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Macroeconomic history of Mexico

By Koba Khitalishvili

Introduction

According to the CIA World Factbook, Mexico was the 12th biggest economy in the world with its GDP totaling 1.758 trillions of dollars in 2012. Mexico's population in 2012 was estimated to be 114,975,406 millions of people of which only 4.5 % were unemployed. Mexico's GDP grew by 3.8 % in 2012 and is expected to grow by 4.1 % in 2013 (Oxford Business Group).

In this report I analyze Mexico's historical macroeconomic indicators during the period 1950-2010. Unfortunately, some data was only available for years after 1960 or even after 1980. Mexico went through different stages of economic performance during the period 1950-2010 and had events that highly affected its economy. The most significant events are the Mexican miracle, period from 1940 to 1970, deterioration of economy during 1970, financial crises in 1982, and the NAFTA agreement and Peso crisis in 1994.

I provide illustrations of the macroeconomic data as well as general explanation of changes in the macroeconomic indicators. I analyze the GDP and its components, Mexico's trade policies, money market and labor force.

Mexico's GDP and its components

Mexico's income-expenditure identity in 2010 is presented in Table 1. We can see that consumption accounted for the biggest part of GDP in 2010; investment was the second biggest. The negative net exports indicate that imports of goods and services in Mexico exceeded exports.

Table 1 Gross domestic product for year 2010

Component of GDP	$Billions	% of GDP
GDP	1510.46	100.00%
-Consumption	1152.93	76.33%
-Government Spending	53.17	3.52%
-Invetsment	322.79	21.37%
-Net Exports	-18.43	-1.22%

In Figure 1 we can see the GDP per capita graphed against its components. From 1950 until 2010, GDP per capita in Mexico has increased by more then 10 times. In 1950 GDP per capita amounted to 540$. In 2010 it was 13 430$. Consumption and investment per capita have increased significantly as well, while government spending per capita increased at a much slower pace. Net exports alternated from positive to negative. For the past 15 years net exports have remained negative.

Using the formula $Y_t = Y_0 e^{gt}$, where g is the growth rate, and t is the number of periods, I solved for g and computed the average growth rate of GDP per capita from 1950 to 2008. I did not include years after 2008 because the world Financial Crisis hit Mexico's economy and its GDP contracted significantly. The GDP per capita in 1950 and 2008 were 540$ and 13,794$ respectively. Therefore, the average growth rate g amounted to 5.4% per year. Based on this finding I make predictions about the growth of

Mexico's GDP per capita at 6%, 4%, 3 %, 2 %, 1% per year. Figure 2 shows the graph of the predictions.

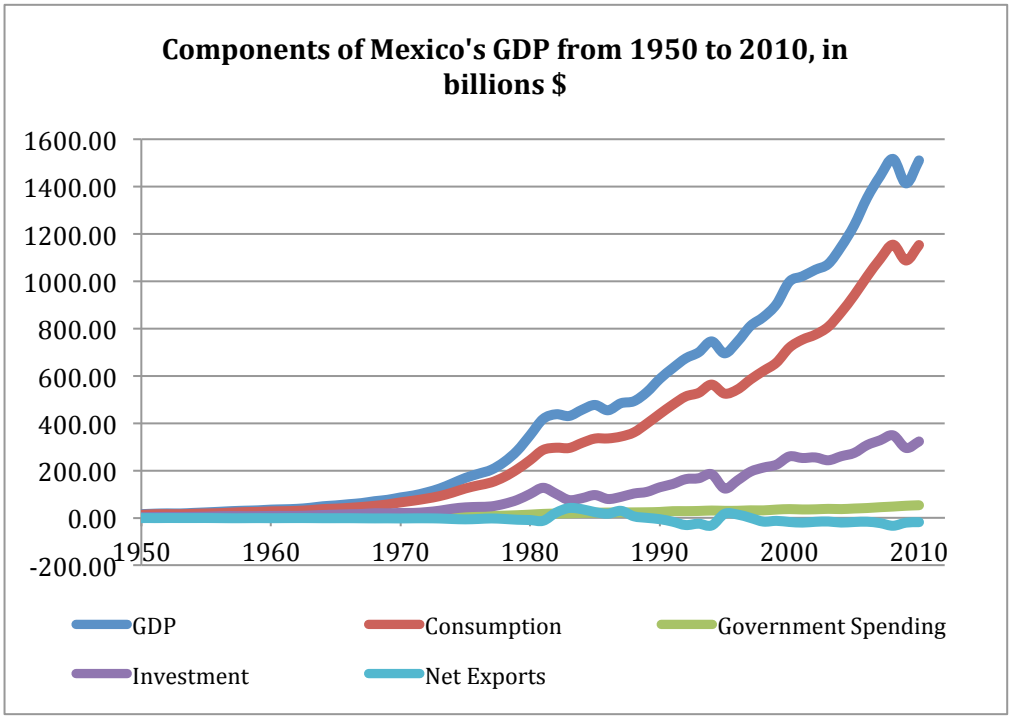

Figure 1 Source of data: Penn World Tables 7.1

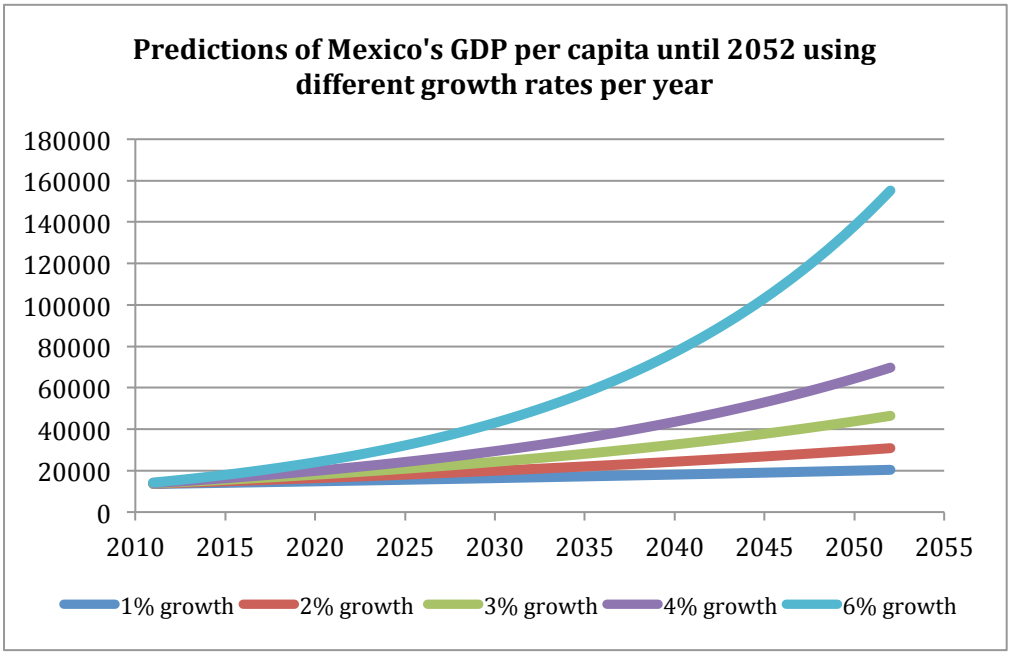

Figure 2 Author's calculations

Usually, the consumption component of GDP is highly correlated with GDP itself. Mexico is not an exception. In Figure 3, I graphed the percent change in GDP and in consumption per capita. Percent change in consumption per capita almost mimics the percent change of GDP per capita. Consumption responds to changes in GDP right away. This means they are procyclical, highly correlated, and there is no lag. As matter of fact the correlation coefficient of Mexico's GDP and consumption per capita from 1950 to 2010 was 0.9989.

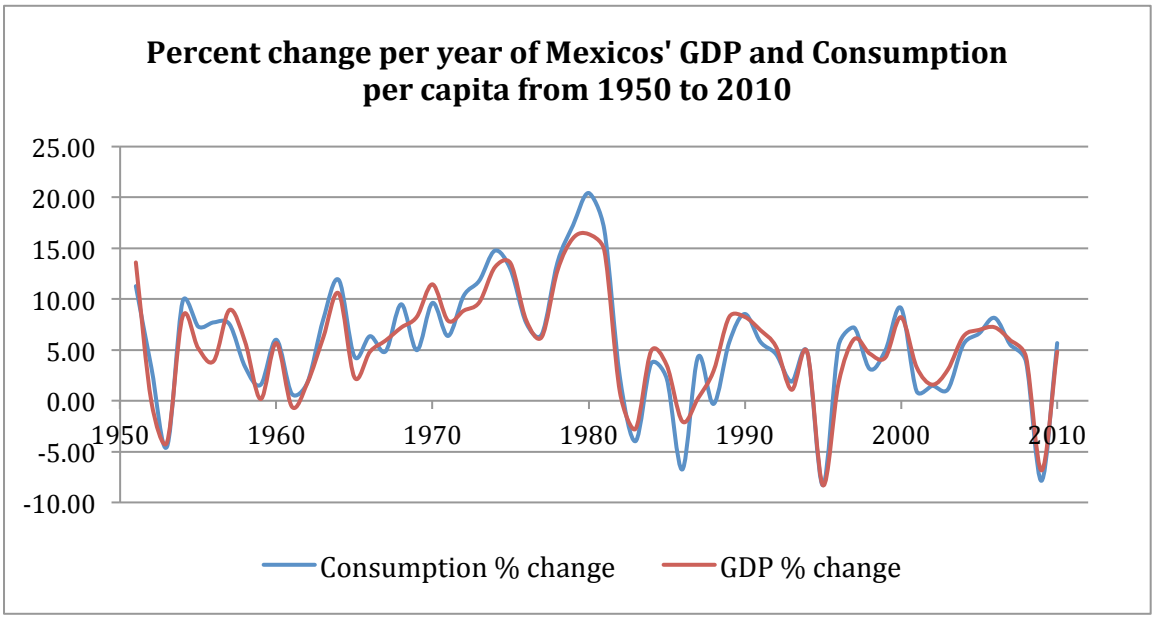

Figure 3 Source of raw data: PWT 7.1

Investment per capita had a similar relationship with GDP per capita with a correlation coefficient 0.98. However, investment appeared to be the second most volatile component of GDP. Government spending while being procyclical sometimes did not respond to a decrease in GDP. Also, there is a lag. It can be explained by the governments' attempts to slow down the decrease in GDP by increasing government spending. Figure 4 shows these relationships.

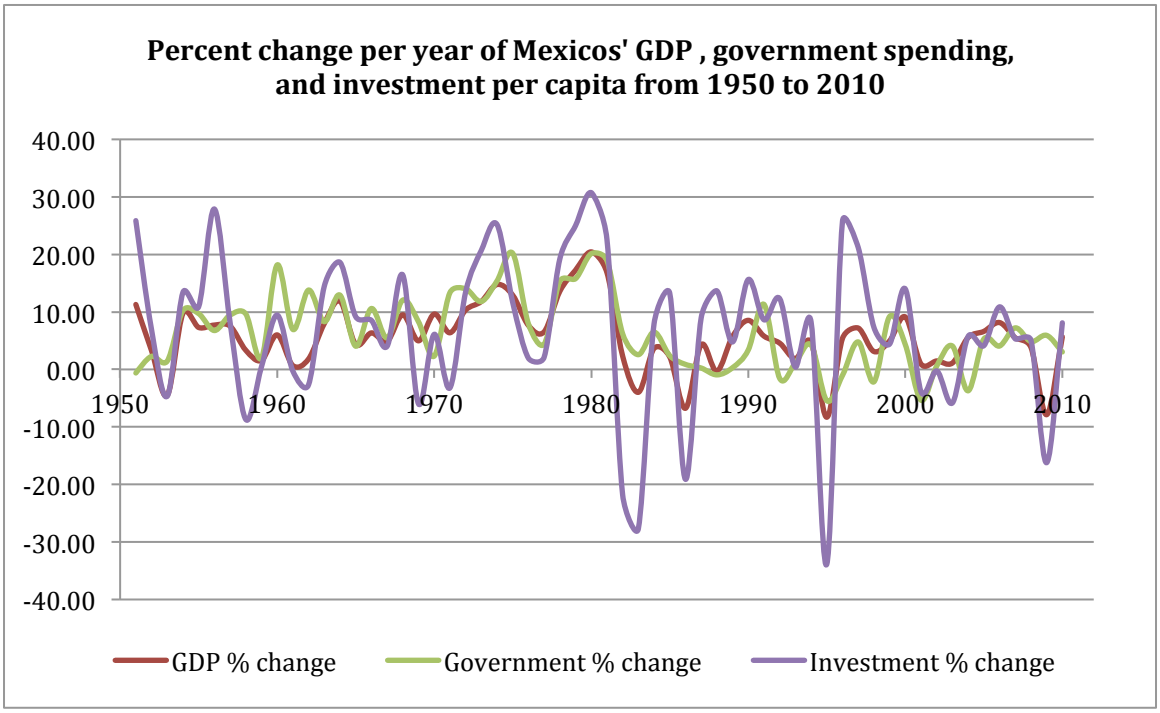

Figure 4 Source of raw data: PWT 7.1

Net exports component has been the most volatile component of GDP. Net exports per capita, which are not graphed, had two peaks that were negative 3, 400% and negative 3,700% in 1990 and 1998 respectively. These were the years before and after 1994 Mexican economic crises, which I will talk about later. Without taking those two peaks into account Mexico's net exports have still been still highly volatile with percent change per year ranging up to 100%. The correlation coefficient of net exports and GDP per capita from 1950 until 2010 was negative 0.25, which supports the idea of a very weak relationship between net exports per capita and GDP per capita. I am not presenting a graph of percent change in net exports because as I noted the range is too high for the data to be manageable.

In Figure 3 we can see three huge drops in consumption, investment and GDP per capita in 1982, 1994 and 2009. In 1982 Mexico went through an economic crisis. Prior to

1982 Mexico accumulated debt that it loaned from IMF and World Bank to improve infrastructure and boost the industrialization process (Felix 775). We can see that growth of investment per capita per year hit its historical high in 1980 and amounted to 30%. However, the fact that Mexico's economy was dependent on oil prices and the world interest rates were increasing resulted in Mexico being unable to pay the debt. As a result, investment per capita diminished significantly as we can see in Figure 4. The drop in GDP, consumption, and investment per capita in 1994 is associated with the Peso crisis. Year 1994 was an election year. One of the presidential candidates was assassinated. This event disturbed the investors. In addition, the new government made policy mistakes. It stopped supporting the fixed peso exchanged rate and let it float. As a result, peso got greatly devalued. The new Mexican government also significantly increased government spending. All this led to investors pulling their investments out of Mexico. As a result, growth of investment per capita per year hit its historical low in 1994 and amounted to negative 33%. But it rebounded quickly and by 1997 reached 25% per year. Such quick recovery was a result of Mexico's signing the NAFTA agreement in 1994, which I will talk about in the next section of my report. The last huge drop in GDP and investment per capita appeared in 2009 due to the world Financial crisis. The GDP of the US decreased and the US imports from Mexico decreased as well. Since the US is the biggest trading partner of Mexico, Mexico's GDP suffered. In Figure 4 we can see that growth in Government spending in 2009 grew a little which was an attempt of Mexican government to deal with the crisis.

Finally, Figure 5 shows the graph of standard deviations from the trend for consumption, government spending, and investment per capita. The trend is GDP per

capita. By looking at it we can see that if we do not take net exports into account investment is the most volatile component of GDP while consumption is the least volatile. This is consistent with the relationship between Mexico's aggregate consumption and GDP I described previously. The fact that consumption is the least volatile component of GDP can be explained by the concept of consumption smoothing. According to Williamson, consumption smoothing is when consumers choose to have a smooth consumption over time even when their income changes (263). The volatility of investment comes from frequent fluctuations in interest rates.

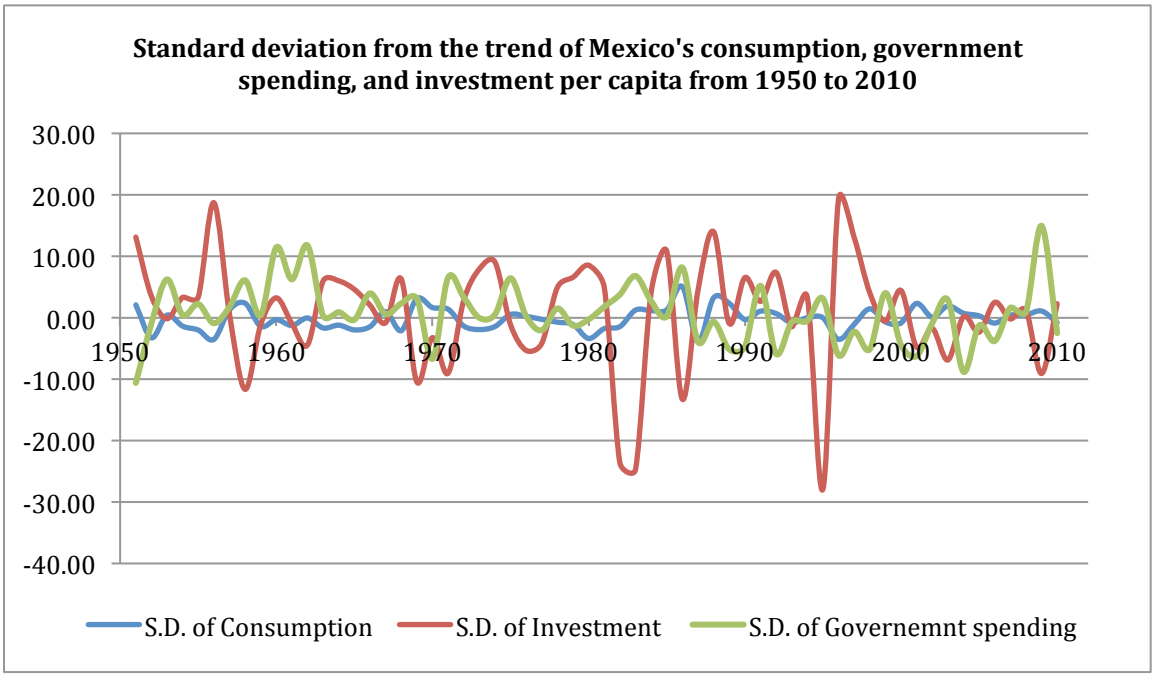

Figure 5 Source of raw data: PWT 7.1

Mexico's trade policies

Mexico's economy performed extremely well during the period 1940-1970. This period is often referred to as Mexican miracle. The average GDP growth per year from 1950 until 1970 was 5.76% and inflation never exceeded 3% per year. One of the key

macroeconomic policies was the import substitution program. The Mexican government exercised protectionist policies to increase domestic demand. Quotas and tariffs were imposed on most goods imported from other countries (Antonio Aspra 112). However, at some point protectionist policies and import based economy started to create trouble for Mexico because its industries did not have an incentive to produce high quality products and innovate. As a result, the Mexican government decided to abandon import substitution program and started promoting exports in 1960s. To illustrate the shift from the import based economy I include the graph of Mexico's openness in Figure 7. Openness is the ratio of the sum of imports and exports to the GDP. It shows how open a country is in terms of trade and how much trade matters for the economy.

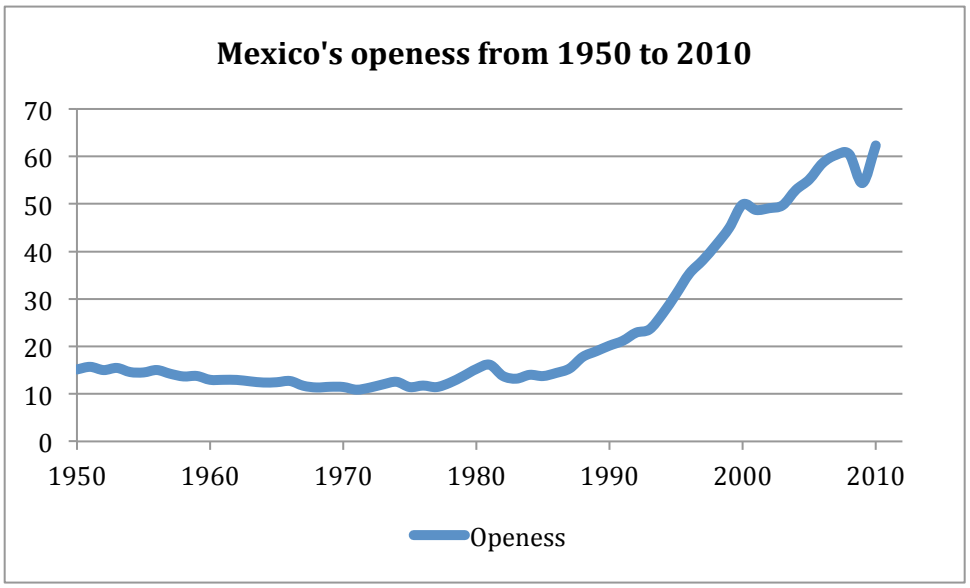

Figure 6 Source of raw data: PWT 7.1

We can see that starting in 1980s trade began to matter more for Mexico's economy. There is a small decrease between 1981 and 1982 due to the crisis, but then there is only an upward trend until year 2000. There was a little drop in 2001 when China became a member of World Trade Organization (WTO) and became a more appealing

trade partner to the US because of the cheap price of labor (Making the desert bloom). As a result, the US decreased its imports from Mexico, which led to the decrease of Mexico's trade. Another small drop appeared in 2009 due to the World Financial Crisis when Mexico's GDP diminished by 6.85% (see Figure 3). Mexico's trade decreased because the US, biggest trading partner, decreased its imports from Mexico.

Two events played a huge role in contributing to the increase of Mexico's openness. First one was the General Agreement on Tariffs and Trade (GATT) that Mexico entered in 1986. Second one was the North American Free Trade Agreement (NAFTA) that Mexico signed in 1994. Seven years after Mexico signed NAFTA its exports to the US doubled (Making the desert bloom). We can see a similar increase in openness during the same period.

Money Market in Mexico

Data I am using for this part of my report was only available for years 1960-2011. I retrieved the data on M1, M2 and inflation from the World Bank's World Development Indicators website. M1 and M2 are the definitions of money. M1 is the cash money, checking accounts and traveler's checks. M2 includes M1 plus savings deposits, money market funds, and small denomination time deposits, i.e. assets that are not used for transactions, but can easily be converted into more liquid assets. Figure 6 shows the relationship of growth of M1, M2, and inflation.

In this figure we can see that somewhere around 1987 inflation in Mexico hit its historical high as well as growth of M1 and M2. This makes sense because growth of M1

implies that the Mexican central bank started to produce new cash money and pour it into the economy. GDP did not grow at the same rate as money supply in 1987, and,

more than that, from 1980 to 1987 had contracted from 20% growth to 0.25% growth per

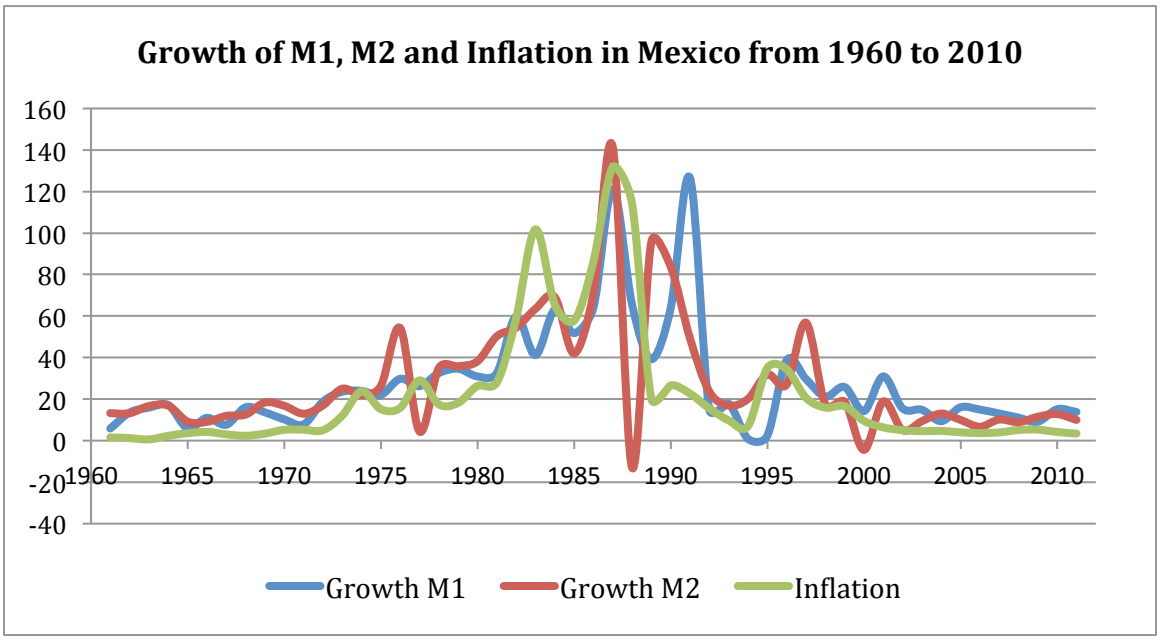

Figure 7 Source of raw data: WDI

year, which can be seen in Figure 4. There were more money for the smaller amount of goods and services in the economy. As a result, inflation hit its historical high, and Mexican pesos got greatly devalued. The reason for this was the crisis of 1982. Mexican economy was highly dependent on oil prices, which were falling throughout 1980s. Moreover, Mexico's external debt exceeded its economy's' earning capabilities and only grew due to increasing world interest rates (Felix 734). In addition, other industries of Mexican economy stagnated throughout 1980s.

Labor force in Mexico

The unemployment data for Mexico was only available for years 1980-2012. World Bank had that data for years 2000-2011 only, so I turned to the Economics commission for Latin America and the Caribbean (ECLAC) database. Surprisingly, unemployment rate in Mexico has been quite small comparing to say the US. The average unemployment rate from 1980 to 2012 was only 4.5% of the total labor force. The unemployment rate behaved as expected in response to the fluctuations in GDP.

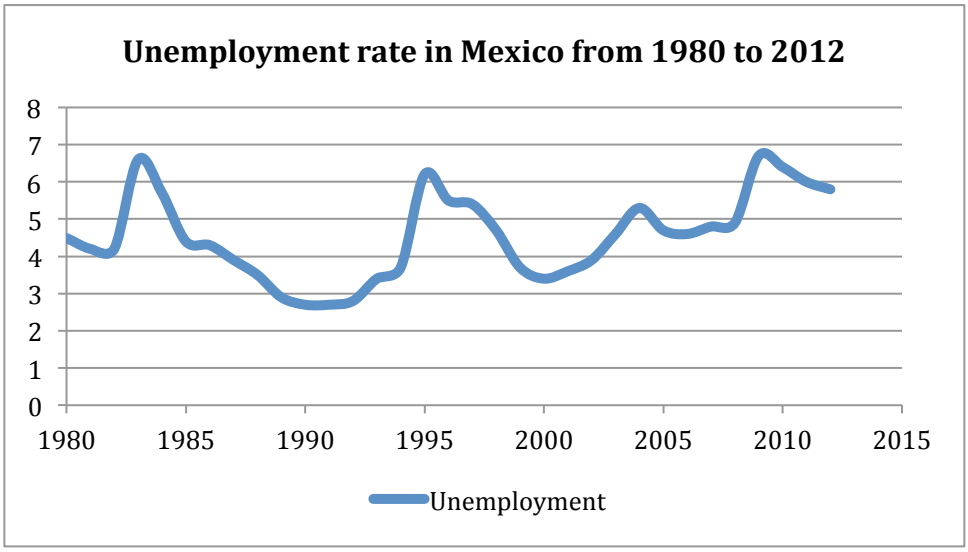

Figure 8 Source of data: ECLAC

In Figure 8, I graphed the Mexico's unemployment rate. Right away we can see that the peak of unemployment was in 1983 one year after the 1982 crisis. Then it was slowly decreasing until year 1992 right before the 1994 Peso crisis. Since Mexico signed the NAFTA agreement unemployment decreased quickly. It started increasing in 2001 again when China entered the WTO and in 2009 during the world financial crisis.

I retrieved data on employment by industry as well to get a better understanding of Mexico' labor force market. The data was available for years 1989-2010. I graphed the

data in Figure 9. We can see a downward trend of the employment in the agriculture industry. This can be explained by Mexico's signing the NAFTA agreement. The US has been the biggest producer of corn and a top ten biggest producer of other crops. As a result, after the NAFTA agreement Mexico started importing crops that cost cheaper than the ones produced in Mexico. This led to decrease in employment in agriculture.

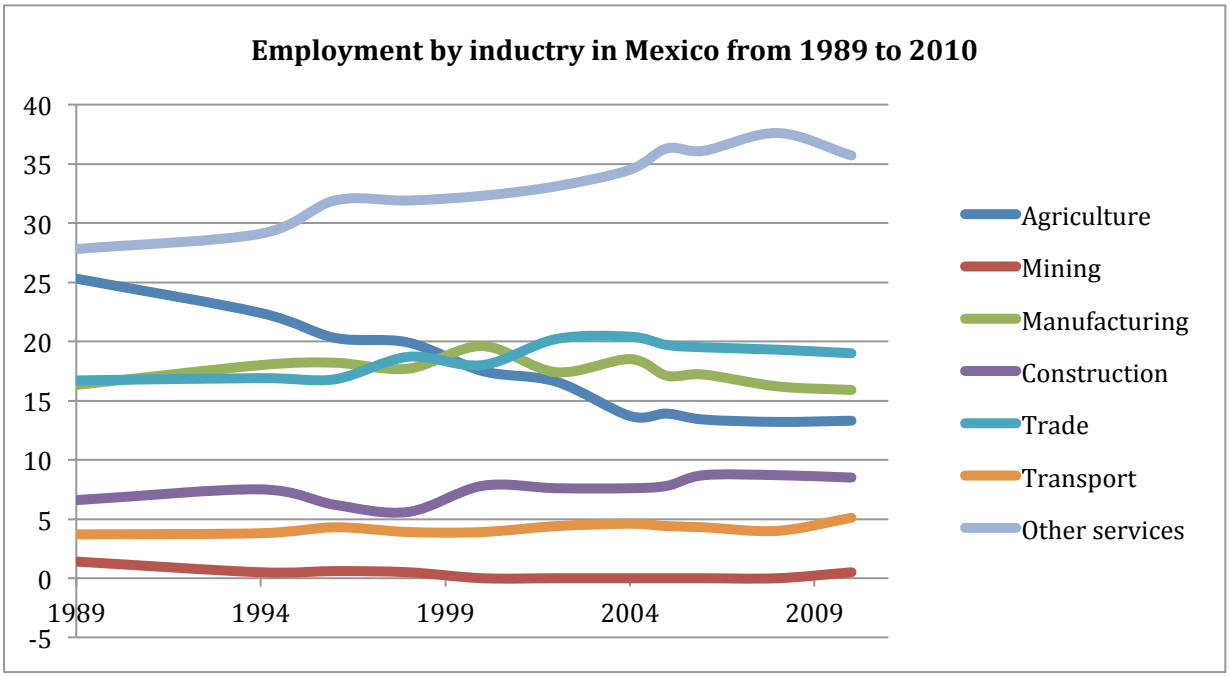

Figure 9 Source of data: ECLAC

Other industries maintained somewhat constant employment rates except for the other services industry, which have been growing. Again the NAFTA agreement allowed the services market in Mexico to expand and employ more people. Tourism is one of the factors that increased the employment in the services sector.

Conclusion

Mexico has a very interesting macroeconomic history. It shifted from import-based economy in 1960s, which helped its economy, grew. However, Mexico's economy

went through hardships after exposing its economy to the world. It went through three big crises: the one in 1982, the Peso crises of 1994, and the world Financial Crisis. It is fair to say that Mexico successfully dealt with those crises. After hyperinflation in 1980s it managed to keep inflation under control during 1994 crisis and the world financial crisis.

Throughout the period 1950-2010 Mexico's most volatile components of GDP were investment and net exports. Mexico's biggest trading partner was the US, and, changes in the GDP of the US affected investment and net exports in Mexico. Unemployment rate in Mexico have been low throughout its history.

It is expected that Mexico's GDP will continue growing as it rebounded quickly after the World financial crisis in 2009. Its unemployment rate continues decreasing. However, employment in the agricultural industry diminishes which should be worrying the Mexican government.

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