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In Number 9th presented in Section of Economy an article *The impact of agricultural policy in Mexico 1910-2012 and the effect of high food prices in the Mexican economy* by Sanchez- Julieta & Moreno-Maria with adscription in the Universidad Juarez del Estado de Durango, in Section of Compouting an article *Implementation of VoIP services through the Integration of technologies Call Manager Express and Asterisk Server* by Huerta-E.,Cano-M.,Herrera-J, Barron-J, Quintanilla-J, Aguirre-J, Rodriguez-M, Mata-R, with adscription in the Universidad Tecnologica de Guanajuato and Universidad de Guanajuato, respectively , in Section of Optimization an article *User satisfaction through "plural-comprehensive" primary health model* by Jaime- Jose & Vargas- Jose with adscription in the Universidad de Zacatecas and Universidad de Guadalajara, respectively , in Section of Risks an article *Migration and remittances on Mexican economic growth* by Figueroa- Esther, Perez- Francisco and Godinez- Lucila with adscription in the Universidad Autonoma del Estado de Mexico and Universidad Autonoma de Chapingo, respectively , in Section of Finance an article *Modeling stock index of Colombia, Peru, Mexico, Chile and United States between 2001 and 2011: Evidence against of informal efficiency* by Nieva- Jefferson with adscription in the Universidad Autonoma de Occidente in Section of Administration an article *Appreciative Inquiry: new form to generate change in education organizations. Case: PUZ* by Sandoval- Maria & Campos- Rosa with adscription in the Universidad Politecnica de Zacatecas, in Section of Net Business an article *The family-owned company and its implications in the attitude steward with the performance of the company* by Pelayo- Jorge & Camarena-Margarita, with adscription in the Universidad de Guadalajara and Universidad Nacional Autonoma de Mexico, respectively.

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Migration and remittances on Mexican economic growth

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Mexican population in 2010 compared with 2000 shows a 32% reduction in international migration and a 36% reduction in the number of people who emigrated to the United States, so that the USA went from 96% to concentrate 89% of total flow of international Mexican migrants. The aim of this research was to analyze the influence of the variables: number of migrants, the exchange rate, the minimum wage in Mexico, remittances, USA wages, unemployment and inflation in the United States on Mexican economic growth. To develop the study, it was performed a multiple linear regression model of the Gross Domestic Product (GDP) in terms of migration and remittances uptake. Based on statistical and economic analysis, it was concluded that the main explanatory variables for economic growth were: the number of migrants, the exchange rate, remittances, wages and unemployment in the United States.

GDP, Mexican migration, remittances.

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Introduction

The Population Division of the United Nations (UN) estimated that in 2010 there were 214 millions of international migrants, a 3.1% of worldwide population from which a 60.0% were located on developed countries. Europe is the continent that concentrates the greatest number of migrants (70 millions), followed by Asia (61 millions) and North America (50 millions).

With the recent economic crisis, some people and institutions anticipated a massive return of migrants to their origin countries. However, there is no evidence of greater quantities of people returning to their origin countries so far; on the contrary, less people have continued to emigrate.

Even in some regions it has accelerated the rate at which it had been growing the number of international immigrants, such is the case of Asia and Latin America, where from 2000 to 2005 the growth was 1.2% annual average and grew respectively to 2.0% and 1.7% for the past five years (2005-2010).

Since 1990, Mexico has registered two economic crises: the first in 1995 and the second started in late 2008. These crises have had a negative impact on the main macroeconomic aggregates and labor market; this generated an increase in the number of people in a poverty situation.

The consequences of the crisis became imperative to determine the more effective public policies to reduce its impacts and external shocks on poverty, inequality and vulnerability (CEPAL, 2011).

The answer to the problems that Mexico deals with, has been given in two ways: one is through migration to other states or other countries, primarily the United States, the second through informal employment.

The massive labor migration from Mexico to the United States began in 1920 and increased significantly over the last century. It is an exodus caused by factors of expulsion and attraction, but certainly the main cause is the huge development gap and wages between Mexico and the U.S.

Other expulsion factors are a lack of economic opportunities and a lack of access to capital, credit and financing funds. Among the pull of attraction factors to move to USA are the availability of jobs, economic opportunities and upward social mobility and equality towards the law (Heredia, 2006).

After the economic crisis the flow of Mexican migrants abroad has decreased, it has increased people moving to their origin countries, but not massively, and reduced the relative importance of the U.S. as the main destination.

The census of 2010 compared with the one in 2000 shows a reduction of 32.0% in international migration and a 36.0% in the number of people who emigrated to the United States, so that this country went from 96.0% to concentrate 89.0% of the total flow of international migrants from Mexico.

Thus, since 2007 to now the number of Mexican migrants has remained fairly stable, between 2007 and 2010 increased from 11.81 to 11.87 million.

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It is considered that this stagnation will be temporary, such as it has occurred in previous economic downturns in the United States, and that the flow may continue to reach previous levels once the U.S. economy recovers its growth rate (BBVA Research, 2011).

Due to the creation of laws against migrants in several states of the United States, which generally seek to restrict the benefits to migrants and reduce employment opportunities in Arizona, Florida and Georgia, it has been a greater outflow of Mexican migrants from such states.

There was a way out from Florida of over 140 000, 70 000 from Arizona, and from Georgia more than 40,000 between 2007 and 2010. It has generated movements of Mexican migrants to other close states.

In New Mexico, Texas, and North Carolina the presence of Mexican migrants has been increased, such restrictions would continue promoting the movement of Mexican migrants to other states.

Jalisco and Michoacan, being entities with the highest proportions of international migrants in the 2000 census (10.6% and 10.0%), went down to the second and third position respectively, while Guanajuato being the entity that was in third place as an entity expelling migrants came to occupy the first position (10.8% of migrants between 2006 and 2010).

The rest of the entities from which the largest number of international migrants come from Mexico, are the state of Mexico, Puebla, Veracruz and Oaxaca.

Together, these states sent 50.5% of migrants according to the 2010 census. From these, only the state of Mexico reduced its participation.

All states with the lowest number of international migrants (Campeche, Baja California, Quintana Roo, Tabasco and Yucatan) slightly increased their share of total international migrants (BBVA Research, 2011).

According to estimations of the World Bank (WB), flow remittances in the world have grown rapidly since the late 80's and in 2008 reached a high record of 444 billion dollars. Since 1986, 2009 was the first year in which there was a decline of 5.3% in dollars.

Europe and Central Asia showed the largest decline in percentage in 2009, a 14.7%. The group includes Armenia, Kazakhstan and Azerbaijan, where there were falls of around 30%.

The next group includes the countries of Latin America and the Caribbean, which in the same year, remittances decreased 9.6%.

From this group, the countries with the greatest percentages of losses in dollars were Mexico (15.7%), Colombia (12.5%), Jamaica (12.0%), Honduras (10.6%) and El Salvador (9.0%). However, the most dependent economies on remittances such as the Central American and Caribbean are those who have suffered the greater effect.

For example, between 2007 and 2008 in Jamaica the proportion of remittances in Gross Domestic Product dropped a 5.0%, a 4.4% in Honduras and a 2.0% in the Dominican Republic (BBVA Research, 2011).

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Mexican migration to the United States begins to change

Mexican migration to the United States underwent a major change, for the first time in 40 years the flow of illegal migrants who return to their country is greater than that of those who leave Mexico.

Many were deported, others returned because they could not find employment and a significant amount decided to escape the anti-immigrant climate that exists in several U.S. regions. Measurements of the Pew Hispanic Center (PHC) show that in four years a million undocumented Mexicans abandoned the U.S.

In 2007, undocumented Mexican migrants in US were seven million, while in 2011 the number was reduced to six million. According to PHC, in 2010 fewer than 100,000 Mexicans crossed the border illegally or violated the conditions of their visa to settle in the US (Najar, 2012).

Despite it was predicted a massive return between 350,000 and three million U.S. migrants following the economic crisis of 2008, the reality was different according to the study "Mexican Migration 2011" of BBVA Bancomer.

Albo, chief economist of the institution, said that estimates at the beginning of the crisis of 2008, which aimed to occur a massive return of civilians.

The reality is that the magnitude of returning migrants was very small. There were only 300,000 in 2011 that returned to Mexico. "

The interpretation to be given to this situation is that the flow of migrants stopped, mainly as a result of the Arizona effect, as known to the enactment of anti-immigrant laws, and by the economic crisis.

It is said that in the coming years Mexicans will continue returning, among other things, as a matter of cultural reasons.

For the case of flow remittances to the country, coincided with the U.S. economic cycle. It is expected for this year an increment in dollars between 7.0 and 8.0%, although it is until 2013 that will be reached the peak levels as they were in 2007 and 2008.

"The analysis by BBVA Bancomer forecast for 2012 is that remittances will be a total of 24380 billion and by the end of 2013 will return to the numbers obtained before the global economic crisis, with a total of 26000 million (The Economist, 2012).

The behavior of the macroeconomic variables of Mexico

In Mexico it was published the Gross Domestic Product report corresponding to the fourth quarter of the year 2011 where an annual growth of 3.9% was expected (3.3% annualized).

With this, it was very likely that the present economic activity would grow 4.0% during 2011.

It is considered that during the fourth quarter of the year the main driver of economic activity growth was domestic demand, as the service sector showed a strong dynamism during this period.

In particular, the trade subsector exhibited good performance, helped in part by the growing competition among commercial establishments and the implementation of the program "The Good End", which had a positive impact on aggregate household consumption in the fourth quarter of 2011.

Thereby, it is estimated a 6.3% annual growth for retail sales and 1.7% per annum for wholesale, so the trade component would have shown an annual growth of 4.2%. Similarly, it is believed that the dynamic formal employment continued during the fourth quarter led to a major advance in the service sector.

In seasonally adjusted amounts, there was a creation of 181000 new jobs, a quantity that exceeded in 37,000 the jobs recorded during the third quarter of 2011 (IXE, 2012).

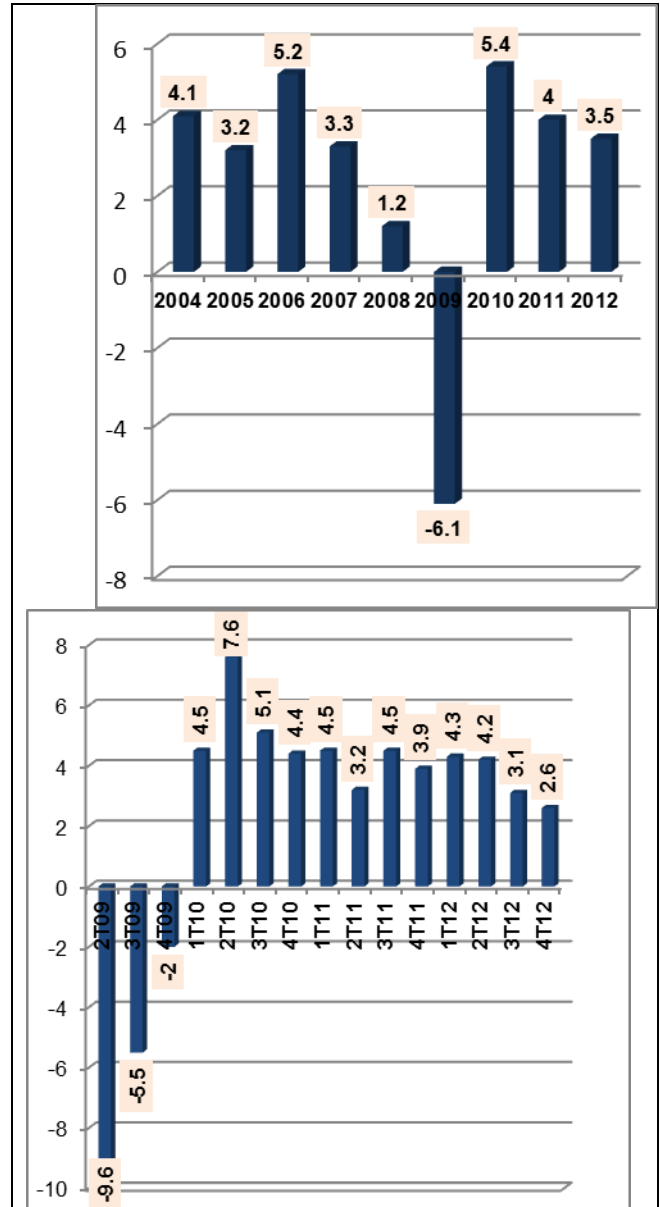


Figure 1

In Figure 1, it can be observed that the quarterly GDP growth rate for 2009 was negative (-6.1%), 5.4% for 2010, 4.0% in 2011 and 3.5% so far in 2012, all this as a result of the U.S. financial crisis.

Unlike developed economies now facing fiscal and debt problems, in the past five years Mexico has maintained its public finances in order and, according to quantities from the Ministry of Finance, the external debt fell from 45.0% of total debt to a ratio of 19.0%. However, even though the Mexican economy faced in the second half of 2008 the worst economic crisis since the depression of 1929, with a plunge of 6.1% of GDP at end of 2009, it managed to grow 5.5% in 2010, with a high social cost, economists agree.

To one year for the end of the administration of President Calderon, it appears that the forthcoming years, Mexico must be located in 14th place among the world's major economies, and the problems must be resolved until the next administration.

Considering that 2012 is an election year, and with the risk of a probable global economic slowdown, it will limit the scope of action of the Federal Executive to obtain the approval of structural reforms. The stability in prices has been kept, but the cost has been a slow and low economic growth, assures the director of Moody's Analytics for Latin America, Alfredo Coutiño (CNN Expansion, 1st of September of 2011).

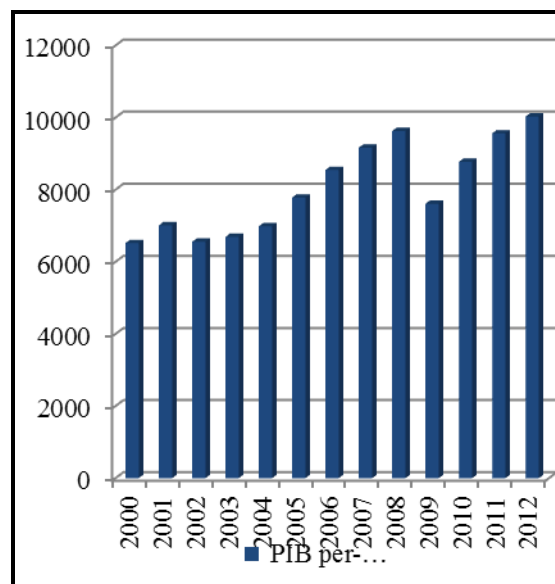


Figure 2

As seen in Figure 2, the GDP per capita has varied from \$ 6.520 USD in 2000 to \$ 9.629 in 2008 and falls to \$ 7.612 USD in 2009 due to the financial crisis in the U.S. and that hit Mexico greatly, however it was increased again from 2010-2012.

The GDP per capita measures the potential hypothetical income per capita in the country and not its distribution.

In terms of pesos, the progress is much more modest with barely 5.5%, to settle at \$ 116,959.1 and according to the National Household Income and Expenditure Survey (ENIGH) concentrates 36.3% of Mexican households.

Of the remaining 63.7% households, covering deciles I to IX, revenues do not reach half the GDP per capita in pesos for 2010.

During the last decade, Mexico has implemented policies that have strengthened its macroeconomic stability: in 2007.

GDP grew at an annual rate of 3.3%, while the rate of inflation continued a converging path anticipated by the Bank of Mexico and stood at 4.0%, the lowest among major economies of Latin America and lower than the U.S. (4.1%) and Spain (4.2%).

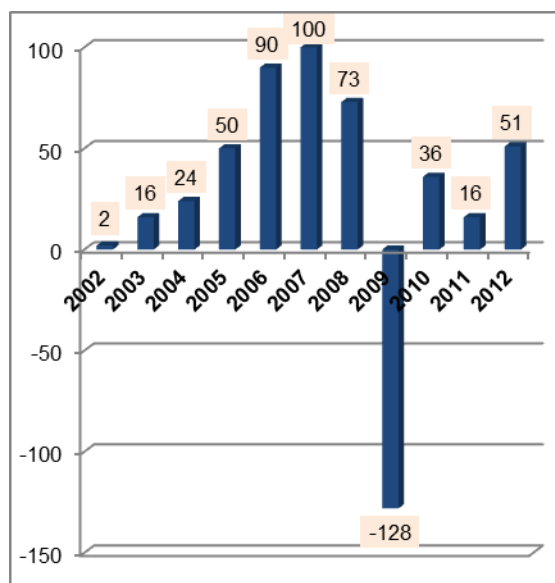


Figure 3

Regarding job creation, from 2008 the formal jobs were decreasing (73,000), in 2009 declined (-128,000), to 36 000 in 2010, and declined to 16,000 in 2011, so far in 2012 there exist 51 thousand formal jobs (Figure 3).

Macroeconomic framework	2009	2010
GDP (%)	-2.8	2.0
Inflation (%)	3.8	3.0
Exchange rate (\$/Dollar)	14.5	14.5
Interest rate (%) (Cetes 28 days)	6.2	6.3
Current account (mdd)	-24,099	-20,037
Mexican mix (dpb)	42.0	48.3
EU GDP (%)+	-0.8	1.6

Table 1

The economic outlook in 2010 saw a moderate recovery in the growth rate in the United States in the second semester of 2009. For 2010, the Secretary of the Treasury forecast a growth of 2.0%, inflation of 3.0% and a price of Mexican crude oil of 48.3 dollars per barrel (dpb) (Table 1).

	2010	2011
GDP (real Var %)	5.3	4.2
Domestic demand (real Var %)	4.7	4.1
GDP per capita (Dollars)	9,200	9,600
Current Account Balance (% GDP)	-0.9	-1.1
Foreign Direct Investment (Billions of dollars)	13.1	13.4
Domestic interest rate (%)	4.5	3.5
Consumer inflation (%)	4.5	3.8
Average exchange rate (\$/dollar)	12.4	12.5

Table 2

The economic outlook in 2011 considered a moderate recovery in the growth rate of 4.2% from the second semester. The per-capita GDP of 9,600 dollars, with a domestic interest rate of 3.5%, an inflation rate of 3.8% and an exchange rate of \$ 12.5/Dollar (Table 2). Mexico is in the process of recovery from a severe economic down turn in 2009. However, the economic environment is fragile, with many conditions that are extended with little room for the new administration in 2012 and beyond. The main challenges are: a) An economy unable to grow significantly; b) A growing shortage of formal employment, c) A weakening of the federal and state government finances, d) A possible financial collapse of Social Security e) A waste the demographic bond: f) A depletion of the benefits of free trade and continuous loss of competitiveness. Mexico has grown at a rate similar to that of a developed country (USA), without being, emerging countries have widely exceeded it (GEA, 2011). Based on the above background, the objective was to analyze the influence of the variables: number of migrants, the exchange rate, the minimum wage in Mexico, remittances, US wages, unemployment and inflation on the U.S. over the Mexico's economic growth.

Methodology

For the development of this study the following methodology was used. In order to determine the functional relationships between GDP, migration, wages, the exchange rate and inflation, and the remittances, among others, a multiple linear regression model of GDP was used as a function of the number of migrants, the exchange rate and the minimum wage in Mexico, variables that happened to be the most significant.

Description of the Models

Model 1:

$$GDP_t = \beta_0 + \beta_1 MIGMex_t + \beta_2 ER_t + \beta_3 WMex_t + \varepsilon_t$$

Where: β_0 , β_1 , β_2 and β_3 are the model parameters; GDP_t is the Gross domestic product of Mexico (Billions of pesos of 2003); $MIGMex_t$ = Number of migrants in period t (Number of migrants); ER_t = Exchange rate (\$/Dollar); $WMex$ = Real minimum wage in Mexico (\$/work day); ε_{t1} = Error.

Model 2:

$$GDP_t = \alpha_0 + \alpha_1 Re_t + \alpha_2 ER_t + \alpha_3 WUS_t + \alpha_4 UUS_t + \alpha_5 INFUS_t + \varepsilon_t$$

Where: α_0 , α_1 , $\alpha_2, \dots, \alpha_5$ = are the model parameters; GDP_t = Gross domestic product of Mexico (Billions of pesos of 2003); Re_t = Remittances in period t (Dollars); ER_t = Exchange rate (\$/Dollar); WUS_t = U.S. minimum wage (Dollars); UUS_t = Unemployment rate in the United States (%); $INFUS_t$ = Inflation rate in the United States (%); ε_{t2} = Error.

To conduct the study, information was obtained from public institutions such as the World Bank (WB), Bank of Mexico (B of M), National Population Council (CONAPO), National Institute of Statistics and Geography (INEGI), National Survey Occupation and Employment (ENOE), Economic Commission for Latin America and the Caribbean (ECLAC), Secretary of Finance and Public Credit (SHCP), among others. To estimate the model we used the statistical package (SAS).

Model estimation

To develop the results, the analysis was performed as follows.

Statistical results

The results obtained from the processing of the data are shown in the following tables and the analyses of the structural coefficients allow appreciating the consistency of the estimates with theoretical economic relationships embedded in each equation.

Model 1, which was obtained to explain the GDP in function of the number of migrants, the exchange rate and the minimum wage:

Variable dependiente: PIB					
Analysis of Variance					
	Sum of	Mean			
Fuente	DF	Squares	Square	F-Valor	Pr > F
Modelo	3	66733521	22244507	302.59	<.0001
Error	27	1984893	73515		
Total corregido	30	68718414			
Root MSE		271.13568	R-cuadrado	0.9711	
Media dependiente		6337.50387	Adj R-Sq	0.9679	
Coeff Var		4.27827			
Parámetros estimados					
Variable	DF	Parameter Estimate	Standard Error	Valor t	Pr > t
Término ind	1	3484.28399	569.28840	6.12	<.0001
MIGMex	1	0.00051499	0.00003169	16.25	<.0001
ER	1	-189.94552	45.30121	-4.19	0.0003
WMex	1	6.41235	3.24014	1.98	0.0581
Durbin-Watson D		1.516			
Número de observaciones		31			
1st Autocorrelación de orden		0.149			

Table 3

The results in Table 1 show the functional relationship of GDP with the number of migrants, the exchange rate, and the wage rate in Mexico.

The overall analysis of variance shows that the value of the test $F_c = 302.59 > F_{3, 27, 0.05} = 2.96$, with $\alpha = 0.05$, so the null general hypothesis is rejected overall, indicating that at least one of the parameters obtained in the equation is not zero.

The same regression is highly reliable, indicating a highly explanatory power of the estimated regression equation.

It can be ensure, from the information obtained, that the 97.1% of the variation in the gross domestic product of Mexico (GDP) is explained by the independent variables of the number of migrants (MIGMex), exchange rate (ER) and the minimum wage in Mexico (WMéx) included in the model for the period of 1980 to 2010.

The variables that were highly significant in the equation of GDP were the number of migrants with a value of t of 16.25 ($t > 1$), a calculated value for t of -4.19 > 1 for the exchange rate.

Somehow these two variables are the most important account for the increase in the household consumption at the local level by analyzing the situation whether or not they contribute to the economic growth of the country.

In the case of wages in Mexico it was calculated a value of 1.98 $t > 1$

The results are based on information obtained from the sources and represent the behavior of the same in the period analyzed.

Model 2 was obtained to explain the GDP in terms of remittances, exchange rate, US wages, unemployment and inflation rates in the United States:

Variable dependiente: PIB					
Analysis of Variance					
Fuente	DF	Sum of Squares	Mean Square	F-Valor	Pr > F
Modelo	5	68115550	13623110	564.93	<.0001
Error	25	602864	24115		
Total corregido	30	68718414			
Root MSE		155.28860	R-cuadrado	0.9912	
Media dependiente		6337.50387	Adj R-Sq	0.9895	
Coeff Var		2.45031			
Parámetros estimados					
Variable	DF	Parameter Estimate	Standard Error	Valor t	Pr > t
Término ind	1	5070.98459	477.22230	10.63	<.0001
Re	1	0.0008865	0.0000588	15.07	<.0001
ER	1	-155.27656	35.28013	-4.40	0.0002
WUS	1	582.38072	64.70371	9.00	<.0001
UUS	1	-123.97730	18.56237	-6.68	<.0001
INFUS	1	-53.29134	18.11891	-2.94	0.0070
Durbin-Watson D			1.514		
Número de observaciones			31		
1st Autocorrelación de orden			0.233		

Table 4

Table 4 shows the relationship between GDP and remittances (Re), the exchange rate (ER), the wage rate (WUS), the unemployment rate (UUS), and the rate of inflation United States (INFUS).

The overall analysis of variance shows that the value of the test $F_c = 564.93 > F_{3, 27, 0.05} = 2.96$, with $\alpha = 0.05$, reason for which the null hypothesis is rejected overall, indicating that at least one of the parameters obtained in the equation is not zero.

The same regression is highly reliable, indicating a highly explanatory power of the estimated regression equation.

It can ensure, from the information obtained, that the 99.1% of the variation in the Gross Domestic Product of Mexico (GDP) is explained by the independent variables such as remittances, the exchange rate, the minimum wage, unemployment and U.S. inflation in the model for the period of 1980 to 2010.

From the estimation of model 2, the variables that were highly significant of the GDP were: remittances with a value of t of $15.07 > 1$, $9.0 > 1$ for US wages, for unemployment $-6.68 > 1$ in absolute value, the last two variables for the American Union of $-4.4 > 1$ for the exchange rate and $-2.94 > 1$ for inflation in the same country.

Somehow these five variables are those that represent greater importance in explaining the economic growth.

The results obtained are depending on the information obtained from the sources and representing the behavior of the same in the period 1980-2010.

- Economic Interpretation of the elasticity

The analysis of elasticities for the models considered the concept *ceteris paribus*, that is to say, by varying some explanatory variable, a variable acting on an endogenous variable; it is assumed that all other factors remain constant.

This is done in order to quantify the effects specified in the functional relationships that compose the model. These types of elasticity are known as short-term.

$\varepsilon_{MIGMex}^{GDP} = 0.5915537$	$\varepsilon_{Re}^{GDP} = 0.1110823$
$\varepsilon_{ER}^{GDP} = -0.00681177$	$\varepsilon_{ER}^{GDP} = -0.16494886$
$\varepsilon_{WMex}^{GDP} = 0.060431207$	$\varepsilon_{WUS}^{GDP} = 0.40774432$
	$\varepsilon_{UUS}^{GDP} = -0.1233699159$
	$\varepsilon_{INFUS}^{GDP} = -0.0306653$

Table 5

Table 5 presents the eight elasticities involved in the two models proposed to explain economic growth in function of the number of people migrating from Mexico to the United States, and the recruitment of domestic workers' remittances.

As shown in Table 3, with an increase of ten percent in the variable number of migrants towards the United States, Gross Domestic Product increases by 5.9%, whereas if a 10.0% increase exchange rate variable, the Gross Domestic Product decreases by 0.068%. In the case of wages in Mexico if it is increased by 10%, the gross domestic product increases by 0.6%.

For model 2, we have that with an increase of 10.0% in remittances captured by Mexico to increase by 1.1% gross domestic product, whereas if it increases by 10.0% the exchange rate there will be a decrease in the Gross Domestic Product.

A 10.0% increase in unemployment in the United States, the Gross Domestic Product will decrease by 1.2%, for the case of salary if the U.S. increases by 10% will result in an increase in the gross domestic product by 4.1%. Regarding the 10.0% increase in U.S. inflation Mexico's GDP will decrease by 0.3%.

With respect to the behavior of the variables involved in the models and according to the Economic Theory:

Model 1, we have that the increasing migration of Mexican the GDP will decline, however the results showed the opposite sign; for the case of the exchange rate this did not fulfill, for it was expected a direct relationship; on the other hand, the salary of Mexico presented the expected sign according to economic theory.

Model 2, if it increases the remittance transfers this will result in an increase in the GDP so that this increases the family income which will cause an increased local consumption.

In the case of the exchange rate of U.S. wages and unemployment in the same country this was not fulfilled as it sets by the theory. With regard to the inflation of the American Union to achieve inflation increased to decrease the purchasing power of the migrants, this will lower remittances to the country.

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As can be seen, on the information obtained, the Mexican economy is tied to the one of the U.S., for example, employment in the construction sector, where 17.0% of Mexican migrants work, showed an increasing trend over 2011, but has recently begun to see a reduction of jobs. Preliminary figures from the Department of Labor of the United States said it lost more than 50,000 jobs between February and June 2012.

The leisure and hospitality industry where 16.0% of Mexican migrants work, generated between November 2011 and April 2012 an average of about 40,000 jobs every month, but recently job creation has stalled.

Also in the retail trade sector, working 8.0% of Mexican migrants, after almost a year of expansion has also stagnated employment as preliminary figures indicate. Together these three sectors, where job creation seems to be stopping, employ more than 40.0% of Mexican migrants (BBVA Research, 2012).

The use of Mexican migrants has tended to behave differently to the use of other Hispanics since 2010. The "Arizona effect" was a factor that stopped the use of Mexican migrants without causing significant impact to other Hispanics.

In July 2012, while the Hispanic employment reached a new record high, employment of Mexican migrants did not grow up with the dynamism that it was doing, according to BBVA estimates. It is not known with certainty whether this is a result of what seems to happen in three sectors mentioned previously and whether it has reached a new turning point that could generate a downward trend in the employment of Mexican migrants.

Even the employment figures for May and June are preliminary, so it could be adjusted upward or downward. It is needed to wait in the following months to have more robust information (BBVA Research, 2012).

Economic development is the factor that ultimately can stop migration to the United States. Perhaps with this, Mexico is no longer considered a problem by their high rates of expulsion of unskilled labor.

Today Mexico has an open economy that is increasingly diverse, a more democratic political system and a birth rate that is declining.

It is therefore reasonable to expect that the day comes when the increase in demand of jobs in Mexico ends with unemployment and absorbs the incoming workforce.

The Mexican economy is almost entirely dependent on oil sales in the medium term that tends to sell out, so a way to diversify foreign exchange earnings has seen migration as a key factor in this regard.

However, labor that emigrates to the United States is qualified and emigrate illegally, so that can't access skilled jobs with attractive salaries, in this regard it must be that the education levels of the population rises more marginalized as much as possible so that they have more skills and may have better opportunities in the country or abroad (BBVA Research, 2011).

In this sense, in recent years the relationship between migration and development (MD) has re-occupied a privileged place in the academic and political agendas of national governments as well as the most diverse international agencies and supranational institutions (IOM, 2003, MIF, 2004, World Bank, 2006; SEGIB, 2006).

Thus, from the mid-nineties have driven various government programs and policies, and we have seen a proliferation of publications, forums, conferences and meetings of high-level experts, which are discussed and agreed upon various strategies to maximize the impact migration in the development processes of sending countries (Canales, 2007).

The migration for countries of origin is seen as an opportunity to enhance their processes of economic and social development (Kapur, 2004).

On one hand, it is noted that migrants act as agents of social and economic change, which encourage innovation and transfer of knowledge and technology (HAS, 2007). Moreover, they send remittances that have great potential as a tool to reduce poverty and promote economic development in their communities (Ratha, 2003, Adams and Page, 2005, Terry, 2006).

Interestingly, it seems that from international agencies were promoting a new development paradigm for the Third World, according to which migration and remittances assume a leading role, replacing the previous role in development schemes and paradigms have played both the state and the market itself (Canales, 2008).

Specifically, we can identify two levels from which remittances and migration have such effects on economic development.

On the one hand, at the micro economic level, and based on the asset approach / vulnerability developed by the World Bank (Moser, 1998), stated that the situation of vulnerability in which migrants and their families and communities could be countered with proper asset management (assets) social, economic, cultural, political and demographic that they possess and that can accrue to migration (social capital), regardless of their limited income and financial resources as well as the conditions imposed by the structural context. In this new paradigm, remittances make up a kind of economic capital, which along with other social capital linked to migration (family networks, family work and community and migrant organizations, among others), constitute privileged resources for communities that could help overcome the conditions of social vulnerability and economic insecurity, even if the conditions of the structural environment in which they live are not favorable (Canales, 2007).

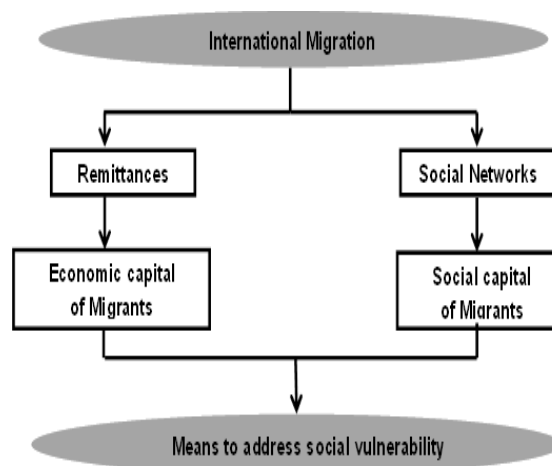


Figure 4

Figure 4 illustrates this type of reasoning applied to the case of migration and remittances.

At the macroeconomic level, this optimism is based on a series of arguments that highlight the impacts and effects of remittances on the economic dynamics of the recipient countries.

Specifically, it identifies at least four ways in which these positive effects channeled remittances.

First, it says that while remittances are mainly used to finance household consumption, often underestimated the volume of remittances to productive investment in agricultural land and the formation of companies and family businesses in urban areas, thereby underestimating the impact of remittances in promoting local development (Durand, 1994; Jones, 1995).

Second, several authors call attention to the multiplier effects of remittances. Not only productive investments, but also consumer spending financed with remittances boost the national and local economy, since the increase in demand for consumer goods boosts the local market and promotes the formation of new businesses, encouraging the creation of new jobs (Adelman and Taylor, 1990; Durand, Parrado and Massey, 1996; Zárate, 2007).

Third, states that remittances contribute to improving the living conditions and welfare of the population perceiving and reduce the incidence of poverty.

Both its volume and flow directly to those most in need, without having to go through bureaucratic filters (Wahba, 2005), remittances, more than any other transfer, have a clearly positive effect on reducing economic inequalities generating a more equitable income distribution (World Bank, 2004).

Finally, we highlight the contribution of remittances to the country's macroeconomic stability earners. Compared to other traditional sources of foreign exchange, remittances show greater dynamism and stability, which makes them a more reliable income and allowing solve crises.

In fact, the time series show that in times of economic crisis, when there is usually a desertion of foreign capital and domestic savings, remittances, however, stating increase countercyclical behavior and inflexible downwards (Ratha, 2003; Canales and Montiel, 2004).

Conclusions

Based on the statistics and economic analysis, it is concluded that the main explanatory variables for economic growth were: the number of migrants, exchange rates, remittances, wages and unemployment in the United States. The lack of employment and adequate income represents a major insecurity of people, so it's important to use a well-paid wage needed to meet minimum needs for development.

If the economy does not improve in the U.S. as well as the working conditions of Mexican immigrants, the remittances uptake will decrease causing families who depend on that source not being able to subsist, since these transfers will provide at least the minimum resources needed by poors to live, in addition to the above, the conditions prevailing in the Mexican economy is the upward increase of unemployment, meager wages in Mexico, high inflation thereby achieving greater loss of purchasing power, the steady increase of the first necessity products.

Some authors argue that migration has been a lifeline to unemployment and low wages in the country, so that remittances have helped reduce poverty in the medium which the majority of the population has no formal employment and have favored the economic growth of local communities.

In recent years there has been renewed interest in international migration. It's not just an academic interest for an emerging phenomenon, but also a political and social interest, under the quantitative dimensions that migration has become in recent decades, as well as its potential social impact, cultural and economic.

In this context, the debate tends to focus on two different but complementary dimensions. On the one hand, regarding the effects and consequences in the countries of destination of migration, and on the other, the impacts and consequences in the countries of origin, in one dimension the debate tends to be the hegemony of a speech arising from international organizations and governments of the core countries.

Indeed, international migration tends to focus on one hand, in the social, political and cultural factors that it would generate in the host countries, and on the other, in the supposed opportunities and benefits that migration would have for the development in countries of origin (Canales, 2007).

References

- Adams Jr., Richard H. y John Page, 2005, "Do International Migration and Remittances Reduce Poverty in Developing Countries?", en *World Development*, vol. 33, No. 10, p. 1645-1669.
- Adelman, Irma y J. Edward Taylor, 1990, "Is Structural Adjustment with a Human Face Possible? The Case of Mexico", en *Journal of Development Studies*, vol. 26, No. 3, p. 387-407.
- World Bank, 2006, *Global Economic Prospects 2006, Economic Implications of Remittances and Migration*. Washington, DC, The World Bank.
- World Bank, 2004, *Poverty in Mexico: an evaluation of conditions, tendencies and strategy of government*, México, World Bank.
- BBVA Bancomer Research, 2010, *Migration situation of México, Service of Economic Studies*, BBVA Bancomer Foundation, May.
- BBVA Bancomer Research, 2011, *Migration situation of México, Service of Economic Studies*, BBVA Group, June, Available in: http://www.bbva.com/BBVAResearch/KETD/fbin/mult/1106_SitMigracionMexico_05_tcm346-260432.pdf?ts=582011
- BBVA Bancomer Research, 2012, *Flash Migration Mexico, Can the remittances loose impulse towards Mexico? Economic Analysis*, August 30th. Available in: http://www.bbva.com/BBVAResearch/KETD/fbin/mult/120830_FlashMigracionMexico_18_tcm346-356477.pdf
- Canales, Alejandro I., 2008. *Live in the North, Remittances, development and poverty in Mexico*, Mexico. National Council of Population (CONAPO).
- Canales, Alejandro I., 2007. *International migration and development. Evidence of the contribution of Mexicans to the U.S. economy. The status of migration. Public policy and the challenges of Mexican migration to the US*, Paula Leite y Silvia E. Giorguli (Coord.), National Council of Population (CONAPO), Available in: http://www.conapo.gob.mx/work/models/CONAPO/migracion_internacional/politicaspUBLICAS/pdf.
- Canales, Alejandro I., 2007, "Inclusion and Segregation, The Incorporation of Latin American Immigrants into the U.S. Labor Market", en *Latin American Perspectives*, vol. 34, No. 1, p. 73-82.
- Canales, Alejandro I. e Israel Montiel Armas, 2004, "Remittances and Investment in communities with high migration to the United States. The case of Teocaltiche, Jalisco", *International Migrations*. vol. 2, No. 3, p. 142-172.
- CEPAL, 2011, *Implications of macroeconomic policy, external shocks and social protection systems in poverty, inequality and vulnerability in Latin America and the Caribbean*, México. Document Collection Project of United Nations, January 2011. Printed in UN, México, D. F.
- CNNEXPANSION, 2009, *Mexico sees gloomy outlook for 2010*. Available in: <http://www.cnnexpansion.com/economia/2009/04/02/hacienda-muestra-su-cara-pesimista>

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De Has, Hein, 2007, Remittances, Migration and Social Development, A Conceptual Review of the Literature, Nueva York, United Nations, Research Institute for Social Development (Social Policy and Development Programme Paper 34).

Durand, Jorge, 1994, Beyond the line: *Migration patterns between Mexico and the US*, México, National Council for Culture and the Arts.

Durand, Jorge, Emilio A. Parrado y Douglas S. Massey, 1996, "Migradollars and Development: A Reconsideration of the Mexican Case", en *International Migration Review*, vol. 30, No. 2, p. 423-444.

The Economist, 2012, 300000 migrants returned from US in 2011, July 18th, Available in: <http://eleconomista.com.mx/sistema-financiero/2012/07/18/regresaron-300000-migrantes-eu-2011>

FOMIN (2004), *Remittances to Latin America and the Caribbean: Goals and Recommendations*, Washington, DC, Inter-American Development Bank, Multilateral Investment Fund.

GEA, 2011, Structural economic recovery lags, Associated Economists Group(GEA), February, Available in: http://www.pronafim.gob.mx/documents/doc_12_58_380.pdf

Heredia G. E. S. 1994. Exchange System history. Economy, mimeograph.

Gutiérrez, Obdulia (Coord.), 2005. *The city and the fear*, Diversitas collection 52, VII Urban Geography Colloquium. Editor: Universitat de Girona, España.

IXE-BANORTE, 2010, Available in: http://www.ixe.com.mx/storage/Boletin_Semanal_20120210.pdf

Jones, Richard C., 1998, "Remittances and Inequality: A Question of Migration Stage and Geographic Scale", en *Economic Geography*, vol. 74, No. 1, p. 8-25.

KapurDevesh, 2004), *Remittances: The New Development Mantra?* New York, the United Nations (G-24 Discussion Paper Series).

Méndez Lugo Bernardo, 2006, Transnational Mexican Migration: A new Mexican identity, between cultural assimilation in America, *Magazine El Catoblepas*, No. 58, December pp. 16, Available in: <http://nodulo.org/ec/2006/n058p16.htm>

Moser, Caroline O. N., 1998, "The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies", en *World Development*, vol. 26, No. 1, p. 1-19.

Musi Enrique, 2007, Economic Expectation for Mexico in 2007. Finance Executive (IMEF). Banamex Citigroup. Available in: www.imef.org.mx/.../EXPECTATIVASECONOMICAS2007.p...

Nájar Alberto, 2012, Mexican migration in US: the flow goes opposite. BBC World, Mexico City. Friday 9th, March. Available in: http://www.bbc.co.uk/mundo/noticias/2012/03/120309_migracion_mexico_eeuu_reversa_an.s.html

OIM, 2003, *The Migration-Development Nexus: Evidence and policy Options*, Ginebra, International Organization for Migration.

Ratha Dilip, 2003, "Worker's Remittances: An Important and Stable Source of External Development Finance", En *Global Development Finance 2003*, Washington, DC, World Bank.

SEGIB, 2006, *Preliminary conclusions of the meeting on Migration and Development*, Madrid, July 18th and 19th of 2006. Madrid, Iberoamerican General Secretary.

Terry, Donald, 2006, "Remittances as a Development Tool", en United for Migration. Iberoamerican Forum about Migration and Development, Madrid, Iberoamerican General Secretary, Economic Commission for Latin America and the Caribbean, International Organization for Migration.

Wahba, Jackline, 2005, "What is the Macroeconomic Impact of International Remittances on the Home Country?" en OECD, *Migration, Remittances and Development*, Paris, Organization for Economic Cooperation and Development.

Zárate-Hoyos, Germán, 2007. "A Multiplier Analysis of Remittances in the Mexican Economy", Zárate-Hoyos,

Germán (Ed.). *New Perspectives on Remittances from Mexicans and Central Americans in the United States. Multidisciplinary Perspectives on Remittances from Migrant Workers in the United States*, Kassel, Kassel University Press GmbH, p. 102-129 (International labor Migration 4).

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