



## **Innovation and Development in Mexico: The Promising Road Ahead**

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Despite the tenuous state of public security in Mexico and the impact the U.S. economic recession has had on the country, Mexico has been successful at boosting its economic performance, while at the same time demonstrating innovation in its agricultural, aerospace, automobile manufacturing and energy sectors. Although these advances are noteworthy, the country faces ongoing challenges to its progress and continued growth, particularly due to monopolistic industries and an unequal distribution of wealth.

When compared with the rest of the Latin American region, Mexico has not performed as well as expected. Mexico is currently ranked 81<sup>st</sup> by the [Global Innovation Index](#), which ranks a country's level of innovation. Viewed comparatively with Latin America and the Caribbean, Mexico is ranked 11<sup>th</sup> out of 20. More disappointing yet is the disparity between Mexico and the rest of North America; the United States and Canada are ranked in 7<sup>th</sup> and 8<sup>th</sup> place, respectively.<sup>1</sup> The [World Economic Forum's Global Competitiveness Index](#) (GCI) ranked Mexico 58<sup>th</sup> in 2011-2012, up from 66<sup>th</sup> place in 2010-2011. Although this overall ranking places Mexico in a group along with other well developed and developing countries, there are many sectors that serve as obstacles to increased competitiveness and development.<sup>2</sup>

The 2008 economic recession in the United States dealt a devastating blow to [Mexico's economy](#). The country experienced a loss of roughly 700,000 jobs between late 2008 and mid-2009, two-thirds of which were in the manufacturing sector; furthermore, the country's economy contracted by 6.1% in 2009.<sup>3</sup> In addition to experiencing an unusually harsh recession, Mexico's federal government is confronting transnational organized criminal groups that operate throughout the country; the resulting violence has led to waning support from the general public for the government's strategy.

Although, these circumstances are less than ideal, they have not stopped the country's development on a number of fronts. In [2010](#), the Mexican economy grew by 5.5%<sup>4</sup> and shrank its trade deficit by 32%, increasing both [total exports and imports](#).<sup>5</sup> There is a renewed wave of investment in a variety of industries in northern states traditionally home to maquiladora plants—also the areas most affected by violent organized crime. Recently IBM increased access to its software and technical expertise for Mexican businesses following the opening of an innovation center as part of its Global Entrepreneur initiative. A recent article in [Forbes](#) described this new-found niche, stating that “Mexico has come to be seen as an attractive investment option for multinational companies looking to diversify and globalize their operations.”<sup>6</sup>

The [Aerospace](#) industry has also been encouraged by the allure of pro investment policies in Northern Mexico. The proximity of Mexican states such as Baja California to U.S. states, like California, with well-established aerospace industries, has helped the sector achieve annual growth rates of 17% (clusters have also recently developed in other areas, like Querétaro).<sup>7</sup> This high growth rate has influenced [universities in northern Mexico](#), who are rapidly developing technical and engineering programs to meet the high demand set by these industries.<sup>8</sup> [Mexico](#) boasts an impressive number of graduates with degrees in engineering and technology, as well as over 750,000 students who are working toward degrees in these fields, giving the country a wealth of human capital ripe for new investment and innovative industries.<sup>9</sup>

Not only have such investments led to job creation in Mexico, they also have impacted Mexico's closest trading partners to the north. Ports of entry such as [El Paso, Texas](#), have seen trade figures with Mexico increase significantly. In 2010 alone, El Paso boasted \$69 billion in trade with Mexico, and other cities in Border States have also seen increases in trade. Houston, Texas, accounted for \$16 billion in trade with Mexico in 2009 and showed an increase of more than a quarter in 2010, reaching \$22 billion.<sup>10</sup>

Recently, Mexico received \$190 million in loans to help increase sustainable productivity in agriculture and fisheries by the [Inter-American Development Bank \(IADB\)](#).<sup>11</sup> In March 2011, the Mexican Agricultural ministry, SAGARPA, approved a program allowing Monsanto, a company that sells enhanced seeds and crop protection chemicals, to plant one hectare in Tamaulipas with [genetically modified corn](#). The hope is that this corn product will allow farmers to better compete with U.S. corn imports. Though the total amount of genetically modified corn throughout the country remains low, these initiatives could help significantly reduce the amount of corn imported into Mexico, which amounted to 7.2 million tons in 2010.<sup>12</sup>

The [Energy](#) sector is another area where Mexico has successfully encouraged innovation by furthering the development of alternative sources of energy, particularly clean energy. The government of Mexico (GOM) has strongly sought to support initiatives to prevent climate change and limit carbon emissions. The Ministry of Energy (SENER) has developed a dual strategy aimed at increasing energy efficiency and reducing the costs of energy consumption, as well as helping to further the widespread use of sources of renewable energies. To make possible the realization of these strategies, Mexico passed the law for the financing and facilitation of renewable energies, creating a \$3 billion peso fund for renewable energy projects.<sup>13</sup> In addition, the country has passed laws to help promote biofuels production, protect food supplies, and protect the environment.<sup>14</sup>

Mexico's natural geography makes it a prime region for the development of geothermal power sources. It is estimated that Mexico produces over 3% of its electricity output through geothermal means. Although the country's largest geothermal facility lies in northern Baja California, the central states of Jalisco, Michoacán, Puebla, Guanajuato, Queretaro, and the state of Mexico, all have promising geothermal fields. Mexico also excels in wind energy production, and the Government of Mexico hopes to produce 2.5GW of electricity in the next year.<sup>15</sup> With the help of USAID and other U.S. government agencies, as well as the Mexican government, Oaxaca was able to obtain wind mapping information that allowed it to better allocate resources

and further develop wind-generating capabilities. However, more mapping of wind and geothermal energies is needed in order to better quantify the scope and availability of renewable resources in Mexico.

The prominence of wind and geothermal energy sources along the U.S.-Mexico border afford Mexico an opportunity to position itself strategically to reap the benefits of cross-border energy markets. Some examples of this type of sharing already exist. Last February, the [Federal Electricity Commission in Mexico](#) transferred 280 megawatts from Nuevo Laredo, Reynosa, and Piedras Negras to help offset high demand in Texas due to a cold snap that brought abnormally low temperatures to the region.<sup>16</sup> Although [energy sharing](#) faces many challenges, chiefly the need for infrastructure between the two countries, such cooperation could help U.S. states meet their demands for energy consumption while complying with renewable energy standards.<sup>17</sup>

While Mexico's trade policies allow it a favorable position in the world economy, significant barriers continue to limit the country's competitiveness, development, and capacity for innovation. Mexico suffers from an [unequal distribution of wealth](#), with over 50% of inhabitants in the southern states living in poverty.<sup>18</sup> The five wealthiest states in the north have a [GDP](#) roughly four times that of their southern neighbors.<sup>19</sup> Long overdue [internal economic reforms](#) have generated an environment of impunity across multiple sectors, in which monopolies thrive. Key industries that would allow Mexico to take further steps along a road toward increased innovation, such as telecommunications controlled by Carlos Slim's TELMEX, and television networks split between Televisa and TV Azteca, are monopolistic or duopolistic in nature and limit the country's opportunities for innovation. Changes to these sectors could increase competition within the country, and further economic opportunities.<sup>20</sup>

Education reform, labor reform, and a strengthening of the financial sector are all needed within the country. Although, there is a high level of enrollment in primary education, the quality of that education is generally poor, ranked 121<sup>st</sup> among nations, according to the [Global Competitiveness Index](#). Overall quality of education boasts only a marginal improvement (ranked 107<sup>th</sup>) and the value of math and science education, crucial to success in high tech industries, is ranked lowest of all the education indicators at 126<sup>th</sup>. Though the banking system is strong in Mexico (ranked 40<sup>th</sup>) the availability of access to loans and credit (ranked 92<sup>nd</sup>) as well as the lack of availability for risk seeking investments (ranked 78<sup>th</sup>) impede increased competitiveness.<sup>21</sup> Another factor disadvantageous for Mexico's innovative drive is the low number of U.S. [patents](#) that are requested within the country. Mexico falls well behind the BRICS in this respect with only 115 patents requested in 2010, and is far outpaced by Canada whose patents requests number in the several thousands.<sup>22</sup> Certain public sector unions have complicated the passage of important economic reforms and impede progress throughout the country. Inefficient management of HR policies in the [labor market](#) (ranked 123<sup>rd</sup>) and the lack of women in the labor force (ranked 120<sup>th</sup>) also remain significant barriers to innovation and development.<sup>23</sup>

Mexico is only 12 years out from its transition to democracy, and the country has not yet been able to fully remove antiquated barriers to its development and innovation. Even so, it has succeeded in recovering from the repercussions of the '08 economic recession, partly by encouraging investment from abroad, and has managed to successfully encourage innovation in some key areas. Mexico is making important progress in renewable energy development,

pursuing initiatives to boost food production and increase food security, and increasing access to healthcare. Although further support from the Mexican government and the private sector is needed to ensure that innovation in Mexico expands, the road ahead is a promising one.

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<sup>1</sup> INSEAD: The Business School for the World, "Rankings," *The Global Innovation Index 2011*, [http://www.globalinnovationindex.org/gii/main/analysis/rankings.cfm?vno=#CGI.SCRIPT\\_NAME#](http://www.globalinnovationindex.org/gii/main/analysis/rankings.cfm?vno=#CGI.SCRIPT_NAME#) (accessed December 8, 2011).

<sup>2</sup> *The Global Competitiveness Report 2011-2012*, (Geneva, Switzerland: World Economic Forum, 2012), 259.

<sup>3</sup> "Making the desert bloom," *The Economist*, August 27, 2011.

<sup>4</sup> Bret Stephens, "The Mexican Paradox," *The Wall Street Journal*, May 31, 2011.

<sup>5</sup> Patrick Rucker, "Update 2-Mexico trims 2010 trade gap; industry exports swell," *Reuters*, January 25, 2011.

<sup>6</sup> "Violence on Mexico's Northern Border Not Stopping Wave of Investment in Country's Booming IT Sector," *Forbes*, May 2011.

<sup>7</sup> ProMéxico: Trade and Investment, Mexico Investment Map: Site Selection Tool, Strategic Industries, Industry Profiles, Aerospace

<sup>8</sup> Sandra Dibble, "Aerospace takes flight in Mexico," *U-T San Diego*, July 30, 2011.

<sup>9</sup> ProMéxico: Trade and Investment, Foreign Visitor, Strategic Industries, Aerospace

<sup>10</sup> Jenalia Moreno, "El Paso economy is rumbling back," *Houston Chronicle*, May 7, 2011.

<sup>11</sup> "Mexico to Boost Agricultural and Fisheries Productivity," *Inter-American Development Bank, Press Release*, July 25, 2011.

<sup>12</sup> Mica Rosenberg, "Mexico Oks pilot field of genetically modified corn," *Reuters*, March 8, 2011.

<sup>13</sup> Duncan Wood, *Environment, Development, and Growth: U.S.-Mexico Cooperation in Renewable Energies* (The Woodrow Wilson International Center for Scholars, 2010.) 15.

<sup>14</sup> *Ibid.*, 40.

<sup>15</sup> *Ibid.*, 25.

<sup>16</sup> "Mexico Supplies Electricity to Wintry Texas," *Agence France-Presse*, Feb 2, 2011.

<sup>17</sup> Wood, *Environment, Development, and Growth*. 30.

<sup>18</sup> *Poverty in Mexico: Conditions, Trends and Government Strategy* (Mexico City, Mexico: The International Bank for Reconstruction and Development / The World Bank, 2004). 82.

<sup>19</sup> Andrew Selee, Christopher Wilson, Katie Putnam, *The United States and Mexico: More Than Neighbors* (The Woodrow Wilson International Center for Scholars, 2010). 20.

<sup>20</sup> *Ibid.* pg. 5.

<sup>21</sup> *The Global Competitiveness Report 2011-2012*, 259.

<sup>22</sup> U.S. Patent and Trademark Office, Patent Technology Monitoring Team, *Patents By Country, State, and Year- All Patent Types*, 2010.

<sup>23</sup> *The Global Competitiveness Report 2011-2012*, 259.