Made in Mexico: How Energy Reform Can Boost Growth

By Fabián Valencia

April 6, 2015

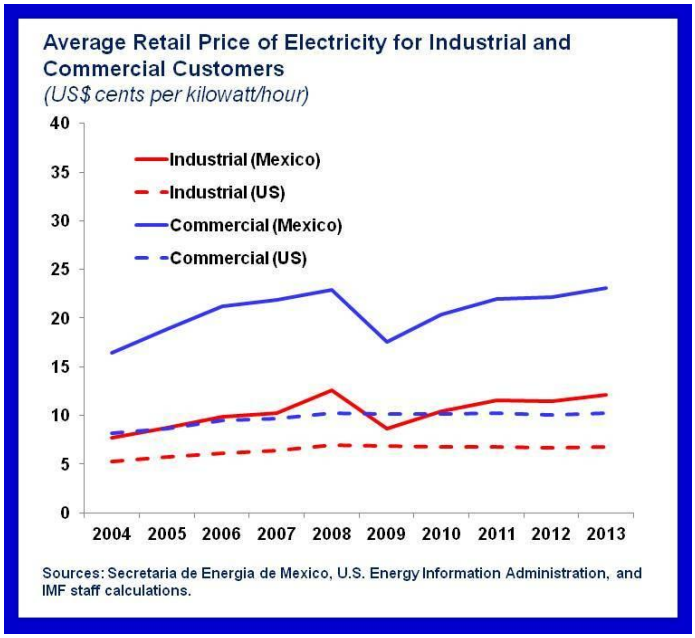
In December 2013, Mexico approved an ambitious and controversial energy reform that will deeply transform the previously state-controlled oil, gas, and electricity sectors in Mexico. In a nutshell, the reform opens these sectors to private investors, with the government retaining control of transmission and distribution channels through independent regulatory agencies.

The main objective of the reform is to attract much needed investment to finance the exploration and exploitation of oil and gas reserves, the expansion of electricity generation capacity and transmission networks, and the upgrading of oil, gas, and electricity infrastructure.

Our recent paper looks at the effects of this energy reform on the Mexican economy and finds that, by lowering electricity prices, it could boost manufacturing production by up to 3.6 percent and overall GDP by up to 0.6 percent.

Lower electricity prices

The energy reform is expected to cut industrial electricity prices in Mexico, which are about double the prices in the United States. In Mexico, electricity generation relies much more heavily on oil derivatives (about a fifth of total generation capacity) than the United States, where less expensive energy sources, such as natural gas and coal, are more abundant.



The reform can help change the electricity generation structure in Mexico by allowing more investment in pipelines to import more natural gas from the United States and in plants with lower generation costs. We estimate that a complete substitution of oil derivatives for natural gas in electricity generation could imply a drop of 13 percent in electricity prices for the average industrial user.

Higher manufacturing output and GDP

How sensitive is manufacturing production to changes in electricity prices? Our empirical analysis suggests that a 1 percent reduction in electricity prices could lead to an increase in production of up to 0.28 percent. The response varies widely among subsectors of manufacturing, with a much larger elasticity for metals and transportation equipment (which includes the auto industry).

Economic Impact of a Reduction in Electricity Prices

	Lowest	Highest
Elasticities	-0.11	-0.28
	In percent	
Scenario 1: Substitution of oil derivatives for natural gas		
Increase in manufacturing output	1.4	3.6
Increase in overal GDP	0.2	0.6
Scenario 2: Convergence to U.S. levels		
Increase in manufacturing output	5.5	14.0
Increase in overall GDP	0.9	2.2

Sources: National authorities and IMF staff calculations.
Note: Scenario 1 assumes a reduction in electricity prices of 13 percent, consistent with oil derivatives being substituted by natural gas in electricity generation. Scenario 2 assumes convergence of electricity prices for Mexican industrial and commercial users to U.S. levels.

Overall, a 13 percent decline in industrial electricity prices could lead to an increase of manufacturing output of up to 3.6 percent, and raise GDP by about 0.2 to 0.6 percentage points.

The total gains from the reform could even be larger. Electricity prices in Mexico could eventually drop to U.S. levels, boosting manufacturing output further. This could be achieved if the electricity generation structure in Mexico converges to a similar structure than in the United States and improvements in electricity infrastructure allow for a reduction in its high electricity losses—about three times those seen in the United States. An additional gain could arise from the services sector, which is also sensitive to electricity prices, although less so than manufacturing.

How does the recent decline in oil prices affect this assessment? Not significantly. The estimated gains stem from the cost differential from using natural gas instead of oil derivatives in electricity generation. Since natural gas prices have also come down, its price relative to the price of oil derivatives for electricity generation has not changed dramatically over the past months.

Policy implications

Mexico is well positioned to continue expanding its manufacturing sector. The recently enacted energy reform has the potential to lower electricity costs and improve infrastructure of the energy sector. However, to reap all potential benefits, proper implementation of the reform is critical, including ensuring an effective functioning of the newly created regulatory agencies.

****

Fabián Valencia is a Senior Economist in the IMF's Western Hemisphere Department covering Mexico. Prior to his current position, he worked in the macro-finance group of the Research Department and in the crisis resolution group of the Monetary and Capital Markets Department. His research focuses on financial intermediation and the real economy, banks' capital structure, and banking crises, in particular on their consequences and policy responses to resolve them. He holds a Ph.D. in Economics from The Johns Hopkins University.