

## **TRADE BALANCE, CAPITAL FLOW, AND REAL INTEREST RATE IN MEXICO FROM 1950 TO 2014.**

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### **Abstract**

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*This article shows that the inflow of capital does not contribute to growth and tests the hypothesis that countries with trade balance deficits need to set high interest rates to attract capital flows. In a series of papers, A. Shaikh has put forth this hypothesis based on Marx, classical economists, and post-Keynesians such as Harrod. In order to test our hypothesis, we take Mexico as a case study using data between 1950 and 2014. To test our hypothesis, that countries with trade balance deficits need to set high interest rates to attract capital flows, we (1) show that foreign direct investment (FDI) does not have any impact on investment and growth, and (2) use econometric techniques such as cointegration and a vector error correction model (VECM).*

**Key words:** *Capital Flows, Interest Rate, Trade Deficit, and Mexico*

## **BALANZA COMERCIAL, FLUJO DE CAPITAL Y TIPO DE INTERÉS REAL EN MÉXICO DESDE 1950 A 2014.**

### **Resumen**

*Este artículo muestra que la afluencia de capital no contribuye al crecimiento y pone a prueba la hipótesis de que los países con déficit de la balanza comercial deben fijar altas tasas de interés para atraer flujos de capital. En una serie de artículos, A. Shaikh ha presentado esta hipótesis basada en Marx, los economistas clásicos y post-keynesianos como Harrod. Para probar nuestra hipótesis, tomamos a México como un estudio de caso usando datos entre 1950 y 2014. Para probar nuestra hipótesis, que los países con déficit de la balanza comercial necesitan fijar altas tasas de interés para atraer flujos de capital, (1) (IED) no tiene ningún impacto en la inversión y el crecimiento, y (2) utiliza técnicas econométricas como la cointegración y un modelo de corrección de errores vectoriales (VECM).*

**Palabras clave:** *Flujo de Capital, Tasa de Interés, Déficit Comercial y México*

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## 1. Introduction

The growth rate in Mexico has been as high as 6.3 percent in a period of scarce capital movements such as import substitution (1933-1981). In turn, during a period of financial liberalization such as neoliberalism (1982-present day), the growth rate has been as low as 2.2 percent. Neoclassical economists consider that, except in special cases, capital flows contribute positively to growth and development (Grabel 2003). In contrast to this point of view, the objective of this paper is to show that capital flows do not contribute to economic growth. Specifically, we argue that countries with trade surpluses become capital exporters and will have a low interest rate. Conversely, deficit countries need to attract short-term capital such that the interest rate is then higher than in countries that are experiencing a trade surplus. This hypothesis is expressed in Shaikh (1980, 1999, 2007, and 2016) following the ideas of classical economists, Marx, and post-Keynesian economists such as Harrod (1963 and 1969). In order to test our hypothesis, we take Mexico as a case study using data between 1950 and 2014. We use econometric techniques such as cointegration (Johansen-Juselius) and a vector error correction model (VECM) to show that trade balance in Mexico precedes the Mexican real interest rate free of risk.

This article is divided into five sections. Section 2 describes the relationship between capital flows and economic growth, accounted by some schools of economic thought. We then specify the position to be taken in this article. In Section 3, we demonstrate that foreign direct investment (FDI) was not related to Mexico's economic growth during the 1950-2014 period, and in Section 4, we prove that there is causality between the trade balance and the interest rate using cointegration (Johansen-Juselius) and a VECM. Finally, we present the conclusions in section 5.

## 2. Capital Flows and Economic Growth

For the neoclassical school, the differential between private investment and private savings makes necessary the inflow of capital. Thus, capital inflow can positively affect growth and development (Williamson 1990; Kokko 1994; Love and Lage-Hidalgo 2000; Ramírez 2000; Dussel Peters et al., 2007). Exceptional conditions where this relationship does not apply are loans to increase government spending because they increase inflation, and flows of short-term capital because they can lead to macroeconomic problems such as a banking crisis and/or depreciations. Then, to address these conditions, fiscal discipline must be maintained along with adequate regulation of the financial system (Mohsin and Mathieson 1996; Carstens and Schawartz 1998; Ramirez 2000; Cárdenas Sánchez 2015).

Within the heterodox tradition, capital flows do not have such positive effects on growth and development. For some theories such as development economics, structuralism, and the bulk of post-Keynesian theories, capital flows may have positive and negative effects on growth and development conditional to the institutional framework. On the other hand, for other theories such as several Marxian strands and post-Keynesian perspectives (such as those of Harrod (1963, 1969)) and Kregel (2006, 2008), capital flows have a negative effect. In this section, we first describe schools of thought that consider that capital flows may have mixed effects, and subsequently, we describe other schools of thought that there are instead.

Development economists have considered that foreign capital via external debt and FDI could complement domestic savings in developing countries if exceptional conditions hold (Lewis 1955; Nurkse 1955; Cypher 1997). For example, for Rosenstein-Rodan (1961), to increase the levels of national investment, external debt should consist of long-term loans (20

years) and soft loans (90 years) with wide grace periods (20 years). Given these conditions, in the long-term countries may ignite a process of self-financing.

For structuralism, which is the Latin American school of thought, if capital flows increase the level of investment in developing countries, capital may positively affect growth. However, structuralists have noted that for Latin American countries, the burden of debt service and the remittance of profits and dividends to home countries have been higher than the initial flow of capital. Also, structuralists have pointed out that capital flows do not contribute to make countries more productive since exports are not encouraged (see Prebish 1970). Paz (1978) has argued that capital flows cover trade deficits, which are provoked by the deterioration of the terms trade. Meanwhile, the deterioration of the terms of trade has been explained by the specialization of the peripheral countries in primary products (with low productivity) and the existence of certain institutions such as monopolies.

For post-Keynesian authors such as Kalecki (1980), external debt and FDI can contribute positively to growth if investment in producing capital goods as well as essential consumption goods rises. In the same sense, for Kalecki, the inflow of capital contributes to growth if the consumption of essential goods increases. However, according to Kalecki (1980), debt and FDI in developing countries instead have been used to solve balance of payments problems in fixed exchange rate regimes.

Views such as development economics consider that good international as well as national conditions may hold in the long run, but such views do not take into account the dynamics of capitalism, and that in world economic expansions, such as the golden years of capitalism (1945-1973),<sup>2</sup> interest rates can remain low, but achieving growth during long-term recession is quite different. In the case of structuralism, if capital flows are framed in good government policies and some institutions are removed, the inflow of capital can make a positive contribution to development. In the long run, countries can leave the periphery and become core countries (Prebish 1970; Rodriguez 2006). This last conclusion has been criticized by adherents of the dependency school, because they believe that structuralism does not take into account the problems of unequal exchange.<sup>3</sup> Finally, in the case of post-post-Keynesians such as Kalecki, for capital flows to have an impact on growth, concerted state planning has to be carried out, which would be forced by empowering the working classes. However, this last stage has not been achieved in developing countries.

Within the Marxist tradition, schools of economic thought point out that the effects of capital flows can be positive or negative, but the latter are the most important and we proceed to discuss them. According to Szymanski (1974), Marx pointed out three phases with respect to the direction of capital flows: (1) exploitation via plunder from the 16<sup>th</sup> to 18<sup>th</sup> centuries; (2) exploitation via international trade in the early 19<sup>th</sup> century. During that period, developing countries purchased means of consumption from developed countries (capital went from the south to the north); and (3) the era of industrial investment, from the late 19<sup>th</sup> century to the present day (during which capital has moved from north to south). In this last phase, capital moves freely across the world, searching for higher profits; developed countries will export capital and accumulation will rise in developing countries. The long-run effect is that developing countries become more industrialized and productive.

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<sup>2</sup> The period of global high growth rates, generally considered to be 1945 to 1973 and called the golden age of capitalism, was characterized by low capital mobility and a fixed exchange rate pegged to the dollar.

<sup>3</sup> Unequal exchange means that developing countries are losers in international trade because developing countries have less productivity or lower wages than advanced countries. Then, for the dependency school, there is no convergence among countries in the long run through international trade (see Kay1989).

However, two Marxist visions (the dependency school and the school of the Monthly Review, MR) pointed out by Szymanski (1974), and another Marxist view elaborated later (see Shaikh 1980, 1999, 2007, 2016), question the result that capital flows contribute to increased industry and productivity of developing countries:

1. For the dependency school, because developing countries cannot retain their surplus values produced and have to send the surplus to developed countries, the effect of capital flows on growth and development is always negative (Baran 1952, 1957; Frank 1972; Kay 1989).
2. For the authors of MR, capital mobility, increased productivity, and industrialization of developing countries characterized 19<sup>th</sup> century competitive capitalism but not the monopoly capitalism of the 20<sup>th</sup>. According to Sweezy and Magdoff (1971; see also Sweezy 1970), the monopoly does not permit free mobility of capital and the search for higher profits. Markets are then not perfect and there are barriers to entry. On one hand, there are monopolized industrial branches with high profitability; and, on the other hand, there are plenty of industrial branches with low profitability. Monopolies thus do not increase their investments in productive activities, and instead put their surpluses in unproductive activities such as finance.
3. Finally, Shaikh (1980, 1999, 2007, and 2016) argues that with free trade and capital mobility, the least productive countries will undergo trade deficits, low real wages, and increased unemployment and poverty. For Shaikh (2007, 2016), the main characteristic of capitalism is competition, which is defined as the ability of firms to gain and hold the world market's share via cost reduction (Shaikh 2007). Then, international trade is determined by productivity and real wages. Less productive countries with higher profit rates will experience deterioration of the terms of trade, and subsequently, a trade balance deficit. For this reason, unproductive countries need inflows of capital (Shaikh 2007, 56 and 57):

“The alternative argument, which I will call the classical theory of “competitive advantage”, rejects the standard theory altogether. In brief, the argument here is that relative prices of international goods, and hence nation's terms of trade, are regulated in the same way as relative national prices. In both cases, high cost producers lose out to low-cost ones, and high-cost regions (nations) tend to suffer trade deficits, which tend to be covered by corresponding capital inflows (subsidies and borrowing)”

According to Harrod (1963 and 1969), countries with surpluses will have a low interest rate. Investment may rise, which causes an economic expansion; and income as well as consumption and imports rise. Developed countries' capital may go to deficit countries with an interest rate higher than that in the developed countries. Meanwhile, deficit countries will have a high interest rate. Investment may decline, thereby causing a recession, and income as well as consumption and imports decline. With this mechanism, external balance can be achieved but problems such as unemployment and inflation may remain. In addition, the inflow of capital does not contribute to the growth of the countries because (1) capital covers only the trade deficit (here, capital is not autonomously searching for profitable opportunities), and (2) cooperation is needed among surplus countries and deficit countries to solve the problems of growth, inflation, and unemployment (see Harrod 1963 and 1969).

Recently, other authors such as Kregel (2006; 2008) have reported that capital flows do not have a positive effect on the economic growth of developing countries. However, Kregel points out that the direction of the causality is from capital flows to the trade balance. Kregel, unlike, Shaikh, takes into account not only short-term capital but also what is considered long-term capital, mostly FDI. In this article, we separate long-term capital from short-term capital. In the

next section, we proceed to an examination of FDI contributions to economic growth, investment, and capital outflows. We then prove the causality between the rate of interest and the trade balance. This relationship is tested for the case of Mexico from 1950 to 2014.

### **3. Economic Growth, Investment, FDI, and Net Transfer of Resources**

Three models of accumulation have been applied since Mexican independence (1821):<sup>4</sup> the primary-export model, the import-substitution model, and neoliberalism. Even though these models of accumulation were processes and cannot be dated with accuracy, in this article, we assert that the primary-export model ended in 1933 and gave way to the import-substitution model, which lasted until 1981. Then, from 1982 to the present day, the neoliberal model has characterized Mexican economy. Our selection criterion for these periods was based on the performance of key variables such as GDP and investment, among others, and on the establishment of certain institutions such as development banks to achieve growth.<sup>5</sup> For example, Figure 1 plots the growth rate of the Mexican GDP and investment rate. From 1933 to 1981, the growth rate average was 6.3 percent per year; the investment rate grew from 5 percent in 1933 to 25 percent in 1981. For these reasons, during the import-substitution model there was technical change and convergence with respect to the US (Mariña 2011; Romero 2012; Isidro Luna 2014). In addition to the improvement of the productive sector, the Mexican entrepreneurs grew and established a financial sector that operated with close ties among private banks, Banco de México, and state-owned development banks (de Mobarak 2006, 2010, Garrido 2002, 2004, 2005, Amsden 2001, Mariña 2011, Isidro Luna 2014).

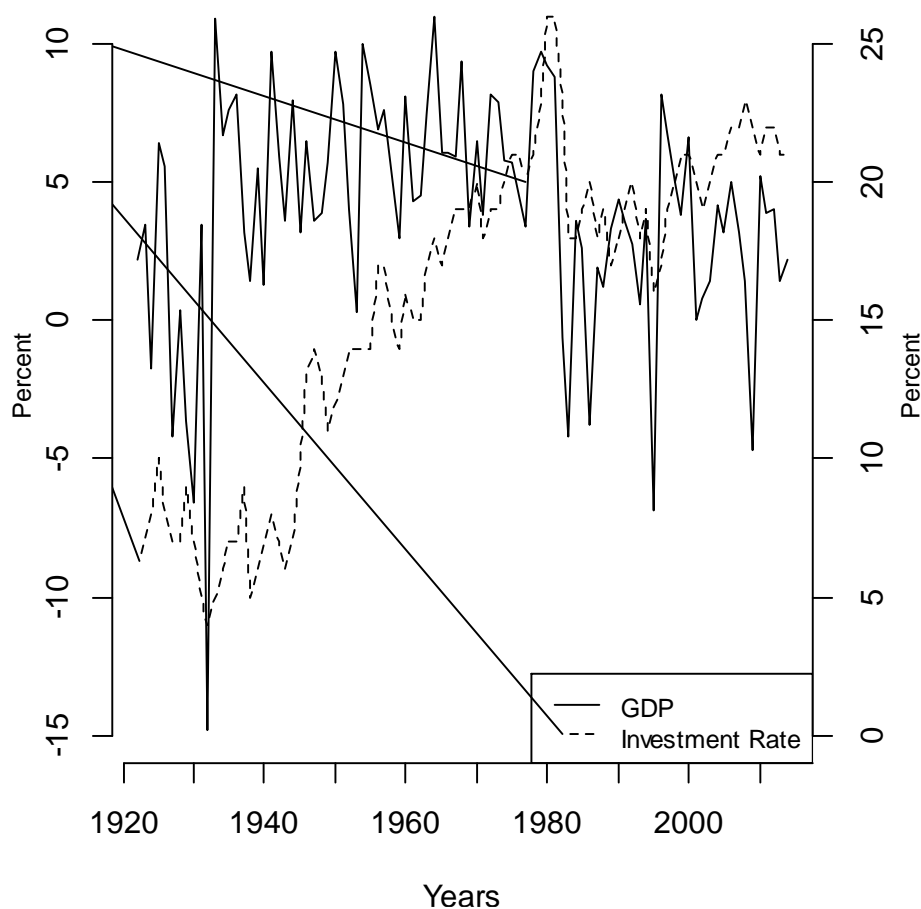
During neoliberalism, improving variables during the import-substitution model have suffered reversals. For example, the growth rate averaged around 2.2 percent from 1982 onward, technical change slowed down (Romero 2012), and severe crises more frequently beset the country. In addition, many institutions built to capture technical progress such as development banks and state-owned enterprises were dismantled or radically altered their functions (Villareal 1983; Guillén Romo 1996, 2005; Mattar et al. 2002; Sosa Barajas 2008; Mariña 2011; Isidro Luna 2014).

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<sup>4</sup> From 1810 to 1821, Mexico waged a war for its independence, following three economic periods can be distinguished before the establishment of the import-substitution model: (1) the period 1821 to 1876 was characterized by political instability and external debt problems; (2) the 1876 to 1910 period saw political stability, economic growth, and increasing economic and social inequality; and (3) 1910 to 1933 experienced political instability and debt problems, but also the consolidation of the Mexican national-state (Isidro Luna 2015).

<sup>5</sup> Several institutions helped to maintain economic growth in Mexico during the import-substitution period: (1) development banks provided credit and equity to industrial companies, (2) universities were created to provide qualify workers to industrial branches, (3) official labor unions guaranteed an adequate and no problematic labor force, and (4) an incipient national security system was created to protect workers in the industrial areas.

**Figure 1.** Growth rate of Mexican real GDP (left axis) and investment rate (right axis)

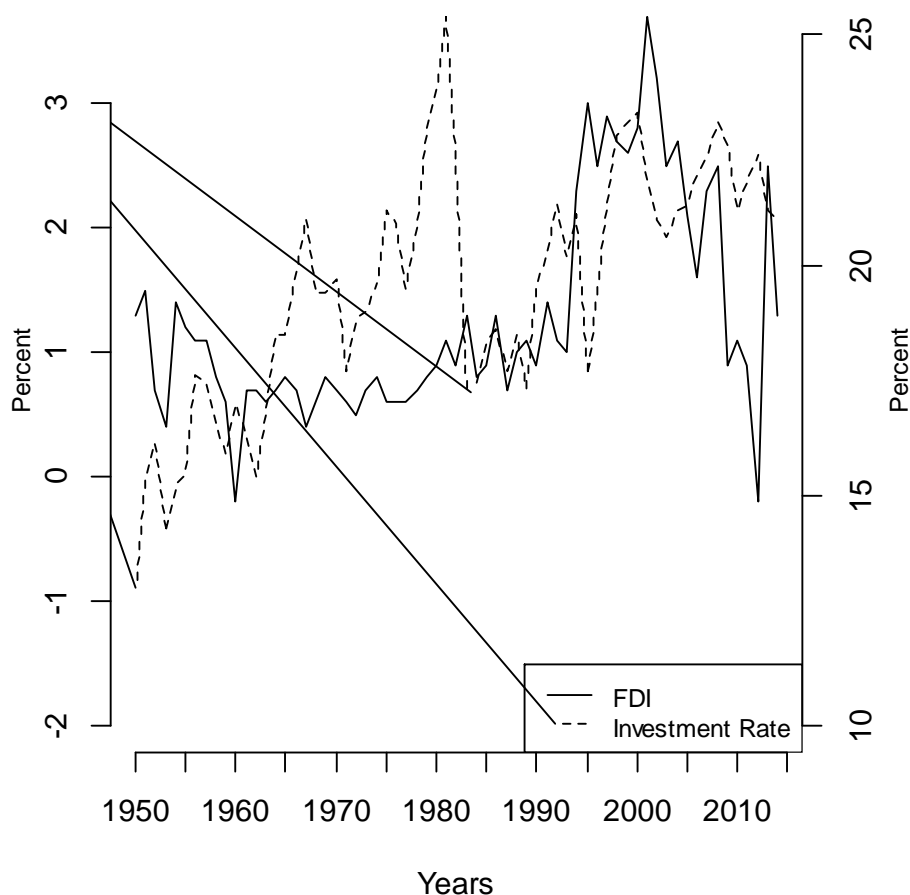


**Source:** INEGI (2006) and MOxLAD (2016)

However, the import-substitution model was a period of low capital mobility; conversely, the neoliberal model has been a period of high capital mobility. We mentioned that the inflow of capital is provoked by trade deficits. In this sense, the inflow of capital barely has an impact on growth and development. However, this argument is valid for short-term capital.

What about FDI? Has FDI sparked growth in Mexico? Historically, FDI has scarcely sparked growth and development in Mexico. First of all, in import substitution (Bulmer-Thomas 1994) as well as in neoliberalism, the inflow of capital via FDI has been scarce. The ratio of FDI to gross fixed capital formation (GFCF) was 4.3 percent from 1950 to 1981, and the ratio of FDI to GDP was 0.77 percent (CEPAL 2016a). These amounts did not increase much during the neoliberal era; the ratio of FDI to GFCF was 8.5 percent, and the ratio FDI to GDP was 1.7 percent (see Figure 2) (CEPAL 2016b). This amount of resources was low even for conservative authors such as O'Rourke (2001), who considers that there were higher inflows of capital before WWII than after. O'Rourke (2001) points out that by the end of the 19<sup>th</sup> century, the percentage of FDI with respect to investment reached levels of 75 percent in Mexico.

**Figure 2.** FDI as a percent of GFCF (left axis) and FDI as percent of GDP (right axis)



**Source:** CEPAL (2016a) and CEPAL (2016b)

Even though FDI has come to Mexico in scarce amounts, it may be argued that FDI may have made a great contribution to growth because it:

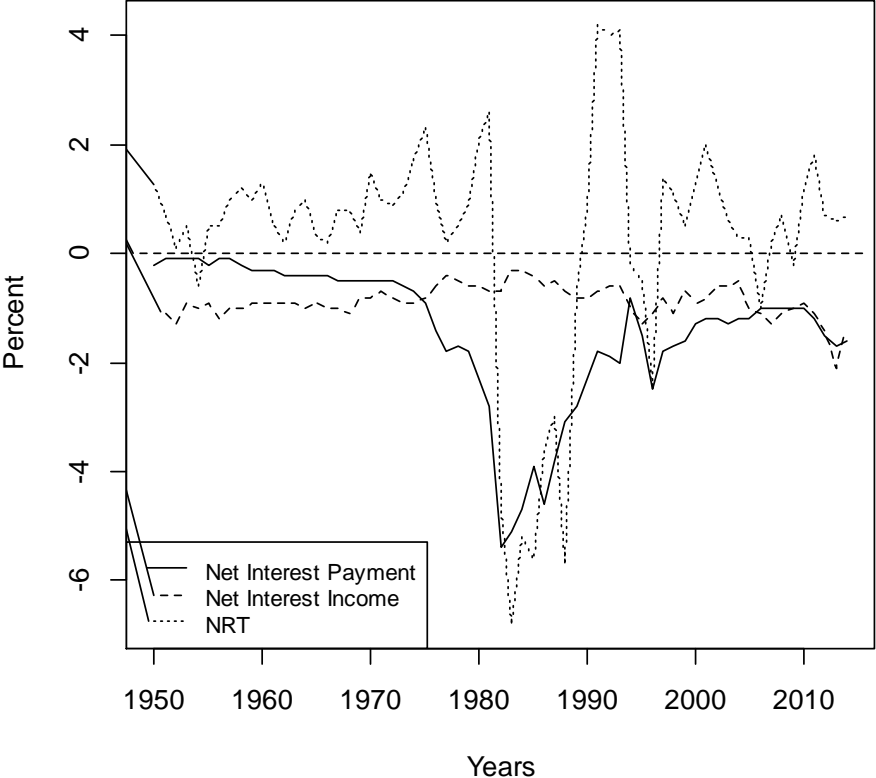
1. Increased productivity and technology transfers (Kokko 1994; Ramírez 2000; Dussel Peters et al., 2007),
2. Enhanced the size of the volume of employment, and
3. Increased the size of the national capital stock (Ramirez 2000).

However, there is not agreement among scholars if these assertions hold. First of all, Romero (2011) and Mattar et al. (2002) have reported that productivity in Mexico during the neoliberal era has decreased and not the opposite. Also, Romero (2011) points out that technological spillovers have not been present in the Mexican economy. Second, according to Romero (2011), FDI does not hire high skilled workers and, as Mendoza Cota (2012) has shown, through a dynamic panel data model, the FDI has had little effect on manufacturing employment during the 2000s. Finally, even though several authors, including Ramirez (2000), have shown the positive role of FDI in the Mexican economy increasing the capital stock, its analysis was carried out during the 1990s. Subsequent studies have shown that there was a boom in FDI investment at the end of the 1990s, but the same variable declined afterward (Mattar et al. 2002; Romero 2011).

Mexican investment may increase if in the long-run foreign companies' profits are reinvested; however, this argument is conditional on the fact that capital does not leave the country via profits remittances to home countries (see Prebisch 1970; Harrod 1969; Ramirez 2006). Figure 3 plots net interest payments, net investment income, and the net resources transfer (NRT), which consists of the inflow of capital minus the balance of income of the current account (mostly net interest payments and net investment income). As observed, NRT was positive during import substitution, but it barely reached 2 percent of GDP. During neoliberalism, NTR has been negative for many years and has undergone strong fluctuations. Markedly, from 1982 onward negative net investment income has been growing in Mexico, and FDI's contribution to growth has been minimal. If remittances to home countries were discounted to FDI, the contribution of this last variable to the Mexican investment would be near 1 percent on average from 1982 to 2014 (calculations based on CEPAL 2016B).

Other authors have shown that positive impacts from FDI to growth are difficult to find in developing countries (see Chakraborty 2008; Herzer et al. 2008).

**Figure 3.** Net Interest Payment, Net Investment Income, and NRT

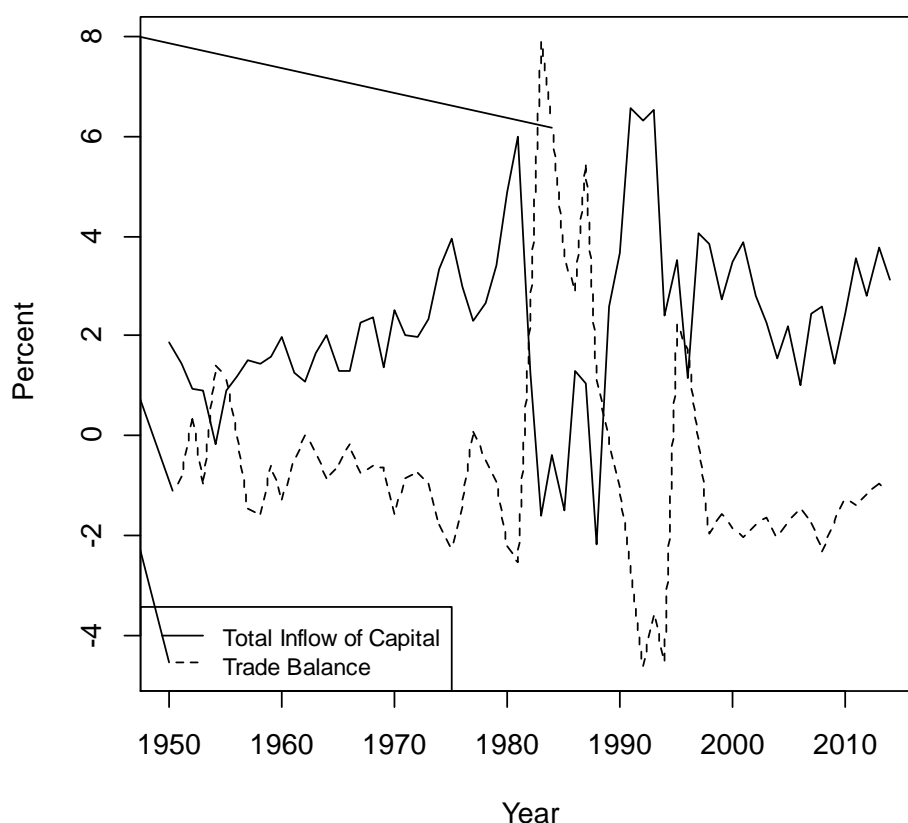


**Source:** CEPAL (2016a) and CEPAL (2016b)

Finally, neither short-term nor long-term capital contributes to growth because inflow of capital is not autonomous: both forms of capital are correlated with the trade balance for Mexico from 1950 to 2014. The correlation between trade balance and total capital inflow is - 67 percent. Figure 4 neatly demonstrates that trade balance and total inflow of capital move together in opposite directions.



**Figure 4.** Total Inflow of Capital (Percent of GDP) and Trade Balance (Percent of GDP)



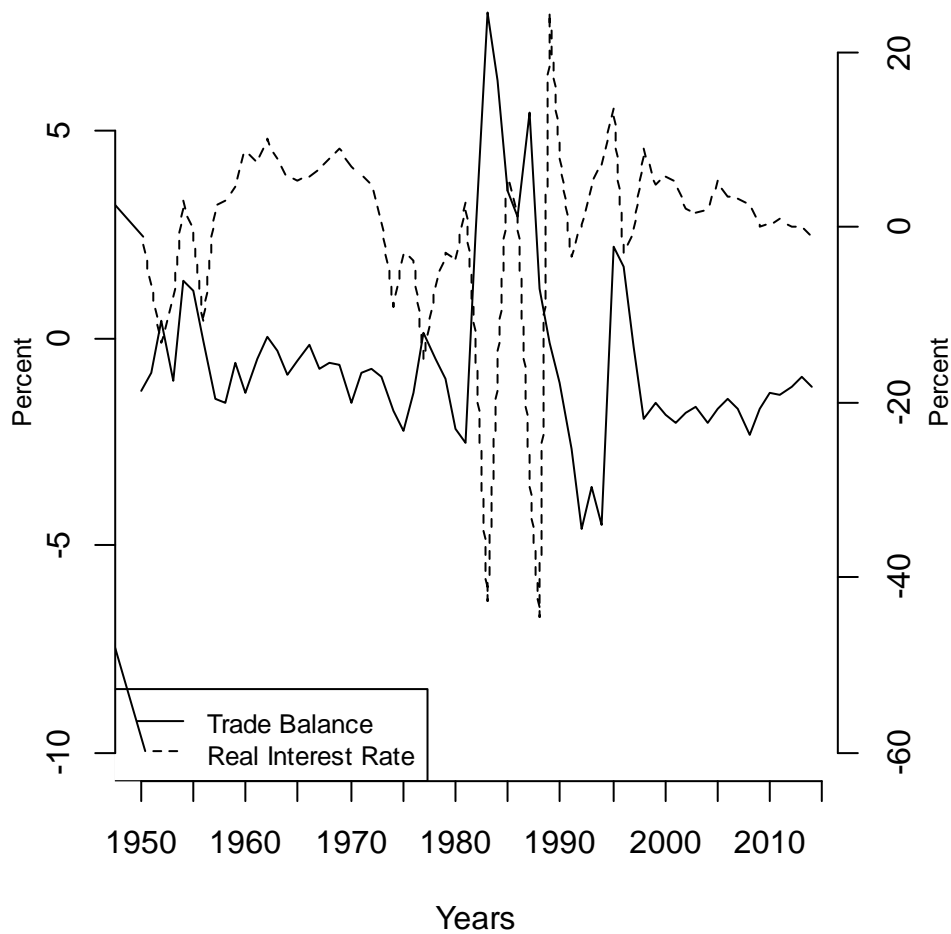
**Source:** CEPAL (2016a) and CEPAL (2016b)

#### **4. Empirical Relationship Between Trade Balance and Real Interest Rate**

In this section we will prove that there is a negative relationship between trade balance and the real interest rate in Mexico from the period 1950 to 2014. We will then assert that deficit countries have a higher interest rate than surplus countries. Subsequently, capital inflow is required to solve problems in trade balance. Trade balance series were obtained from CEPAL's statistical notebooks (2006a) for 1950 to 1980, and for 1981 onward they were obtained from CEPAL'S statistical yearbook (2006b). We then divided trade balance series by current GDP. Meanwhile, the annual nominal interest free of risk was obtained from Villalpando-Benitez (2000) for 1950 to 1977, and from the database FRED Economic Data of Federal Reserve Bank of St. Louis (2016) for 1978 onward. For this period, CETES' nominal interest rate was used. Subsequently, to obtain the real interest rate, we take the nominal interest rate minus the inflation rate.

Figure 5 shows the two variables mentioned above; except for the first years of the 1950s, the two series move in the opposite direction. Also, it is clear that during the stabilizing development (around 1958 to 1970), to match the objectives of high growth, fixed exchange rate, and low inflation, a constant inflow of capital through a high interest rate was needed (Green, 1976; Reynolds, 1977; Ortiz 1998).

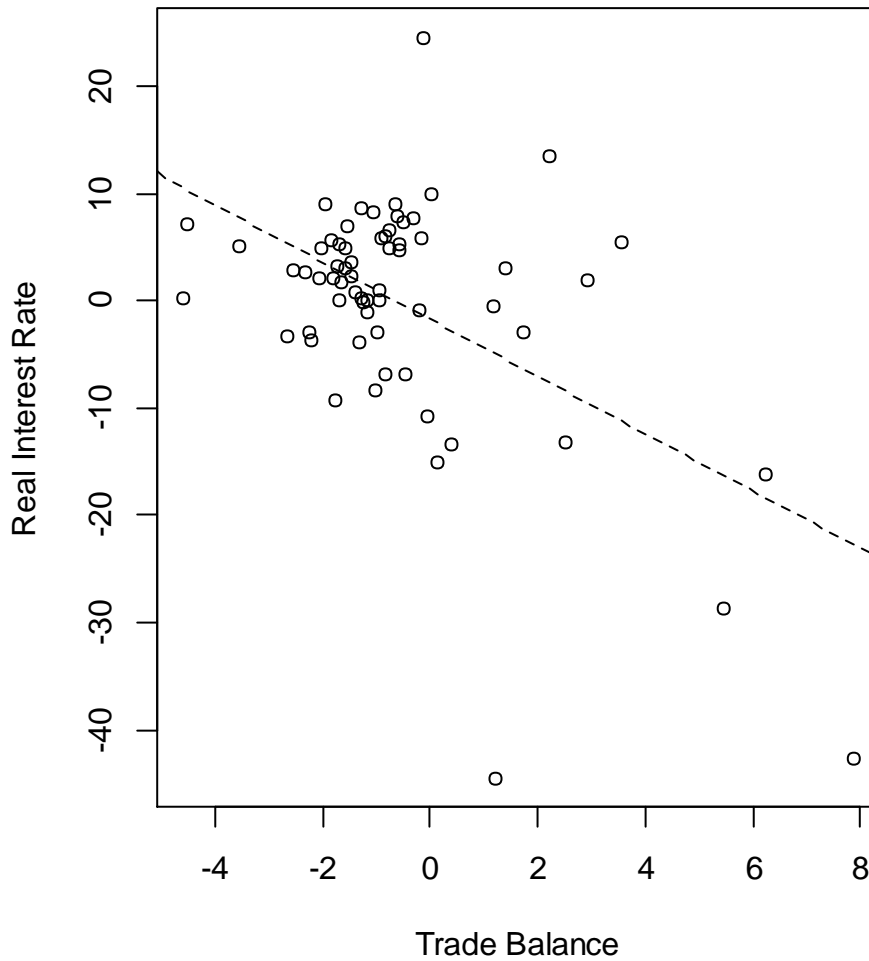
**Figure 5.** Trade balance as percent of GDP (left axis) and real interest rate (right axis)



**Source:** CEPAL (2016a, 2016b), Villalpando-Benitez (2000), and St. Louis Reserve (2016)

In Figure 6 it can be observed that both the trade balance and the real interest rate are negatively correlated. The correlation coefficient is -52 percent. However, the presence of outliers is clear, as is the case in the transition from Miguel de la Madrid to Carlos Salinas de Gortari (1988-1989) and the 1995 crisis. If these two years are left out, the correlation rises to -59 percent.

**Figure 6.** Scatter Plot Between Trade Balance as a Percent of GDP and the Real Interest Rate from 1950 to 2014



**Source:** CEPAL (2016a, 2016b), Villalpando-Benitez (2000), and St. Louis Reserve (2016)

Once we see that the two variables are correlated, we test if one of them precedes the other and if one of them can be used as a predictor of the other. In so doing, we carry out a vector error correction model, which is specified as follows:

$$\Delta r = \beta_0 + \sum_{i=1}^n \varphi_{ri} \Delta r_{t-i} + \sum_{i=1}^n \varphi_{tbi} \Delta tb_{t-i} + \alpha_0 ECT_{t-1} + \varepsilon_t$$

$r$  holds for interest rate and  $tb$  for trade balance.  $ECT$  is the error-correction term,  $\varepsilon$  is a random error term,  $\alpha_0$  shows the long-term relationship between the two variables,  $\varphi_{ri}$  and  $\varphi_{tbi}$  are the parameters that show the short-term relationship. Carrying out the model, we take the following steps: (1) First of all, we revise the two series to not be stationary at levels, but their first difference is stationary; (2) we obtain the adequate lag through model selection criteria (Akaike and Schwarz); (3) we test if the two series cointegrate according to the Johansen-Juselius procedure and (4) we run a VECM. We proceed to expand the steps mentioned before.

First, Table 1 shows that the yearly Mexican trade balance and real interest rate are a nonstationary process. Following the Augmented Dickey-Fuller Test (ADF) for the case of the interest rate, and the ADF and Phillips-Perron Test for trade balance, we cannot reject the null hypotheses of the existence of unit roots in the two series. However, the first difference of both series ( $\Delta r$  and  $\Delta TB$ ) is stationary, and therefore the series are  $I(1)$ .

**Table 1.** Order of Integration of Trade Balance (TB) and Real Interest Rate (r)

Variable	ADF		PP		KPSS	
	A	B	A	B	$\eta_{\mu}$	$\eta_{\tau}$
r	-2.29	-2.32	-5.79*	-5.81*	0.14	0.14
$\Delta r$	-7.86*	-7.92*	-13.71*	-14.84*	0.054	0.054
$\Delta\Delta r$	-11.41*	-11.52*	-20.40 *	-24.72*	0.045	0.043
TB	-2.95	-2.81	-3.00	-2.99*	0.15	0.099
$\Delta TB$	-4.39*	-4.44*	-8.43*	-8.53*	0.038	0.033
$\Delta\Delta TB$	-6.28*	-6.34*	-22.26*	-22.47*	0.035	0.035

$\Delta$  indicates first difference

Model A adds constant and trend, and model B adds only constant.

$\eta_{\mu}$  and  $\eta_{\tau}$  indicate the KPSS test, where the null hypothesis is that the series are stationary.

\* Denotes the rejection of the null hypothesis at the 5% level of significance.

Conclusions: series are  $I(1)$ .

Source: Author's elaboration based on R 3.3.

Second, once we know that the series have the same level of integration, we proceed to see if there is a long-term relationship via Johansen-Juselius cointegration (we use three lags). The null hypotheses of one cointegrating vector is accepted (see Table 2).

**Table 2.** Johansen-Juselius Procedure, ir and bc, and Trace

Cointegrating Vector	test	5pct
$r \leq 1^*$	7.8	9.24
$r = 0$	29.41	17.85

\*We accept the null hypothesis that states there is one cointegrating vector. Three lags.

Finally, we can conclude that there is a long-term relationship between r and the tb because the error correction term (ECT) is negative and significant, which indicates a long-run causality running from *tb* to *r*. The speed of adjustment to equilibrium after one year is nearly 55 percent, so in spite of fluctuations, the series go to equilibrium after some years. Even though the majority of the individual coefficients are not significant, there is also a short-term relationship between r and tb because lags of the variables are globally significant (see Table 3).

**Table 3: VECM Results**

Variable	Coefficient	Standard Error	t-value	p-value
Constant	0.3384	1.0127	0.334	0.7396
ECT	-0.5474	0.2072	-2.641	0.0108
$\Delta r_{t-1}$	-0.1114	0.1856	-0.600	0.5509
$\Delta r_{t-2}$	0.2665	0.1415	-1.883	0.0652
$\Delta r_{t-3}$	-0.1745	0.1138	-1.534	0.1310
$\Delta tb_{t-1}$	-2.1831	0.7231	-3.019	0.0039
$\Delta tb_{t-2}$	1.8971	0.7396	2.565	0.0132
$\Delta tb_{t-3}$	0.7394	0.7630	0.969	0.3369

Multiple R-squared: 0.67, Adjusted R-squared: 0.6264, Durbin-Watson (DW) = 2.076, p-value = 0.5903, Jarque Bera Test p-value 0.293, Goldfeld-Quandt test p-value 0.5995, Breusch-Godfrey test, p-value = 0.105, F-statistic: 15.37 on 7 and 53 DF, p-value: 8.531e-1. R package 3.3

## 5. Conclusion

The main objectives of this paper were to show that the inflows of capital do not contribute to growth and that the trade balance precedes the real interest rate for the Mexican case from 1950 to 2014. Then, the trade balance deficit makes necessary the inflow of capital, as was established by Marx, classical economists, and some post-Keynesian economists such as Harrod. To prove our objective, we carried out the following: (1) an exploration of the relationship between capital flows and economic growth according to several schools of economic thought; (2) a demonstration that FDI does not have any significant effect on investment and growth after WWII (FDI was low under the import-substitution model as well in neoliberalism-- also, after discounting the remittances to home countries, its investment contribution to the capital stock is minimal); and (3) a proof that trade balance causes the real interest rate via an VECM: the speed of adjustment in the long run was almost 55 percent.

Our finding is in line with Shaikh's analysis, which indicates that real variables drive financial variables in the long run. Also, our findings may be the basis for other investigations exploring the relationship between real and financial variables in the long run. However, our article presents the following limitations: (1) some developing countries may have a trade surplus and a high interest rate as in the case of China (as has been stated in this paper, some countries may set the interest rate according to their objectives of inflation, unemployment, and growth); (2) more accurate data on the Mexican interest rate has to be compiled in the future, and the series we used is only a proxy of the Mexican interest rate; (3) other variables such as the exchange rate have to be incorporated in subsequent models (Hernandez-Martinez 2015); and (4) new statistics exercises have to be carried out to test if in the future capital flows can cause the movements of the trade balance, as has been singled out by Kregel (2006, 2008).

Despite the limitations we have discussed, we do point out at least one lesson. During the 1980s and the 1990s, Mexico had a great external debt burden. The country had to sell off assets and carry out debt conversion programs in exchange for FDI. If Mexico is not more productive in the current economic climate, the country will have to attract capital, and again may be forced to sell off assets or reduce social spending.

## References

- I. Amsden, H.A. (2001): *The Rise of the Rest: Challenges to the West from the Late-Industrialized Economies*. NY: Oxford University Press.
- II. Baran, P. (1952). "On the Political Economy of Backwardness" *The Manchester School of Economy and Social Studies* 1, pp. 66-84.
- III. Baran, P. (1967): *La economía política del crecimiento*, México: FCE.
- IV. Bulmer-Thomas, V. (1994): *La historia económica de América Latina desde la independencia*, México: FCE.
- V. Cárdenas Sánchez, E. (2015). *El largo curso de la economía mexicana. De 1780 a nuestros días*. México: FCE.
- VI. Carstens, A., M. Schwartz. (1998). "Capital Flows and the Financial Crisis in Mexico." *Journal of Asian Economics* 9, pp. 207-226.
- VII. Chakraborty, C., and Nunnenkamp. (2008): Economic Reforms, FDI, and Economic Growth in India: A Sector Level Analysis. *World Development* 36 (7): 1192-1212.
- VIII. CEPAL. (2016a): "Cuadernos estadísticos." Acceso el 28 de noviembre de 2016. [http://interwp.cepal.org/cuaderno\\_37/index.htm](http://interwp.cepal.org/cuaderno_37/index.htm)
- IX. CEPAL. (2016b): "Anuario estadístico de América Latina." Acceso el 28 de noviembre de 2016. [http://interwp.cepal.org/anuario\\_estadistico/anuario\\_2016/](http://interwp.cepal.org/anuario_estadistico/anuario_2016/)
- X. Del Ángel Mobarak, Gustavo. (2006): *The Corporate Governance of the Mexican Banking System. A Historical Perspective: 1940-2000*. México: CIDE.
- XI. Del Ángel Mobarak, Gustavo. (2010): "La paradoja del desarrollo financiero." In *Historia General de México. De la colonia a nuestros días*, Edited by Sandra Kuntz, 635-666. México: Colegio de México.
- XII. Dussel Peters, E. y, M.A. Galindo Paliza., y E. Loría., y M. Mortimore. (2007): *Inversión extranjera directa en México: desempeño y potencial. Una perspectiva, macro, meso, micro y territorial*. Mexico: Siglo XXI editores.
- XIII. Federal Reserve Bank of St. Louis. (2016): "Interest Rates, Government Securities, Treasury Bills for Mexico." Acceso el 6 de diciembre de 2016. [https://search.stlouisfed.org/search?&client=Research-new&proxystylesheet=Research&site=Research&output=xml\\_no\\_dtd&num=30&etfields=\\*&q=mexico%20interest%20rate](https://search.stlouisfed.org/search?&client=Research-new&proxystylesheet=Research&site=Research&output=xml_no_dtd&num=30&etfields=*&q=mexico%20interest%20rate)
- XIV. Frank, A.G. (1972): "The development of underdevelopment." Edited by James Cockcroft, 3-17. NY: Anchor Books.
- XV. Garrido, C. (2002): "Industrialización y grandes empresas en el desarrollo estabilizador, 1958-1970." *Revista Análisis Económico* 35, pp. 233-267.

- XVI. Garrido C., and J. Martínez. (2004): “El sistema financiero mexicano evolución reciente y perspectivas.” *El Cotidiano* 123, pp. 19-29.
- XVII. Garrido, C. (2005): *Desarrollo económico y procesos de financiamiento en México*. Siglo XXI editores.
- XVIII. Grabel, I. (2003): “Averting the Crisis? Assessing Measures to Manage Financial Integration in Emerging Economies.” *Cambridge Journal of Economics* 27: 317-336.
- XIX. Green, R. (1976): *El endeudamiento público externo de México 1940-1973*, México, El Colegio de México.
- XX. Guillén Romo, H. (1996): “Los mercados financieros y el derrumbe del neoliberalismo.” *Investigación Económica* 56, pp. 271-298.
- XXI. Guillén Romo, A. (2000): *México hacia el siglo XXI: Crisis y modelo alternativo*. México: Plaza y Valdéz.
- XXII. Hernandez-Martinez. FA. An Alternative Theory of Real Exchange Rate Determination: Theory and Empirical Evidence for the Mexican Economy, 1970-2011. *Análisis Económico* 30 (74): 7-32.
- XXIII. Harrod, R. (1963): *Economía Internacional*. Madrid: Sociedad de Estudios y Publicaciones.
- XXIV. Harrod, R. (1969): *Money*. London: Macmillan.
- XXV. Herzer, D., S. Klasen., and F. Nowak-Lehmann. (2008): In Search of FDI-led growth in developing countries: The way forward. *Econometric Modelling* 25: 793-810.
- XXVI. INEGI. (2016): “Banco de Información Económica.” Acceso el 3 de enero de 2015. <http://www.inegi.org.mx/sistemas/bie/>
- XXVII. Isidro Luna, V.M. (2014): “The Role of Development Banks in Development in the Process of Economic Development-Two Latin American Experiences: Mexico and Brazil.” *World Review of Political Economy* 5: 204-230.
- XXVIII. Isidro Luna, V.M. (2015). Mexico. In M. Odekon (Ed.), *The sage encyclopedia of world poverty* (Vol. 5, pp. 1030-1030). Thousand Oaks, CA: SAGE Publications Ltd.
- XXIX. Kalecki, M. (1980): *Ensayos sobre las economías en vías en desarrollo*. Barcelona: Grijalbo.
- XXX. Kay, C. *Latin American Theories of Development and Underdevelopment*. New York: Routledge.
- XXXI. Kindleberger, C. y R. Aliber. (2011): *Manias, Panics and Crashes. A History of Financial Crises*, NY: Palgrave Macmillan.

- XXXII. Kregel, J. (2008): *Financial Flows and International Imbalances-The Role of Catching- by the Late Industrializing Developing Countries*, NY: Levi Institute.
- XXXIII. Kregel, J. 2006: "Understanding Imbalances in a Globalised International Economic System" en J.J. Teunisson y A. Akkerman (ed.) *Global Imbalances and the U.S. Debt Problem— Should Developing Countries Support the U.S. Dollar?* The Hague: Fondad, pp.
- XXXIV. Lewis, A. (1955): *Teoria del desarrollo económico*. Mexico: FCE.
- XXXV. Love J.H y F. Lage-Hidalgo. (2000): Analysing the Determination US Direct Invesment in Mexico. *Applied Economics* 32 (10): 1259-1267.
- XXXVI. Mariña, A. (2011): "La crisis mexicana de 2008-2010 en perspectiva histórica y en el contexto de la crisis mundial." *Estudios sobre México en la crisis mundial: escenario nacional tras dos décadas de apertura y desregulación*. Editado por Castro García, M.B. México.
- XXXVII. Márquez, G. (2010): "Evolución y estructura del PIB, 1921-2010." En *Historia General de México. De la Colonia a nuestros días*, editado por S. Kuntz, 549-572. México: Colegio de México.
- XXXVIII. Máttar J., J.C. Moreno-Brid, and W. Peres. (2002): *Foreign Investment in Mexico After Economic Reform*. México: CEPAL.
- XXXIX. Mendoza Cota, J.E. (2011): El impacto de la inversión extranjera directa en el crecimiento manufacturero en México. *Revista Problemas del Desarrollo* 167 (42): 45-69.
- XL. Morais, Thomas. (2008): "The 1982 Bank Statization and Unintended Consequences for the emergence of Neoliberalism." *Canadian Journal of Political Science* 1, pp. 143-167.
- XLI. Mohsin, K., and D. Mathieson. (1996): "The Implications of International Capital Flows for Macroeconomic and Financial Policies." *International Journal of Finance* 1: 155-160.
- XLII. MOxLAD. (2014): "Base de datos de historia económico de América Latina." Acceso el 3 de marzo 2014. <http://moxlad.fcs.edu.uy/>
- XLIII. Nurkse, R. (1955): *Problemas de formación de capital en los países insuficientemente desarrollados*. Mexico: FCE
- XLIV. O'Rourke, K. (2001): *Globalization and Inequality. Historical Trends*. Massachusetts: NBER.
- XLV. Ortiz Mena, A. (1998): *El desarrollo estabilizador: Reflexiones sobre una época*. México: FCE.



- XLVI. Paz, P. (1978): “Causas del endeudamiento de los países del tercer mundo.” *Investigación económica* 33, pp. 205-230
- XLVII. Prebisch, R. (1970): *Transformación y desarrollo. La gran tarea de la América Latina*. México: FCE.
- XLVIII. Ramirez, M.D. (2000): Foreign Direct Investment in México: A Cointegration Analysis. *Journal of Development Studies* 37 (1): 138-162.
- XLIX. Ramirez, M. D. (2006): Does Foreign Direct Investment Enhance Labor Productivity in Growth in Chile? A cointegration Analysis. *Eastern Economic Journal* 32 (2): 2005-220.
- L. Reynolds, C. (1977): “Por qué el desarrollo estabilizador de México fue en realidad desestabilizador”, *El Trimestre Económico*, núm. 176, pp. 997-1023.
- LI. Rodriguez, O. (2006): *El estructuralismo latinoamericano*. CEPAL: Santiago.
- LII. Rosenstein-Rodan, P.N. (1961): “International Aid for Underdeveloped Countries.” *The review of Economics and Statistics* 2, pp. 107-138.
- LIII. Shaikh, A. (1980): “Foreign Trade and the Law of Value: Part II.” *Science and Society* 44, pp. 27-57
- LIV. Shaikh, A. (1999): *Real Exchange Rates and International Mobility of Capital*. NY: Levy Institute.
- LV. Shaikh, A. (2007): “Globalization and the Myths of Free Trade.” In *Globalization and the Myths of Free Trade: History, theory, and empirical evidence*. Edited by A. Shaikh, 50-68. NY: Routledge Frontiers of Political Economy.
- LVI. Shaikh, A. (2016): *Capitalism. Competition, Conflict, Crises*. NY: Oxford University Press.
- LVII. Sosa Barajas, S. (2008): *Ensayos sobre Macroeconomía Mexicana*. México: Tlaxcallan.
- LVIII. Sweezy, P. (1970): *Teoría del desarrollo capitalista*. México: FCE.
- LIX. Sweezy, P., y H. Magdoff. (1971): *Dinámica del capitalismo norteamericano*. México: Editorial Nuestro Tiempo.
- LX. Szymanski, A. (1974): “Marxist Theory and International Capital Flows.” *Review of Radical Political Economics* 6, pp. 20-40.
- LXI. Valenzuela, J. (1995): “El modelo neoliberal, contenido y alternativas.” *Investigación Económica* 54, pp. 9-27.
- LXII. Villalpando-Benitez, M. (2000): *The Political Economy of Banking Regulation: The case of Mexico, 1940-1978*. Ohio: The Ohio State University.

- LXIII. Villareal, R. (1983): "La contrarrevolución monetarista en el centro y en la periferia." *El Trimestre Económico* 50, pp. 429-471.
- LXIV. Williamson, J. (1990): *The progress of policy reform in Latin America*. Washington D.C.: Institute for International Economics.