NAFTA and its Impact on Mexico

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Abstract

The principal objective of a free trade agreement between two or more countries is to increase efficiency. As the well-known Heckscher-Ohlin (1933) theorem suggests, by going from autarky to free trade, the countries involved will tend to specialize in the production of those goods and services that each country has a comparative advantage in, and this will lead to increased efficiency and welfare. This paper analyzes how the North American Free Trade Agreement (NAFTA) between the United States, Canada and Mexico has created efficiency and welfare in Mexico, as it has been argued that NAFTA has been both advantageous as well as disadvantageous for Mexico. In sum, this paper investigates which particular sectors of Mexico's economy benefitted from and were injured by NAFTA, while taking into account macroeconomic indicators such as GDP growth, Foreign Direct Investment (FDI) flows, volume of trade, wage inequalities and education, as most studies have found the net economic effects of NAFTA on Mexico to be ambiguous.

I. Introduction

NAFTA was signed in 1992 by the then US President George Bush, Canada's Prime Minister Brian Mulroney and Mexico's President Carlos Salinas de Gortari. It came to force in January 1994 (OECD, 2001) and established a free trade zone among the three countries. All duties as well as quantitative restrictions were removed four years later. The agreement de facto created the world's largest free trade area, linking some 450 million people while producing goods and services in excess of $17 trillion US dollars.[1] The economic benefits for the three countries were expected to be enormous, as predicted by the Heckscher-Ohlin (H-O) theorem. This research paper investigates which particular sectors of Mexico's economy benefitted from and were injured by NAFTA, while taking into account macroeconomic indicators such as GDP growth, Foreign Direct Investment (FDI) flows, volume of trade, wage inequalities and education, as most studies have found the net economic effects of NAFTA on Mexico to be largely ambiguous.

II. The Hopes and Fears of NAFTA

Because low-skilled labor is relatively abundant in Mexico, and therefore its marginal productivity is low, an obvious expected gain was that FDI from the United States and Canada – where capital is relatively abundant - would employ Mexican labor in Mexico – because NAFTA, unlike the European Union, did not involve labor mobility. The expectation was that such capital inflows would increase low-skilled wages, as per the Stopler-Samuleson theorem, and decrease income inequalities. In a country like Mexico, where income disparities have been traditionally very large, creating political stability via lifting wages of low-income households was perceived as potentially beneficial for Mexico's economic growth prospects as suggested by

[1] Office of the United States Trade Representative (2011).

Alesina and Peroti (1996). This did not happen. Not only did income inequalities between low-skilled and high-skilled workers increase, but also regional wage inequalities have risen. The Zapatista revolt in the South, for example, was started in January 1994 – precisely the day when NAFTA came into force. This is clearly not a coincidence, and indeed, the expectation that the South of Mexico would be left behind relative to the North was self-fulfilling (Gilberth – Otero, 2001).

III. Benefits

A. Volume of Trade

In 1993, trade among the three countries was worth $297 billion, and since the agreement came to force, trading is now worth more than $1.6 trillion, according to the latest estimates for 2009.[2] In other words, the volume of trade increased eightfold over a nearly 15-year period. According to Tornell et al (2004, 3), the volume of trade (exports and imports excluding oil) as a percentage of Mexico's GDP increased from 26 percent to 64 percent from 1985 to 2000. Non-oil exports increased from approximately $2 billion to $150 billion. These spectacular increases can be attributed partly to NAFTA, but also to economic reforms prior to NAFTA on two important fronts.

First, on the trade front, accession of Mexico to the General Agreement of Tariffs and Trade (GATT), which dates back to 1985. (GATT is the predecessor of the World Trade Organization, WTO). This already eliminated most tariffs except in agriculture. And, second, on the financial flows front, financial liberalization was initiated in 1989, which facilitated FDI.

One may then ask what was NAFTA's main effect on trade flows if trade barriers had already been lifted? The answer lies in investor's expectations. In particular, NAFTA made it

[2] Office of the United States Trade Representative (2011)

increasingly difficult for Canada and the U.S. to revert back to the imposition of trade barriers. This, in turn, reduced the level of uncertainty among foreign investors, thereby enabling higher FDI to be poured into the trade sector in Mexico[3].

B. FDI Flows & NAFTA

It is important to analyze to what extent NAFTA directly contributed to this increase in FDI flows in Mexico. Cuevas et al (2002) from Banco de Mexico, for example, use panel regressions on data from 45 countries belonging to different trade blocks for the period 1980 – 1999 to analyze the impact of NAFTA membership on FDI. Their main findings suggest that, relative to other trading blocks, NAFTA is responsible for an increase in FDI in Mexico by approximately 70 percent.

C. Growth

The consequent increase in trade might have had a positive impact on economic growth, as suggested by Aghion (2009). In particular, while average growth rates in Mexico were 2 percent prior to the signing of NAFTA in 1980-1993, this doubled to 4 percent in 1996 – 2002.[4]

IV. Trade Creation or Trade Diversion?

The increase in trade volumes following NAFTA have prompted a heated debate over whether trade blocks lead to greater trade creation or trade diversion.[5] Some econometric studies have shown that the effects of NAFTA on trade creation and trade diversion are difficult to

[3] Aspe (1993); Esquivel and Tornell (1998); Lustig (2001); Perry et al. (2003).
[4] Kose, Meredith, Towe (2004), IMF Working paper WP/04/59
[5] Jacob Viner was the first to explain how free-trade areas have two effects: trade creation and trade diversion. Trade creation is caused by the removal of tariffs on intra-area imports. It is defined as "a shift in production of a product from a high-cost domestic source to a lower-cost source in a partner country." Trade diversion is caused by the removal of tariffs on intra-area imports combined with the retention of a tariff on extra-area imports. It is defined as a shift of production away from a lower-cost producer outside the customs union to a higher-cost source of supply within it."

estimate. The overall effects seem to be that trade creation has outweighed trade diversion (Gould, 1998 and Krueger 1999, 2000).

Contrary to these findings, a study by Fukao et al (2002) suggests that NAFTA may have resulted in a greater amount of trade diversion. In their gravity model, NAFTA is expected to reduce U.S. imports from non-NAFTA members via the following mechanisms: First, an increase in the relative import price (including tariffs) of the non-NAFTA countries' products in U.S. total imports in comparison with the import price of NAFTA members. Second, it reduces the variety of imports supplied by non-NAFTA members. The magnitude of these two effects is expected to be greater than the trade creation effect if the U.S. is an important destination of non-NAFTA members' exports. Hence, following Viner's conclusions[6], the overall effect will be harmful to economic efficiency and therefore will reduce economic welfare.

While the issue remains empirically controversial, the study by Fukao et al (2002) concludes that the reason why NAFTA has resulted in significant trade diversion is due to textiles, apparel and some footwear products. These types of products now enter the U.S. from Mexico at preferential rates at the expense of cheaper and more efficiently produced products from Asian suppliers (12-13). This potential trade diversion effect can be potentially alleviated via increased outsourcing and offshoring, which are permitted under the rules and regulations of the WTO.

Under outsourcing, a U.S. firm can contract a foreign firm, say an Asian firm, to perform specific parts of the production in a foreign location. If labor is cheaper in Asia than in Mexico, production should take place in Asia and the greater trade diversion effect is thereby mitigated.

[6] Viner arrived to the conclusion that the effects of free trade areas (i.e. NAFTA) on economic welfare depends on the relative size of trade creation and trade diversion. If trade creation were to exceed trade diversion, there will be gains in inefficiency and an improvement in economic welfare, and vice versa (International Trade Policy, Grimwade, p.238, 1996).

Similar mitigating effects are expected from offshoring, which relates to the relocation of parts of the production chain abroad. Offshoring has increased dramatically over the last decade and is one of the main drivers of the increased worldwide trade in services, such as business and telecommunication services (Hanson et al, 2005); in manufacturing trade alone, intermediate goods offshoring accounted for up to 40% of worldwide trade in 2008 (Krugman et al, 2011,185).

Empirically, the big question is whether the firms that engage in outsourcing and offshoring of intermediate goods are the same set of firms that also export. The answer to this question is yes. From the standpoint of Mexico, outsourcing and offshoring may, however, be detrimental as, relative to its Asian producer counterparts, Mexico cannot compete with its much smaller labor force and its relatively more expensive low-skilled labor.

V. Productivity in the Manufacturing Industry

Dating back to Solow's Growth Model (1956), economists tend to view productivity as the main source of economic growth. In the case of Mexico, the main contribution to Total Factor Productivity (TFP) is productivity of labor, which, according to Caliendo and Parro (2009, 29) has increased in Mexico by more than in the U.S. and Canada. Simply put, real wages on average have grown in Mexico under NAFTA, due to an increase in labor productivity. Such an increase is observed in the manufacturing sector, which is the relatively low-skilled abundant factor of production in which Mexico has a comparative advantage relative to the U.S and Canada.

Many studies suggest, however, that the wages of relatively higher-skilled workers in the manufacturing sector have also increased, particularly in those northern states in proximity to the U.S. (Garduño-Rivera, 2010). This, in turn, has increased regional income inequalities, leaving

the southern states behind. The big question, then, remains: why has migration from the South to the North not been as substantial as one would expect? The answer is that lack of education has been lagging behind in the South relative to the North. Thus, the workforce in the South is less productive due to a persistent lack of education.

Government investments in education in the South have been massive via the anti-poverty campaigns PROGRESA/OPORTUNIDADES, which give conditional cash-transfers as an incentive tool to mothers who send their children to school (Attanasio et al, 2011). However, even though the program started in 1997, the positive effects of the PROGRESA/OPORTUNIDADES program on education do not appear to have been large enough to close the income gap between the high-skilled North and the low-skilled South as of yet.

Let us now look at productivity of capital. When discussing TFP emerging from physical capital accumulation, one should bear in mind the endogenous growth models à la Romer (1990) and à la Aghion-Howitt (1992), which demonstrate that in an imperfectly competitive setup, firms have an incentive to engage themselves in investments to improve technology and R&D so as to leap-frog their competitors and thereby gain a higher share of the market via productivity gains. As demonstrated by Grossman-Helpman (1991) in the context of international trade, outdated technologies can survive for longer periods thanks to the fact that they can be exported to relatively less-developed countries. Such outdated technologies are nevertheless higher quality technologies relative to those existing in less-developed countries such as Mexico.

An empirical study by López-Córdova shows that, under NAFTA, foreign capital has had a positive impact on TFP. However, spillovers across industries are negative (2002, 1). The reasons are: a) education is missing for technological diffusion of knowledge from foreign firms

to their domestic competitors. (For example, the imitation of high-technology imported from developed countries such as the U.S. requires a certain level of education, which seemingly Mexico has not yet attained, unlike main exporters in Asia); and b) foreign firms are reluctant to disseminate technological know-how in order to keep their competitive edge (8).

VI. Maquiladoras

Maquiladoras are assembly lines specializing in the manufacture of auto parts, electronics and apparel industries[7]. They are mostly located along Mexico's northern border and import inputs from the U.S., process them and then re-export them back to the U.S.

It should be noted that these plants did not emerge with NAFTA[8]. Mexico and the U.S. introduced the maquiladora program in 1965 (Kagan, 2004, 1). Even though it is estimated that under NAFTA employment in maquiladoras doubled within a five-year period, wages in such factories remain low relative to those in the U.S.,[9] which is detrimental to labor standards on both sides of the border. In particular, maquiladoras under NAFTA have made it easier for American employers to replace high-wage workers in the U.S. with low-paid workers in Mexico. Thus, NAFTA has hurt labor standards on both sides of the border (Krugman et al, 2011, 281).

Krugman et al would also argue that while wages in the maquiladoras are very low compared to wages in the U.S., this situation is due to the lack of other employment opportunities in Mexico. It then follows that even though it appears as if the working conditions in the maquiladoras are visibly appalling, they are an improvement over other job alternatives in

[7] Kose et al, How Has NAFTA Affected the Mexican Economy? Review and Evidence, 2004, IMF, Working Paper WP/04/59, page 15.

[8] In 1942, prior to the maquiladora phenomenon, the U.S. and Mexican government launched the Bracero Program, which allowed Mexican workers to temporarily take on agricultural work in the U.S. This program ended in 1964, at which point Mexicans had already established themselves in border towns such as Tijuana and Ciudad Juarez and the Mexican government then created the Border Development Program, which ultimately resulted in the development of the maquiladora sector (Kagan, 2004, p.155)

[9] Estimates by Kimberly 2001 suggest that wages in the maquiladora do not exceed 5 U.S. dollars per day on average, p.22.

Mexico. In other words, the rapid increase in the maquiladoras, even though badly paid, showed that workers preferred jobs they could find there in the maquiladora system relative to other alternatives.[10]

VII. Migration Flows

Markusen and Zahniser explain that trade integration can potentially contribute to job creation (1999, 264). This means, in principle, that migrants from Mexico would not have an economic incentive to cross the U.S. border and seek employment under NAFTA. However, estimates from Melchor del Rio and Thorwarth (2007) have shown that when using the number of arrests at the U.S. – Mexican border as a proxy for illegal migration, the number of arrests at the border has increased following NAFTA. Why would illegal migration increase when trade theory would suggest otherwise?[11] The interpretation that the authors give to their results is that prevailing poverty and income inequality in Mexico are so acute that workers' living standards remain depressed despite the implementation of NAFTA (21). A large number of poor people would therefore prefer to take the risk of being apprehended at the border rather than not find employment in Mexico.[12]

The well-known Carnegie Endowment for International Peace study (2004) shows that Mexican workers have been drawn into the U.S. illegally because of the high demand for low-skilled workers, which in turn has increased the wage differential between the U.S. and Mexico. Moreover, strong migration networks in place, pre-dating NAFTA, have been a major driving

[10] Many of the new workers in the maquiladoras are in fact peasants from remote and extremely poor areas of Mexico. One could say that they have moved from intense but invisible poverty to less severe but conspicuous poverty, simultaneously achieving an improvement in their lives and becoming a source of guilt for U.S. residents, unaware of their plight (Krugman et al, 2011, p.282)

[11] The Stopler-Samuelson theorem would argue that since Mexico is abundant in low-skilled labor, the wages of low-skilled workers would rise in the presence of trade. If this is the case, why then did illegal migration rise following NAFTA?

[12] This finding is consistent with the Carnegie Endowment for International Peace study (2004), which shows that the number of people arrested for trying to cross the U.S. border illegally increased from 700,000 in 1994 to approximately 1.3 million in 2001 (p.48).

force for illegal immigration into the U.S. The study also points out that the 1994 Tequila Crisis[13] has exacerbated the problem (6).

This same study has also found that enforcement has become stricter at the border since NAFTA. However, migration patterns have continued due to well-established networks in the U.S. that pre-date NAFTA (40). The authors of this study therefore conclude that NAFTA is not a long-term solution to prevent further illegal immigration.

Interestingly, while Mexico was going through a recession immediately after the signing of NAFTA because of the 1994-1995 Tequila Crisis, the opposite happened in the U.S. GDP grew by 4 percent in 1994 and this year marked a period of sustained growth, which Nobel Laureate Joseph Stiglitz describes as "the roaring nineties." This high growth period in the U.S. attracted a large inflow of Mexican labor, as demand for low-skilled labor in the U.S increased (Carnegie Endowment for International Peace, 2004, 50).

Now, with regards to high-skilled labor, a 2006 study by the OECD Development Center demonstrates that brain drain is benefitting mostly the U.S., as it helps to improve labor productivity in that country, which is the main destination of high-skilled laborers migrating from all over the world. High-skilled Mexican laborers are no exception (19). The effects of this brain drain on Mexico can only be detrimental to the average labor force productivity in Mexico. Moreover, high-skilled laborers migrating from Mexico to the U.S., the study suggests, are unlikely to return to Mexico. Hence, new skills acquired in factories with leading edge technologies in the U.S. have no spillover effects whatsoever on the Mexican economy.

Clearly, NAFTA has accentuated the brain drain phenomenon as U.S. firms can easily hire high-skilled laborers by extending U.S. resident permits. High-skilled Mexican workers are

[13] The 1994 Tequila Crisis refers to a massive depreciation of the Mexican peso relative to the U.S. Such q currency crisis provoked a chain of bankruptcies in the banking sector and a credit crunch, which lowered investment and growth rates during approximately three years, from 1994 to 1997. (Tornell et al, 2004, p.2)

easier to attract relative to workers in more distant countries.

VIII. Remittances to Mexico by Legal & Illegal Mexican Workers

Remittances from Mexican workers flowing from the U.S. to Mexico are substantial. It is estimated that in 2004 alone, Mexico received approximately 16.6 million US dollars in the form of remittances, which represent 2 percent of Mexico's GDP.[14] As the two economies became more integrated under NAFTA, cyclical fluctuations of GDP were mirrored by Mexican workers' remittances. In the recent subprime crisis of 2007-08, remittances have fallen by approximately 16%.[15] At the same time, GDP growth fell in the U.S. by 2.7% due to the crisis.[16]

According to Villareal (2010), this drop is pretty dramatic since remittances became the second source of foreign currency acquisition by Mexico after oil. Moreover, the decline in remittances to Mexico due to the financial crisis has been sharper than the decline in remittances in other countries.[17] This suggests that the procyclicality of the boom-and-bust period in the U.S. was much more strongly felt by an emerging market economy such as Mexico relative to other Latin American countries such as Chile[18].

When comparing the impact of the subprime crisis on Mexico's GDP growth with other countries such as Chile that is less integrated to the U.S. market, we find that Chile's growth dropped by 1.7 percent from 2008 to 2009, whereas Mexico's GDP growth during the same period fell by 6.1 percent. While this fall is also due to other main exports from Mexico to the U.S. having decreased due to the crisis, such as tourism and oil, part of it can be attributed to the

[14] Federal Reserve Bank of Dallas, El Paso Branch, « Workers' Remittances to Mexico » *El Paso Business Frontier,* Issue 1, 2004.
[15] Villareal, 2010, p.12.
[16] The World Bank Statistics, online database.
[17] Millman, « Remittances to Mexico fall more than forecast », Wall Street Journal, January 28 2009, p. A3
[18] Congressional Research Service (CRS),Nanto, Dick K., p. 50, (2009)

fall in remittances[19].

Remittances have in turn played an important role for the poorest households in Mexico to pay for basic needs, such as food, clothing, health and other items. A study has estimated that the subprime crisis has made poverty increase by nearly 4 percent between 2008 and 2010 and this same study shows that it is the 20 percent poorest Mexican households who have suffered the most from such a drop.[20]

Remittances also play a role on education. Following NAFTA, the U.S. generates remittances that help finance education for poor households in Mexico. On the other hand, the option to migrate to the U.S. without further education continues to be a tempting one due to the wage differential. The overall effect of remittances then seems to be negative on education since these remittances, which open the opportunity to finance education in Mexico, do not provide the right incentives for its receivers to acquire further education because of the wage differentials between the U.S. and Mexico (Mcenzie and Rapoport, 2005, 23).

IX. Drug Trafficking and Violence

No one can deny that Mexico has traditionally smuggled drugs into the U.S. On the supply side, Mexico has a comparative advantage in the production and commercialization of drugs relative to the U.S. Under NAFTA, the growing economy of the U.S. from 1994 to 2007 increased the demand for drugs in the U.S (Andreas, 1996, 160). The U.S. Drug Enforcement Administration (DEA) estimates that Mexico earns more than $7 billion US dollars a year from its illegal drug trade. Higher estimates of up to $30 billion US dollars have been spelled out by Mexico's prosecutor's general's office. Employment in the drug trafficking business is estimated to be of about 200,000 people that live on growing drug crops.

[19] The World Bank Statistics, online database.
[20] Migration Policy Institute, Migration Facts, "Variable Impacts: State-Level Analysis of the Slowdown in the Growth of Remittances to Mexico" September 2007

More importantly, Mexico has become a transit point for drugs produced in other Latin American countries, such as Colombia and Bolivia. This is due to the tighter enforcement of drug trafficking that has been implemented by the U.S. on the Caribbean and south Florida dating back to the 1980s and therefore precedes NAFTA. Increased drug trafficking in Mexico has nevertheless increased the level of corruption, led to the creation of more drug cartels, and has increased the level of violence. Many studies have shown that NAFTA has worsened these problems of drug trafficking and increased violence (Ribando Seelke, 2011, 8).

This has caused lower than expected FDI flows and larger illegal migration flows from Mexico to the U.S. In particular, while FDI seems to have grown in all Mexican states from an average of 22.5 percent in 2000-2005 to 28.5 percent in 2006-2010, FDI flows in dangerous areas – where criminal activities are largest, i.e. Chihuahua, Tamaulipas, Durango, Sinaloa, Guerrero and Nuevo Leon – have remained stagnant since 2000. More than 50 percent of U.S. entrepreneurs perceived high-levels of insecurity and criminality as a main concern and deterrent to establish new businesses in Mexico.[21]

On an encouraging note, a recent MIT study (2011) by Melissa Dell published in *Econometrica* has shown that networks of drug trafficking may help Mexican government officials to map drug trafficking routes, which may help the Mexican government to more effectively fight the war on drugs.

It is not a coincidence that these routes lead to key destination points along the U.S. – Mexican border where goods and services are transported and where infrastructure to lower transportation costs has improved because of NAFTA. It is now possible under NAFTA to ship drugs via newly created highways going all the way from the center and east coast of Mexico to strategic points in the north, where monitoring is difficult due to the high volumes of trade under

[21] Mexican Business Web, December 12, 2011

NAFTA.

X. Productivity in Agriculture

One of the main tensions between the U.S. and Mexico when NAFTA negotiations were taking place was the agricultural sector, in which Mexico's productivity has been lagging behind the U.S. for decades. The opening of trade meant that agricultural producers would disappear. Being self-sufficient in the production of staple food was something that the Mexican government, like many other countries, wished to preserve.

Recent estimates by the OECD suggest the following: while imports of feed corn from the U.S. have continued to increase, albeit at a slow pace, imports of white corn for producing tortillas – the main staple item in the diet of average Mexican households – has dropped (OECD, 2003). Interestingly, demand for tortillas, and therefore white corn, has remained high, which suggests that land and labor productivity for the production of white corn is higher in Mexico than in the U.S. In reality, this is not the case: most observers would agree that subsidies in white corn production have remained. Procampo and Alianza are the two largest support programs that offer subsidies to Mexican farmers.[22]

XI. The Financial Sector

Mexico engaged itself in a stabilization program aimed at lowering inflation and propelling economic growth in 1987. It subsequently joined the OECD. The stabilization program involved an exchange rate regime that was very close to a fixed exchange rate regime called "crawling peg" (Krugman et al, 2011, 635). As it turned out, however, in the same year that NAFTA was signed there was the Tequila Crisis, which had a major impact on the financial

[22] Do Mexico's Agricultural Programs Alleviate Poverty? Evidence from the Ejido Sector, The World Bank (2001), page 5 Louise Cord and Quentin Wodon

sector as investors hedged themselves against future depreciation of the Mexican peso by shifting to the holding of dollars (Tornell et al, 2004, 2). Relative to previous crises, the so-called credit crunch experience in 1995 was deeper than expected and, according to many observers, was due to a poorly regulated banking sector. Basically, the entire financial system went bankrupt because investors in the early 1990s, and in anticipation of NAFTA, expected high returns on their investments in Mexico. High capital inflows in the early 1990s were in turn mismanaged by domestic commercial banks. After the Tequila Crisis, all these banks except for one, Banorte, declared bankruptcy and ended up in foreign hands (Tornell et al, 2004, 22).

The needed reform to the banking sector has recently come to stall in the advent of the 2007-2008 subprime crisis. Moreover, review to the judicial sector for better contract enforceability and punishment to tax evaders did not take place following the Tequila Crisis. As a result, investment, particularly in infrastructure, for lowering transportation costs under NAFTA has been weak. Hence, the lack of reform in the banking sector and the public finance sector have often been blamed for the less than stellar performance of Mexico under NAFTA relative to non-NAFTA members (Bergoening et al, 2002, 167).

XII. The Energy Sector

Even though Chapter 6 of NAFTA established the conditions for a slow liberalization of the energy sector, mostly oil and gas, this has not materialized. The sector continues to be monopolized by the state: PEMEX in the case of oil and in the case of electricity by the Comisión Federal de Electricidad (CFE). Gas has also remained a state-owned monopoly and NAFTA has essentially had no impact on the energy sector (Morales, 2011, 9).

It is often argued that dismantling entry barriers for greater private FDI in these key energy sectors could potentially boost economic efficiency. However, this is an issue which is

highly politicized and exceedingly sensitive to the Mexican constitution, and therefore has been left dormant and is beyond the scope of this paper.

XIII. Conclusions

As state in the introduction, the impact of NAFTA on Mexico has been ambiguous. On the one hand, a large volume trade driven by high investors' expectations prior to 1994 might help explain high rates of growth up to the Tequila Crisis in 1994-1995. At that point, Mexico has experienced a less than stellar performance for two main reasons. The extent of the crisis fueled investors' fears and decelerated the rate of FDI and the needed reforms to reassure property rights enforceability and better infrastructure have not taken place. This paper has touched upon current debates pertaining some potential negative effects from NAFTA on Mexico's economy. Chief amongst them are: regional inequalities have increased, leading to a more advanced North and a backward South, on the one hand. And wage inequalities between relatively high-skilled laborers in the North and low-skilled laborers in the South have also increased. These inequalities, as has been argued, may be partly responsible for ongoing political unrest, which may in turn hamper economic growth as predicted by Alesina and Perotti (1996).

Extreme poverty due to lack of education, on average, has had a negative impact on labor productivity, with wages remaining stagnant, contrary to the Stopler-Samuleson theorem predictions. The wage wedge between the U.S. and Mexico has remained large and illegal immigration to the U.S. has continued to grow. The anti-poverty programs such as the PROGRESA/OPORTUNIDADES program, have not yet delivered high levels of education for labor productivity to increase. This has also meant that technology diffusion from FDI flows has been slow or non-existent and therefore the contribution of productivity of capital to total factor productivity has also been slow. Relative to other countries, such as Chile, Mexico under

NAFTA is now more prone to boom-and-bust cycles. A recent case in point is the 2007-2008 subprime crisis, which lowered Mexico's growth rate by 6.1 percent. In comparison, Chile's growth rate fell by only 1.7 percent.

Remittances have also been following the boom-and-bust cycle. During the roaring nineties in the U.S. and beyond, high demand of low-skilled laborers in the U.S. increased and so did remittances, which now represent the second source of foreign exchange after revenues from oil exports. During the recent subprime crisis, remittances from Mexican workers to poor households in Mexico have fallen drastically by an estimated 16 percent, while the U.S. economy slided into recession, experiencing a fall in GDP growth by more than 2 percent. Lower remittances are in turn hitting poor households whose expenditures have fallen and therefore the extent of the recession has been exacerbated by a lack of internal demand. I have also argued that beyond the present challenge of increasing educational standards to increase labor productivity and wages in Mexico, NAFTA may have exacerbated drug-trafficking, corruption and violence.

In the agricultural sector, Mexico has remained reliant on government subsidies to maintain agricultural production of staple food up to the level of relatively stable demand for such white-corn related items such as tortillas. Last but not least, while NAFTA contemplated opening energy sectors to foreign competition and private foreign investors, the political economy considerations have prevented the Mexican government from moving forward to improve efficiency and welfare emanating from better exploitation of such natural resources.

Overall, it is very difficult to isolate the effects of NAFTA on Mexico's efficiency and growth. I am, however, left with the impression that the high expectations that Mexico had in the early 1990s have been met by a series of disappointing events which are difficult to disentangle in that the post-1994 NAFTA effects involve multidimensional variables and policy changes

which are interlinked and made the picture on NAFTA rather obscure. One would hope, however, that higher levels of education and lower migration outflows of high-skilled laborers will increase labor productivity in the long run and would consequently decrease the wage gap between the U.S. and Mexico and make the labor force more productive to meet the required technological change for the dissemination of R&D to speed up.

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