2017). Piped water can be unreliable and, in many cities, utilities cannot guarantee that water quality is fit for human consumption (Godinez Madrigal, van der Zaag, & van Cauwenbergh, 2018). Moreover, water treatment operates at well under capacity due to a lack of financial resources and technical ability. Nearly 70 percent of industrial and 50 percent of municipal wastewater goes into bodies of water untreated (Godinez Madrigal et al., 2018). These challenges are not modeled in IFs on a national level but are important nonetheless.

Health

Mexico has made great strides in improving the health of its population and expanding healthcare coverage. With the help of programs like *Seguro Popular*, introduced in 2004, the portion of the population with health insurance

has grown from 48.4 percent in 2003 to an estimated 90 percent in 2016 (OECD, 2018b). Enrollment and services covered have expanded steadily along with the health infrastructure, with more hospitals, clinics, and medical professionals (Knaul et al., 2012). However, underinsurance remains a problem. *Seguro Popular* only covers 59 percent of hospitalizations by members and out-of-pocket costs in Mexico make up over 41 percent of total health spending (PwC, 2017). This level of individual health spending is more than double the OECD average and has barely fallen since the program was introduced, when individual expenditures made up 52 percent (Tapia-Conyer, 2016).

Mexico was largely successful in achieving many health-related MDGs; it met the targets for 14 out of 17 related indicators, including halving hunger and reducing child and infant mortality (INEGI, 2013). As countries develop, it is typical to see increasing rates of child survival and a reduction in the burden of communicable diseases (Gribble & Preston, 1993; Santosa, Wall, Fottrell, Högberg, & Byass, 2014). But that also translates to an increase in the burden of non-communicable diseases (NCDs), which is evident in Mexico. In 1990, communicable diseases were the cause of 29 percent of Mexico's deaths, a figure which fell to 11 percent by 2015 and is projected to reach 6 percent by 2030. On the other hand, NCDs, responsible for less than 60 percent of deaths in 1990, make up 78 percent today and will be the cause of 84 percent in 2030. Again, this is expected as a country advances; in the OECD, more than 87 percent of deaths were due to NCDs in 2015. But it also places increasing demands on the health infrastructure to care for aging populations with chronic diseases and emphasizes the importance of prevention and the promotion of healthy lifestyles.

A steady rise in rates of obesity, diabetes, and heart disease over several decades have made them some of Mexico's most pressing health concerns today. According to Mexico's Secretary of Health, diabetes was the number one cause of disability-adjusted life years (DALYs) nationally and in 21 states in 2013. Ischemic heart disease led in 9 states and violence in the remaining two (Secretaría de Salud, 2015). Moreover, only around half of those likely living with diabetes are diagnosed formally (INSP, 2016). The problem of diabetes is closely linked to that of obesity. The country's National Health and Nutrition Survey revealed that roughly one third of children and 72.5 percent of adults over 20 are considered overweight or obese (INSP, 2016). IFs forecasts obesity prevalence as a percent of the population over 30, which it projects to remain around 50 percent from 2015 to 2030.

Education

A number of reforms in the past decade have led to considerable improvements in educational attainment in Mexico. In 2012, quality was added as a consideration to the constitutional right to education for all Mexicans, while programs like *Prospera* and the Program for Inclusion and Educational Equity (*Programa para la Inclusión y la Equidad Educativa*) have improved attainment broadly and for underserved populations. In 1960, the average Mexican over the age of 15 had just 2.5 years of education. Since then, attainment has increased steadily, reaching 9.1 years in 2015. This improvement is similar to average attainment in Latin America and the Caribbean, but the country still lags behind Chile and other members of the OECD. By 2030, educational attainment is expected to reach just above 10 years, roughly the level of Chile, Spain, and New Zealand today.

Mexico's biggest educational bottleneck occurs at the secondary level. Primary gross enrollment exceeds 100 percent in 2015, with 95 percent of those enrolled continuing through to lower secondary.[3] The lower secondary graduation rate, which at roughly 85 percent is well below the OECD average of near 100 percent, shows room for improvement. But the biggest bottlenecks are the failure to transition into and then drop out during upper secondary education. From lower to upper secondary, gross enrollment rates drop from over 100 percent to just 65 percent. And less than half of those students will continue to graduate. However, of those that do complete upper secondary, 85 percent go on to higher education (Kattan & Székely, 2014). The main reasons for dropping out, according to students surveyed in 2011, are a lack of financial resources, academic problems, and personal reasons like pregnancy or work (Kattan & Székely, 2014). IFs forecasts the transition rate from lower to upper secondary to improve from 77 percent in 2015 to 84 percent in 2030 and upper secondary graduation to increase from 48 to 64 percent of students in the same period. Still, tertiary enrollment will remain the second-lowest in the OECD, growing from 30 percent in 2015 to just 35 percent by 2030.

One broad problem encouraging dropout is that obtaining higher levels of education offers a relatively low rate of return. While workers are more educated today (German-Soto, Sánchez Carrera, & Tenorio Martínez, 2016), their wages have stagnated, in no small part due to low productivity and high informality discussed previously (Levy & López-Calva, 2016). With lower returns to high levels of education and with low-skilled labor in demand, the opportunity cost of dropping out is relatively low (OECD, 2018a).

Another challenge for Mexico is to improve educational quality. According to the OECD's Programme for International Student Assessment (PISA), Mexico performed poorly compared to other OECD countries as well as countries at similar levels of GDP per capita. While math scores did improve between 2003 and 2015, scores in reading and science remained unchanged (OECD, 2018a). IFs projects quality scores to improve steadily through 2030. Primary reading scores are already commensurate with those in the OECD overall, while scores in science and math are projected to improve a couple of points each, from 34.5 to 36 in math and 40 to 42 in science. The country will need to focus on improvements in both educational attainment and quality in order to provide students with the skills and training they will need for the jobs of tomorrow.

Governance

Capacity

Government capacity can broadly be defined as a government's ability to generate revenues and deliver services to the public. In 2015, government revenues totaled roughly 23 percent of GDP, below the regional and OECD averages of 29 and 36 percent, respectively. Unsurprisingly, government spending as a percent of GDP trails as well, at roughly 34 percent of GDP compared to 39 percent in Latin America and the Caribbean and 42 percent in the OECD.

One important constraint to capacity in Mexico is corruption. As Viridiana Ríos, scholar and a selection commissioner of the National Anti-Corruption System (the *Sistema Nacional de Anti-Corrupción*, or SNA), put it,

[3] Gross enrollment refers to the number of students entering a given education level divided by the number of age-appropriate children in the population. Thus, it is not uncommon, due to the enrollment of children outside of a level's typical age range, for gross enrollment rates to exceed 100 percent.

"many of the dysfunctionalities of [the Mexican] government … are grounded in systematic and ingrained corruption" (Russell, 2017). According to Transparency International's Corruption Perceptions Index, Mexico scores a 29 out of 100 (with 100 being the most transparent or least corrupt), putting it on the same level as Honduras, well below the global average score of 43, and ranking last among OECD countries (Transparency International, 2018).[4] The World Economic Forum's Global Competitiveness Report cites corruption as the most problematic factor for doing business in Mexico (Schwab, 2017). And the Mexican Institute for Competitiveness estimates the economic cost of corruption to be between 2 and 10 percent of the country's GDP annually (IMCO, 2015). Beyond business, corruption infiltrates the lives of all Mexicans, over half of whom said they had paid a bribe to access public services in the past year (Pring, 2017). Corruption hurts the economy broadly through lowering levels of private investment (Mauro, 1995), and diminishes government capacity by lowering tax revenues and distorting public decision-making processes (Tanzi & Davoodi, 1997). It is also closely linked to the problem of informality (Johnson, Kaufmann, & Zoido-Lobatón, 1998; Mishra & Ray, 2013) as it allows informal firms to earn higher profits and protects them from enforcement.

IFs projects transparency to improve slowly, reaching a score of 38 on the Corruption Perceptions Index by 2030. This would put Mexico one point below the level of Argentina today (Transparency International, 2018), and 15th in the region but still last in the OECD. This expected improvement is largely due to continued economic development, greater inclusion, and a reduction in energy export dependence. As an economy develops and the middle class grows, the public tends to demand a more accountable and effective government (Birdsall, 2015). Greater inclusiveness and democracy can both incentivize governments to be more transparent and lead to consequences if citizens are dissatisfied (Hollyer, Rosendorff, & Vreeland, 2011). Finally, a country that is less dependent on the export of energy or other raw materials for revenues will be more reliant on firm and citizen taxation and thus pressured to meet expectations (Bhattacharyya & Hodler, 2010).

On top of the revenues lost to corruption are those lost due to a business regulatory system that encourages informality and further tax inefficiencies. Many informal firms don't pay taxes at all, and even formal firms are not required to withhold taxes for non-salaried employees. These issues, which lower tax revenue on income and profits, are combined with numerous exemptions for Mexico's value-added tax (VAT). A country's VAT revenue ratio (VRR) measures how much potential VAT revenue is collected, with a VRR of 100 percent meaning that no VAT revenue was lost due to exemptions, lower rates, evasion, or fraud. Mexico's VRR of 32 percent in 2015 was the lowest of all countries in Latin America and the Caribbean (OECD, CIAT, IDB, & UN ECLAC, 2018).

Once revenues are generated, they need to be used effectively. IFs forecasts government effectiveness according to the Government Effectiveness measure in the World Bank's World Governance Indicators project. In 2015, Mexico scored a 2.7 out of 5 and was ranked 67th in the world, 6th in Latin America, and last in the OECD. By 2030, Mexico is projected to improve slightly to a score of 2.9 but fall to 68th place globally and will not improve its position within its region or the OECD. With low revenues due to corruption, informality, and tax inefficiencies as

[4] IFs uses the Corruption Perceptions Index (CPI) from Transparency International (TI) to initialize and forecast quantitative measures of government corruption. Founded in 1993, TI is an international NGO that works to identify and reduce corruption and promote transparency across society and government. IFs uses the CPI because it contains information on perceived corruption from over 180 countries derived from multiple sources and institutions. In 2012, TI simplified the CPI computation to allow for analysis across time.

well as only moderate government effectiveness, Mexico's underperformance in governance is a significant obstacle to achieving many of its goals.

Security

According to preliminary data from Mexico's National Institute for Statistics and Geography (INEGI), there were 31,174 homicides in Mexico in 2017, bringing the country's homicide rate to 25 per 100,000 residents – a 25 percent increase from 2016 (INEGI, 2018a). These figures would make 2017 Mexico's deadliest year in decades. Violence in the country had been on a steady decline from 1992 to roughly 2007, when it increased sharply. After a brief drop from 2012 to 2014, murders have again been on the rise. These rates are still well below those of regional leaders like El Salvador, Honduras, and Venezuela, but the increase in violence in the past decade reflects a change in the country's security landscape. Much of this most recent uptick in violence can be attributed to drug trafficking and associated organized crime, which appears to be involved in anywhere from one third to one half of homicides in 2017 (Calderón, Rodríguez Ferreira, & Shirk, 2018). And violence in the past decade has likely been exacerbated by a pattern of militarized enforcement and retaliation between the government and trafficking organizations, reaching a 'self-reinforcing violent equilibrium' (Ríos, 2013).

These levels of violence have both direct and indirect effects on the population's social and economic well-being. Estimates of the costs of crime and insecurity in Mexico come to between 1 and 2 percent of GDP (INEGI, 2017; Jaitman et al., 2017). And there is evidence that in the country, drug-related crimes have had a negative impact on income growth (Enamorado, López-Calva, & Rodríguez-Castelán, 2014), hurt economic activity and employment (Robles, Calderon, & Magaloni, 2013), and reduced economic diversity (Ríos, 2016).

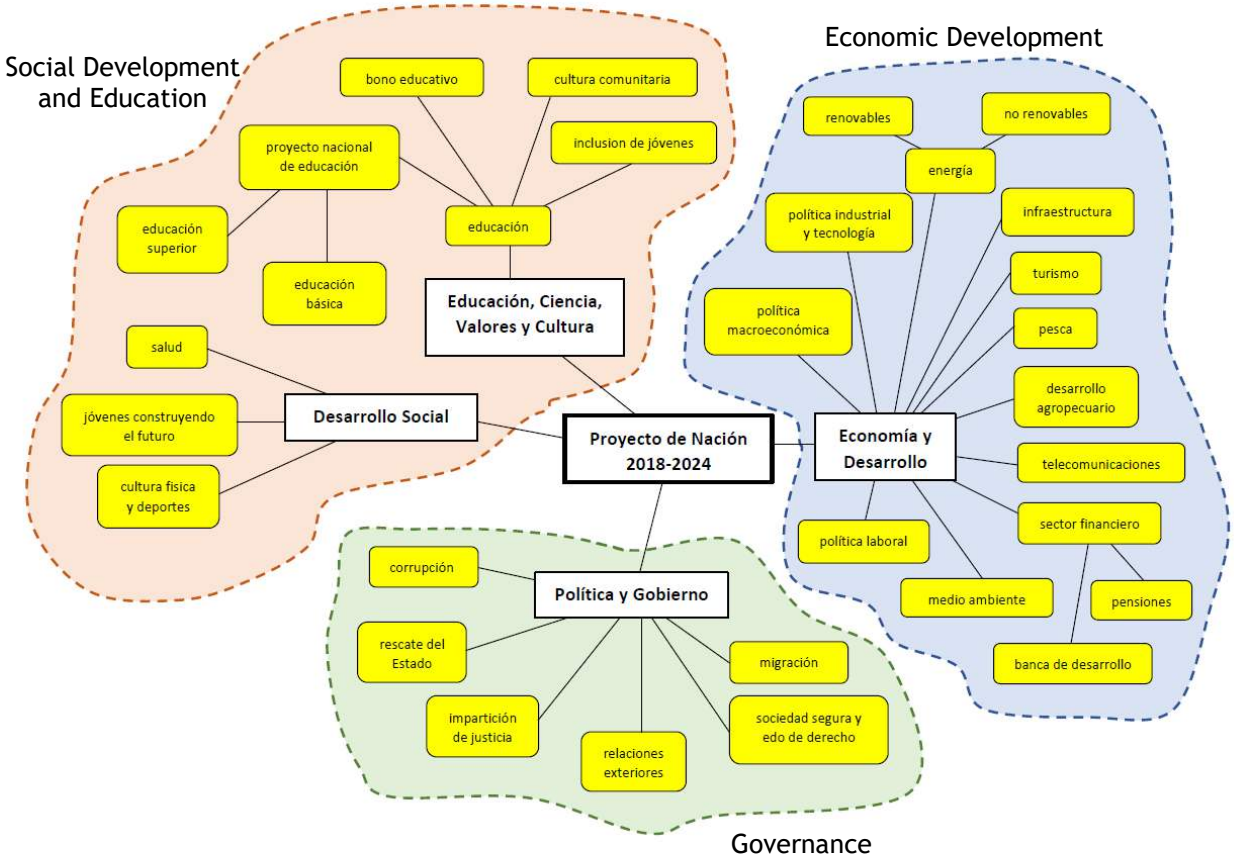
IFs forecasts violence using homicide rates initialized with data from the Institute for Heath Metrics and Evaluation (IHME). Of course, the homicide rate is not the only measure of crime and citizen security, and other crimes have serious effects on the well-being of the population. But many crimes are severely underreported and thus difficult to accurately forecast. Because of the relatively good data availability and reporting levels, homicide rates are often used as a reasonable proxy for violent crime as well as an indicator of security levels within countries (UNODC, 2014). IFs projects the upward trend in homicides to continue to climb to a peak of 26.5 homicides per 100,000 around 2020 before falling back to just below today's levels by 2030.

Scenarios

This section presents four scenarios designed to explore potential development paths for Mexico: (1) Economic Development, (2) Social Development and Education, (3) Governance and (4) Integrated Push. The scenario design was informed by analysis of Current Path development trends and the *Proyecto de Nación 2018-2024* (see Figure 4). Scenarios and specific interventions were further refined through consultations with a national taskforce during a workshop held in Mexico City in September of 2018 that included representatives from government agencies, research institutions, and the 2012-2018 and 2018-2024 federal administrations, and subsequent review by a national task force of workshop participants.

Rather than representing policies themselves, these scenarios simulate the outcomes of successful implementation of development strategies, including elements of the *Proyecto de Nación*. Independently, each scenario represents a unique pathway toward accelerating Mexican development. In concert, they portray a plausible future in which Mexico achieves or makes considerable progress toward its development goals.

Figure 4: Map of the Proyecto de Nación and corresponding scenarios.



Source: Authors, based on the a similar map in the Proyecto de Nación 2018-2024 (2018). Boxes represent the projects areas and thematic hubs described in the Proyecto. Colored groupings and labels indicate the corresponding scenarios: Economic Development in blue, Governance in green, and Social Development and Education in orange.

In developing specific interventions, we seek to model improvements which are ambitious yet achievable. They should be ambitious enough to represent a significant change from the Current Path but reasonable in the sense that achieving such outcomes is possible within the Mexican context. Several strategies were used to determine the magnitude of each intervention. Where historical data was available on a global scale, we looked to examples of development in Mexico's own history as well as that of countries that share important similarities. Where historical data was unavailable or not applicable, we used benchmarking: comparing the end result of the intervention with that of other relevant countries, such as Mexico's regional neighbors or economic peers. In this way, we attempted to construct scenarios that are relevant to Mexico and where no one intervention is entirely unrealistic.

Each scenario comprises interventions lasting the duration of the SDG time horizon (2018 to 2030). In most cases we cannot model a policy itself, but we can model what happens if a policy is successful in reaching its goal. For example, to simulate an improvement in education quality, we model an increase in test scores (see Scenario 2: Social Development and Education), but the policies implemented to achieve this improvement (e.g. improvements in curriculum, teacher training, or the classroom environment) are not specified. Scenarios are then analyzed across broad indicator variables like GDP, government revenues, and poverty rates, which allow us to compare the indirect impact of different policy focuses.

Scenario analysis with IFs

A scenario is a "coherent, internally consistent, and plausible description of a possible future state of the world" (Carter et al., 2001, p. 147). Scenarios are an important tool for exploring potential future developments of complex systems and environments. IFs scenario analysis is commonly used to provide coherent, alternative stories of the future, help to frame long-term uncertainty, and allow detailed exploration of possible trade-offs across different alternative futures (Hughes, 2005).

In the context of this report, scenarios are used to elaborate plausible future pathways of Mexico's development informed by the trends analysis in the preceding sections. The scenarios help to frame possible outcomes of distinct development pathways as well as some of the policy choices facing Mexico today.

The following sections describe the interventions made in each scenario independently. Note that these sections only outline the assumptions, which are the inputs into the IFs modeling process. They do not include the results of that modeling effort. Results follow in the Scenario Results summary table and the Results and Discussion section. A more detailed list of scenario assumptions and the magnitude of each intervention relative to the Current Path is available in Annex 1.

Scenario Assumptions

Scenario 1: Economic Development

The Economic Development scenario models a traditional approach to economic growth through investment, expanding infrastructure with deeper private partnerships, enhancing the capabilities and opportunities of the workforce, and the pursuit of independence in the energy and agriculture sectors.

A central objective of the Economic Development scenario is to improve the capabilities and opportunities of the labor force, which is essential to preparing for the economy of tomorrow. Vocational enrollment increases from 20 to 30 percent of total lower secondary enrollment and from 9 to 19 percent of upper secondary enrollment. Women's labor force participation increases from 45 percent to 54 percent, continuing an upward trend seen in Mexico since the 2000s. Importantly, we also model a reduction in unemployment from roughly 4.3 percent in 2018 to 3.4 percent by 2030, and a formalization of the economy in which the informal share of employment falls from 53 percent to 42 percent over the same period.

One of the *Proyecto de Nación's* objectives is independence in agriculture and energy. For agriculture, we model increased production through improving yields from roughly 6 tons per hectare to 8 tons per hectare by 2030, an improvement which parallels that achieved by Guatemala and Chile in the 1980s. Loss and waste of agricultural production is also reduced at all stages, bringing the loss rate down to roughly the level of Argentina today, a country with a similar volume of production to Mexico. For energy, we model the maintenance of oil production at 2015-2016 levels for several years, before falling more slowly than in the Current Path. The scenario also features an aggressive push to expand renewable energy production, from 0.04 billion barrels of oil equivalent (BBOE) to 0.42 BBOE by 2030.

In this scenario, additional investment in infrastructure is coupled with an expansion of public-private partnerships. Public spending reaches nearly 5 percent of GDP by 2030, with private sector involvement growing

by 35 percent. Finally, Mexico becomes more attractive to foreign investors, with FDI growing from 3.4 percent of GDP in 2018 to around 7.2 percent by 2030.

Scenario 2: Social Development and Education

The Social Development and Education scenario models a combination of two thematic hubs in the *Proyecto de Nación*: (1) Social Development and (2) Education, Values, Culture and Science. In this future, Mexico works on improving the livelihoods of its population with a focus on marginalized groups. While Mexicans are moving up through higher levels of education, culminating in a higher tertiary graduation rate, the quality of their education also improves. The population is healthier, with lower levels of mortality and a lower average body mass index (BMI), lowering the burden of diabetes and heart disease. Finally, the government doubles down on successful poverty alleviation strategies through increasing welfare transfers to poorer households.

Tertiary graduation rates rise from 21.5 percent in 2018 to 38 percent in 2030 (compared with the Current Path projection of 24 percent). This intervention assumes greater attainment at all lower levels as well. Education quality improves, as measured by the OECD's Programme for International Student Assessment. Average test scores increase from 40 to 46 at the primary level and from 45 to 52 at the secondary level, reaching the levels of Greece at primary and Spain at secondary today. The scenario simulates health improvements by reducing obesity and death rates. The population's average body mass index (BMI) increases more slowly, from 30.3 in 2018 to 30.9 in 2030, instead of reaching a projected 31.6 along the Current Path. Similarly, mortality rates from injuries and non-communicable diseases grow at a slower pace than in the Current Path, and the remaining communicable disease burden falls more rapidly. The overall death rate (per 1,000) of 5.1 in 2018 rises to 5.5 by 2030. As the population ages, the death rate will unavoidably rise, but this growth is slower than projected along the Current Path, in which it reaches 6 (per 1,000). Finally, the scenario increases welfare transfers to unskilled households from 14 to 16 percent of GDP by 2030, instead of falling to 12 percent of GDP as in the Current Path.

Scenario 3: Governance

The Governance scenario focuses on the Politics and Government thematic hub of the *Proyecto de Nación*. This scenario models a more secure and equitable future for Mexicans with a more effective and responsive government. Corruption, a central development concern of both the 2012-2018 and 2018-2024 administrations, falls. A more inclusive society promotes greater gender equality. And lastly, Mexicans enjoy greater security and peace through a reduction of violence.

In Governance we model advances in government effectiveness and transparency, improvements in security and peace, and greater inclusion. Transparency (or the absence of corruption) improves according to Transparency International's Corruption Perception Index from a score of 29 today to 52 by 2030. This moves the country from the 15th most transparent country in Latin America to the 7th. We also model an ambitious improvement in government effectiveness, according to the World Bank's Government Effectiveness index, from a score of 2.7 (out of 5) today to 3.8 in 2030.[5] This improvement parallels that which was achieved in Georgia in the 2000s and puts Mexico on track to reach roughly the level of Chile today by 2030. Gender empowerment broadly, as

[5] While the World Bank's World Governance Indicators are scored on a scale of -2.5 to 2.5, those have been rescaled from 0 to 5 in IFs, where 5 is the most effective.

measured by the United Nations Development Program's Gender Empowerment Measure (GEM), improves from a score of 0.64 in 2018 to 0.79 in 2030, roughly the level of the United States today. Finally, the population becomes more secure through a reduction in violence as measured by homicides. The homicide rate falls from 24 deaths per 100,000 in 2018 to 9 by 2030, a level not seen since the 2000s.

Scenario 4: Integrated Push

While each of the first three scenarios models a specific package of development priorities, the Integrated Push scenario models a combination of all the interventions described above. It imagines a world in which all three policy packages are pursued simultaneously and successfully, allowing IFs to capture the interactions between different scenarios. In some cases, one intervention may work with another to draw even greater benefits. For instance, welfare transfers in Social Development help ensure that the benefits of the growth achieved in Economic Development are shared more equitably. In other cases, it's possible that interventions may compete with one another, especially for limited resources. This scenario allows us to better understand the possibilities of a comprehensive development program and explore the trade-offs and synergies both within and between scenarios.

Results and Discussion

A summary of the results of each scenario is included Table 3. As is evident from the scenario results, no one policy or pathway will act as a panacea for Mexico's development. All policy decisions come with trade-offs in resources and capacity. For example, while some scenarios result in better outcomes for the economy, they may perform less well in terms of human development outcomes like health and education. On the other hand, some interventions are complementary, revealing synergies that can be taken advantage of by using a more integrated approach. IFs allows us to explore not just the potential results of intervention packages in Mexico but also their trade-offs and synergies.

Of the three individual scenarios, Economic Development results in the highest GDP, at over $2.1 trillion and 14 percent greater than the Current Path in 2030. Similarly, GDP per capita reaches over $20,700, the level of Panama today and nearly 9 percent higher than in the Current Path. While some of this boost comes from increased investments, much of it is also due to an expanded labor force, as female labor force participation grows, and productivity gains from formalization. Thanks to a boosted economy and a more formalized workforce, Economic Development shows the greatest increase in government revenues as well, amounting to $746 billion in 2030 – a 16 percent increase above the Current Path. And while Social Development has the greatest effect on poverty alleviation by 2030, the economic growth in Economic Development does help to lift 1.8 million more people out of poverty compared to the Current Path. The scenario is successful in its attempts to achieve agriculture import independence by 2030, with less than one percent of agricultural demand coming from imports. It also has the greatest effect on reducing Mexico's forecasted energy import dependence. In 2030, imports are projected to account for 28 percent of energy demand, compared to 42 percent along the Current Path. And in 2050, thanks to a heavy emphasis on renewable production, Mexico is a net exporter of energy again.

Social Development and Education performs the best in terms of health and education outcomes, as expected. Life expectancy, due to lowered disease burdens and rates of obesity, extends a full year beyond the next best scenario and 1.6 years beyond the Current Path. The Human Development Indicator (HDI) also increases the most in this scenario, reaching 0.8 by 2030, the level of Uruguay today. It also leads to the greatest increase in education years, 0.14 greater than in the Current Path. Although this may seem like a small increase, it is a measure that changes only slowly because it takes years for children to progress through the education system.

Social Development does boost the economy somewhat, resulting in a GDP 4 percent greater than in the Current Path by 2030. And even while Economic Development and Governance give the overall economy a greater boost, Social Development is the most successful in poverty alleviation, with over 7 million fewer people in poverty in 2030 than in 2015.

Table 3: Effects of different scenarios on select indicators in 2030 and 2050 for Mexico.

	2015	2030					2050				
	CP	CP	Econ	Soc	Gov	IP	CP	Econ	Soc	Gov	IP
GDP* *billion USD*	1,296	1,857	**2,134**	1,931	2,081	2,386	2,998	**4,024**	3,222	3,899	4,931
GDP growth rate *5-year lagged average*	2.9	2.7	**4.2**	3.2	4.2	5.6	2.1	2.5	2.1	**2.6**	3.2
Labor productivity *thousand USD per worker*	22.8	27.7	28.7	28.8	**31.0**	32.0	39.7	47.8	42.3	**51.3**	57.8
GDP per capita *thousand USD*	16.7	18.8	**20.7**	19.3	20.3	22.3	23.5	**28.6**	24.4	27.9	33.4
Government revenue *billion USD*	296	645	**746**	713	733	891	1,068	**1,504**	1,227	1,412	1,922
Education *average years 15+*	9.2	10.1	10.1	**10.2**	10.1	10.2	11.2	11.3	**11.7**	11.3	11.7
Life expectancy *years*	77	78.6	78.9	**80.2**	79.2	81	81.2	81.7	**82.8**	82	83.9
HDI* *index*	0.76	0.79	0.79	**0.80**	0.79	0.81	0.83	0.85	**0.86**	0.85	0.88
Poverty*** *million people*	13.4	9.4	7.6	**6.3**	7.7	4.1	5.0	**2.4**	2.6	2.6	0.6
Poverty *percent of population*	10.6	6.4	5.2	**4.3**	5.3	2.8	3.1	**1.5**	1.6	1.6	0.4
Agriculture import dependency *percent of demand*	7.9	15.4	**0.1**	15.9	15.8	1.2	17.5	**-0.7**	18.3	17.5	-0.5
Energy import dependency *percent of demand*	-3.3	41.9	**28.3**	43	44.7	32.1	52.8	**-9.0**	53.7	56.7	-3.6

*Coloring compares scenario outcomes across each indicator, with darker colors represent more "positive" outcomes. Bolded values indicate the scenario with the most positive outcome, excluding the Integrated Push. Scenario abbreviations are as follows: 'CP' is Current Path, 'Econ' is Economic Development, 'Soc' is Social Development and Education, and 'Gov' is Governance. Source: IFs 7.36. *All figures in US dollars are measured in 2011 USD. **HDI is the Human Development Index, a UN composite index measuring achievement across life expectancy, average years of education, and gross national income (GNI) per capita. *** Poverty refers to the population living on less than $3.10/day.*

As discussed above, one of Mexico's economic constraints (in terms of both productivity and revenue generation) is a high level of informality, perpetuated in part by poor regulation and corruption. Governance targets these

problems by reducing corruption and easing the burden of business regulation. As the results demonstrate, these improvements alone have a sizeable impact on economic growth, with returns nearly as big as those seen in Economic Development. In 2030, Governance results in a GDP of nearly $2.1 trillion, and its GDP per capita of $20,300 reaches a level comparable to Chile in 2011. Notably, the scenario shows the greatest improvements to labor productivity, which grows to $31,000 in 2030 – a 36 percent increase from 2015 and 12 percent increase above the Current Path. And the government is able to generate a cumulative $390 billion additional revenue relative to the Current Path by 2030. In terms of human development, Governance results in a longer life expectancy by half a year and 1.7 million fewer people in poverty in 2030 than the Current Path – modest improvements relative to those seen in Social Development.

Broadly, Integrated Push has the strongest impact across indicators. Mexico's economy grows by 84 percent by 2030 (28 percent higher than the Current Path), reaching a GDP of $2.4 trillion and surpassing Russia, Australia, and South Korea. GDP per capita registers a 33 percent increase from 2015 levels, reaching $22,300 by 2030. Just over 4.1 million people live in poverty, according to the international benchmark of $3.10/day, roughly 9.3 million fewer than were in poverty in 2015 and 5.3 million fewer than are projected along the Current Path.

The scenarios also reveal trade-offs. For instance, trade-offs occur between economic and human development and environmental objectives. Both Social Development and Governance raise carbon emissions slightly above the Current Path, due to economic growth and additional consumption. Of the three independent scenarios, Economic Development is the only one which results in lowered emissions. However, it is important to note that this is due to the inclusion of an aggressive increase in renewable energy production. Other trade-offs can be seen in scenarios which prioritize certain areas of government spending over others. Because funding is always finite, in the short to medium run this budget reallocation can slow service provision. For example, in Economic Development, increased spending in infrastructure can constrain spending in areas such as health and education. However, in this case due to the broad improvements in the economy, absolute expenditures across all areas end up exceeding those in the Current Path by 2050.

All of the scenarios result in a Mexico which is more capable to tackle the development agenda set forth by the SDGs. Annex 2 includes an SDG scorecard showing the achievement of measurable indicators for each scenario. The country has already achieved or is well on track to achieve the more basic goals such as reducing infant mortality to below 12 per 1,000 live births (SDG 3) and obtaining full primary enrollment (SDG 4). Of the 43 SDG indicators forecast in IFs with numeric targets, Mexico is on track to meet 19 (44 percent) by 2030. The Integrated Push accelerates progress toward an additional 18 of those indicators, although to meet some targets will require an even greater effort than that which is modeled here.

Further, many of the SDG indicators important to Mexico are not forecast in IFs or are difficult to forecast at all. Notably, this report is missing any significant discussion about environmental outcomes and policies. This is due in part to modeling constraints, but also because the environmental story is one best told at a more local level. In subsequent work we hope to explore environmental futures through a state-level analysis. In any case, the government will be in a much better position to pursue more challenging SDGs with a strong and resilient economy, healthy and capable population, and effective government.

Through this report, we have attempted to explore and forecast development trends in Mexico. An integrated and comprehensive development strategy, a central tenet of the Sustainable Development Goals, offers the greatest potential for advances in all areas of development. With this strategy, various interventions work together to unlock synergies and lower the constraints of typical trade-offs. A growing economy and more formalized workforce work together to generate higher government revenues. And with more revenues available, not to mention enhanced effectiveness, the government can simultaneously increase spending in health, education, infrastructure, and for other social services.

If this approach is implemented successfully, it places Mexico on an entirely different long-term development trajectory. In 2050, the Integrated Push Mexico, compared to projections of its Current Path, has the 8th largest GDP globally, surpassing the United Kingdom and Brazil. In terms of GDP per capita, Mexico surpasses Russia and reaches a level comparable to South Korea in 2014. Less than one percent of the population is living on less than $3.10 per day. The average Mexican has nearly 12 years of education and can expect to live to the age of 84. 70 percent of roads in the country are paved (an increase from less than 40 percent today) and over 80 percent of the rural population has access to an all-weather road (up from 60 percent today). A more transparent and effective government has over $1.9 trillion in annual revenues to spend on supporting the Mexican population. Finally, a reduction in violence saves a cumulative total of 490,000 Mexican lives from averted homicides.

But in order to pivot toward that path, Mexico needs to overcome important challenges such as persistently high informal employment, low levels of government capacity and effectiveness, and lagging infrastructure development. Overcoming these challenges will require no small effort on the part of policymakers and institutions. But by implementing widespread and strategic policies today, Mexico has the potential to bring about transformative and lasting change.

Annex 1: Table of Scenario Assumptions

The following table lists the individual assumptions made for each scenario. Each assumption describes the manifestation of a specific intervention made in IFs. Note that 2018 has been reported as a reference year. While typically informed by most recent data, this value represents an estimate from IFs. For specific parameter values, please consult the SCE files. Current Path values for 2030 have been provided in parentheses and represent the variables as forecast along the Current Path, in the absence of any scenario intervention.

Table 4: Assumptions included in each individual scenario.

Economic Development (Econ)
Annual foreign direct investment (FDI) flows grow from 3.7 percent of GDP in 2018 to 6.1 percent by 2030 (Current Path value in 2030: 3.9 percent). This brings Mexico to a level similar to Portugal today, though still below Chile, which saw a similar increase (from 3 to 6 percent) in the 1990s.
Oil production is maintained at 2015-2016 levels for several years, following a goal in the *Proyecto de Nación*, and then falls more slowly than expected, from 0.79 billion barrels to 0.67 in 2030 (Current Path value in 2030: 0.62 billion barrels).
The production of renewable energy is increased from 0.04 billion barrels of oil equivalent (BBOE) in 2018 to 0.42 BBOE by 2030 (Current Path value in 2030: 0.09 BBOE). The increase in production is slightly below that seen in China from 2005 to 2015 and above that in the US in the same period. It makes Mexico the 6th biggest renewable energy producer in 2030 globally.
Agricultural yields increase from 6.3 metric tons per hectare in 2018 to 8.3 in 2030 (Current Path value in 2030: 6.9 metric tons per hectare). This increase resembles that achieved by Guatemala and Chile during the 1980s.
Agricultural losses are reduced at the point of production, in transfer from producer to consumer, and from consumer waste. Total loss and waste falls from 25.5 million metric tons in 2018 to 23.8 in 2030 (Current Path value in 2030: 27.8 million metric tons). This brings the loss rate down to that of Argentina today, which produces a similar volume.
Lower secondary vocational enrollment (as a percentage of enrollment in all programs) increases from 20.7 percent in 2018 to 30.7 percent in 2030. Upper secondary vocational enrollment increases from 8.9 percent in 2018 to 18.9 percent in 2030 (Current Path value in 2030: 20.7 percent for lower and 8.9 percent for upper secondary). These gains are similar to those seen in Portugal from the mid-2000s to the mid-2010s.
The unemployment rate falls from 4.3 percent in 2018 to 3.4 percent in 2030 (Current Path value in 2030: 4.7 percent). This brings the unemployment rate roughly back to Mexico's 2005 levels.
The overall labor participation rate goes from 61.4 percent of the adult population in 2018 to 65.1 percent in 2030 (Current Path value in 2030: 58.8 percent total participation), modeling both an increase in female labor force participation (see below) and a slower reduction in male labor force participation.
The female labor participation rate increases from 45.3 percent in 2018 to 54.4 percent in 2030 (Current Path value in 2030: 45.4 percent). This grows at a rate similar to that seen in Mexico since the 2000s. Similar gains were seen in Chile during the same period. Mexico will reach the level of Portugal today.
The informal share of employment falls from 53.2 percent in 2018 to 42.3 percent in 2030 (Current Path value in 2030: 50.2 percent). The reduction (11 percentage points) is similar to reductions seen in both Peru and Ecuador from 2005 to 2015, although they both started from a higher informal share. This puts Mexico's informal share in 2030 just below Brazil's today.
Government spending on infrastructure increases from 3 percent of GDP in 2018 to 4.8 percent in 2030 (Current Path value in 2030: 2.6 percent). Spending increases roughly in line with a stated goal of the 2018-2024 administration. The private share of infrastructure investments increases by 35 percent, modeling a focus on public-private partnerships in the sector.

Social Development and Education (Soc)

The tertiary graduation rate increases from 21.5 percent of of-age students in 2018 to 38.1 percent by 2030 (Current Path value in 2030: 24.1 percent). Spain and Israel experienced similar improvements (roughly 17 percentage points) from 2000-2015.
Educational quality improves, measured using test scores from the OECD's Programme for International Student Assessment (PISA). Average primary test scores increase from 40 in 2018 to 46 in 2030 and average secondary test scores rise from 45 in 2018 to 52 in 2030 (Current Path value in 2030: average scores of 41 for primary and 47 for secondary). In primary, Mexico reaches roughly the level of Greece today and is projected to catch up with Chile by 2030. In secondary, Mexico reaches the level of Spain today.
Government spending on education as a percent of GDP is maintained, from 5.3 percent in 2018 to 5.1 percent in 2030, whereas it is projected to fall in the Current Path (Current Path value in 2030: 4.3 percent).
Government spending on health as a percent of GDP increases slightly, from 3.2 percent of GDP in 2018 to 3.8 percent in 2030 (Current Path value in 2030: 3.3 percent). Spending increases at similar rate to that seen in the 2000s. In 2030, Mexico reaches the level of Chile today.
Mortality is lower relative to the Current Path. Mortality rates from injuries and non-communicable diseases grow at a slower pace than in the Current Path, and the remaining communicable disease burden falls more rapidly. The overall death rate (per 1,000) of 5.1 in 2018 reaches 5.5 by 2030 (Current Path value in 2030: 6 deaths per 1,000). Other countries in the region, such as Chile, Peru, and Argentina, are increasing at an even somewhat slower rate.
The growth in average body mass index (BMI) of the population is slowed, growing from 30.3 in 2018 to 30.9 in 2030 (Current Path value in 2030: 31.6). Mexico will maintain a level similar to that of Argentina today.
Welfare transfers to unskilled households increase as a share of GDP, from 14 percent of GDP in 2018 to 16 percent in 2030. In the Current Path, they are projected to fall (Current Path value in 2030: 12 percent).

Governance (Gov)

Government effectiveness improves, based on the World Bank's Government Effectiveness index, from 2.7 out of 5 in 2018 to 3.8 in 2030 (Current Path value in 2030: score of 2.9). This increase in magnitude is similar to that seen in Georgia in the 2000s, with Mexico projected to reach roughly the level of Chile today.
Government transparency, as measured by Transparency International's Corruption Perception Index, improves from a score of 31 in 2018 to 52 in 2030 (Current Path value in 2030: score of 38). Mexico moves from the 15th most transparent (least corrupt) country in Latin America to the 7th in 2030, reaching a level similar to the Dominican Republic today.
Violence, as measured by homicide rates, falls. Deaths of adult men due to interpersonal violence fall from 57.2 per 100,000 in 2018 to 20.2 in 2030 (Current Path value in 2030: 48.9 deaths per 100,000). The homicide rate of adult men in Mexico moves from the 9th highest globally to 32nd, similar to the level of Kenya today. Deaths of women and children due to interpersonal violence fall from 5.3 per 100,000 in 2018 to 2.6 by 2030 (Current Path value in 2030: 3.1 deaths per 100,000). The homicide rate of women and children falls to the level of the USA today.
Gender empowerment, using the UNDP's Gender Empowerment Measure (GEM), rises from 0.64 in 2018 to 0.79 in 2030 (Current Path value in 2030: 0.68). This improvement is similar in magnitude to those made from the mid-1990s to 2000s in Mexico and Peru, reaching roughly the level of the USA today.

Annex 2: SDG Scorecard for the Current Path and Scenarios

The table below lays out Mexico's 2015 scores along select SDG indicators and 2030 values along the Current Path and the alternative scenarios included in the report. It is designed to provide an overview of Mexico's progress to date and establish prospects for meeting the SDGs. Many of the Current Path indicators helped to inform the construction of the scenarios used in this report. Forecast values come from IFs 7.36. Note that this table only includes indicators which are forecast in IFs and are related to SDG indicators. Where available, the 2030 SDG target value is provided.

Table 5: SDG Scorecard for the Current Path and scenarios

Indicator	Target	Current Path 2015	Current Path 2030	Economic Dev. 2030	Social Dev. 2030	Governance 2030	Integrated Push 2030
Goal 1: End poverty in all its forms everywhere							
1.1.1: Percentage of population below $1.90 (2011 USD in PPP) per day; Lognormal	3.0	3.3	1.6	1.2	0.8	1.2	0.5
1.2.1: Percentage of population below $3.10 (2011 USD in PPP) per day; Lognormal	5.3	10.6	6.4	5.2	4.3	5.3	2.3
1.a.1: Transfers as a percent of GDP		16.6	15.7	15.8	19.2	15.8	19.5
1.a.2: Percentage of total government spending on essential services (education, health)		25.3	25.3	22.5	25.6	25.2	23.3
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture							
2.1.1: Percentage of population undernourished	3.0	4.2	3.0	2.8	2.9	2.8	2.6
2.2.2: Percentage of malnutrition (weight for height <-2 SD) among children under 5	2.5	2.5	2.4	2.2	2.5	2.4	2.2
2.2.2: Severe acute malnutrition (weight for height <-3 SD) among children under 5	0.4	0.40	0.42	0.39	0.40	0.27	0.24

Indicator	Target	Current Path 2015	Current Path 2030	Economic Dev. 2030	Social Dev. 2030	Governance 2030	Integrated Push 2030
Goal 3: Ensure healthy lives and promote well-being for all at all ages							
3.2.2: Infant mortality rate in deaths per thousand newborns	12.0	17.8	11.8	11.1	10.4	11.2	9.5
3.2.2: Child mortality rate in deaths per thousand		21.7	14.8	14.0	13.1	14.1	11.9
3.7.1: Contraception use as percentage of fertile women	97.0	66.9	73.9	75.8	74.4	75.4	77.4
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all							
4.1.1: Primary education gross completion rate	100.0	108.7	105.1	105.4	105.3	105.4	105.7
4.1.1: Lower secondary education graduation rate	97.0	84.6	86.3	87.5	88.2	87.9	90.2
4.1.1: Upper secondary education graduation rate	97.0	48.1	63.8	64.2	67.3	65.6	68.4
Goal 6: Ensure availability and sustainable management of water and sanitation for all							
6.1.1: Percentage of people with access to improved water	98.7	98.7	98.2	100.0	97.4	98.5	100.0
6.2.1: Percentage of people with access to improved sanitation	98.0	89.2	90.3	96.2	89.5	90.5	95.6
6.3.1: Percentage of people connected to a wastewater collection system	98.0	67.6	75.1	76.1	75.0	75.2	76.1
6.4.2: Level of water stress; freshwater withdrawal as a percentage of available freshwater resources	17.1	34.1	35.8	36.1	35.9	36.2	36.5

Indicator	Target	Current Path 2015	Current Path 2030	Economic Dev. 2030	Social Dev. 2030	Governance 2030	Integrated Push 2030
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all							
7.1.1: Percentage of population with access to electricity	99.2	99.2	98.6	100.0	97.5	98.6	100.0
7.2.1: Renewable energy as percentage of total final energy consumption		4.1	8.4	25.5	8.2	8.1	24.4
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all							
8.1.1: Annual growth rate of real GDP per capita		1.4	2.0	3.6	2.5	3.6	4.4
8.3.1: Percentage of informal employment (non-agricultural)		54.7	50.2	42.2	42.7	46.3	37.9
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation							
9.2.1: Manufacturing value added as a percentage of GDP		24.9	27.8	27.7	27.7	28.5	28.2
9.2.2: Manufacturing employment as a percentage of total employment		17.7	19.7	19.8	19.7	20.2	20.1
9.c.1: Connections per hundred people to fixed broadband technology		12.2	26.1	41.8	26.2	26.7	39.9
9.c.1: Connections per hundred people to mobile broadband technology		21.2	117.3	121.9	117.5	118.4	122.3
Goal 10: Reduce inequality within and among countries							
10.b.1: Foreign direct investment annual inflows in billion USD		31.6	72.6	153.8	79.1	93.3	182.6

Indicator	Target	Current Path 2015	Current Path 2030	Economic Dev. 2030	Social Dev. 2030	Governance 2030	Integrated Push 2030
10.b.1: Resource flows for development in billion USD		32.5	73.5	154.8	80.0	94.3	183.7
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable							
11.6.2: Urban-population weighted PM2.5 levels in residential areas of cities with more than 100,000 residents		20.5	15.7	16.2	15.2	15.5	15.5
Goal 12: Ensure sustainable consumption and production patterns							
12.3.1: Loss at the production level, percentage of production		6.4	5.8	5.4	5.7	5.5	5.0
12.3.1: Loss at the supply chain level, percentage of production		5.2	5.5	2.3	5.5	5.4	2.3
Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels							
16.1.1: Years of life lost to intentional injuries per thousand		10.7	13.2	13.0	11.9	6.5	5.8
16.1.1: Years of living with disability due to intentional injuries per thousand		0.41	0.46	0.45	0.42	0.27	0.25
16.1.1: Homicides per thousand		0.16	0.22	0.21	0.19	0.09	0.08

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