Real Exchange Rate and Employment
in Argentina, Brazil, Chile and Mexico

By

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I. Introduction

This paper deals with two main issues. The first one is the relationship between the real exchange rate (RER) and employment in Argentina, Brazil, Chile and Mexico. The second one is the viability of macroeconomic policies intended to preserve a stable and competitive RER. While the economic histories of those four countries provide a particularly favorable background to observe the real effects of the RER and infer policy proposals, they also face now the opportunity to adopt a stable and competitive RER as an intermediate target of macroeconomic policies.

In the last thirty years – the period of financial liberalization - there have been numerous experiments with exchange rate policies in Latin America. Many of them focused primarily on controlling inflation, as in Argentina and Chile in the late seventies, Mexico in the late eighties-early nineties, and Argentina and Brazil in the nineties. However, in all cases, those policies opened room to unsustainable current account and external debt trends that lead to crisis followed by maxi-devaluations[1]. In turn, during the immediate post-crisis, the balance of payments became the main focus of exchange rate policy. Real targets, such as growth and employment, were never placed as the main focus of macroeconomic and exchange rate policies.[2]

The policy experiments - and their failures - generated both abrupt changes in the RER and relatively long periods in which it has remained relatively stable in appreciated or depreciated levels. Abrupt changes in the RER make effects stronger and facilitate their observation. Relatively long periods of appreciation or depreciation give room, for good and for bad, to the full materialization of the RER effects on employment, as on other aspects of the economic performances.

Our policy conclusion says that preserving a stable and competitive RER is the best contribution macroeconomic policies can make to the improvement of employment and

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[1] We analyzed the financial and sustainability aspects of these policies in Frenkel (2003a) and Frenkel (2003b).
[2] The only exception is Chile between the mid-eighties and the mid-nineties.

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growth performances. Regarding this objective, it is worth mentioning that a stable and competitive RER target does not attract too much criticism by itself. Few people deny the beneficial aspects of stable and predictable relative prices and the positive development role of competitive exchange rates is gaining recognition. But the orthodoxy rejects this policy orientation. The rejection refers mainly to the incompatibility among any exchange rate target and the international free flow of capital or, alternatively, to the impossibility of simultaneously targeting the RER and controlling inflation. These are basically implementation issues. We discuss these issues in the last section of the paper.

The paper is organized as follows. Section II analyzes the mechanisms relating the RER and the employment performance. We distinguish and discuss three channels, the macroeconomic channel, the development channel and the labor intensity channel. Section III presents stylized facts and empirical results about the relationship between the RER and the employment performances in Argentina, Brazil, Chile and Mexico. In section IV we tackle the implementation issues of macroeconomic policies with a stable and competitive RER as an intermediate target, giving extensive consideration to the objections raised by the orthodox perspective.

II. The channels of influence of the RER on employment

In this section we discuss the mechanisms by which the RER affects the employment performance. We distinguish three channels . The first one is the macroeconomic channel, pointing to the role of the RER in the determination of the activity and employment levels in the short run. The second is the development channel. It points to the influence of the RER on economic growth and consequently, on the speed of generation of new jobs. The third is the labor intensity channel. This channel focuses on the role of the RER in affecting the labor intensity of the economic process, i.e. the influence of the RER on the employment generation ability of a given activity level or rate of output growth. While the first and second channels have received some (modest) treatment in the economic literature, the third channel has been much less explored.

II. i. The macroeconomic channel

As from its origins – in the 30s and 40s of the XX century - the open economy macroeconomic theory has acknowledged the relationship between the RER and employment. We refer to the Keynesian versions that allowed the existence of involuntary unemployment because they did not assume a-priori full-employment. The traditional argument involved the competitiveness improvement of domestic firms resulting from a depreciated exchange rate. Given other determinants of aggregate demand, a depreciated RER leads to higher net exports and consequently, higher demand on domestic activities and higher levels of output and employment.

The argument is a comparative static exercise that assumes other factors of aggregate demand unaltered. This effect is usually well founded[3]. However, a real devaluation has many complex impacts. The net result may be different in different cases, depending on the real and financial structures of the countries and also, on the particular situation of the economy at the time when the devaluation is implemented. An expansion in the activity and employment levels will be observed only if other simultaneous negative effects do not predominate.

An obvious condition for the expansionary effect to take place is the existence of idle capacity and unemployment. This situation was taken as given in the first formulations of the devaluation analysis, when the policy focused more on employment than on the balance of payments. Later on, when the devaluation was included as the main adjustment instrument in the IMF stabilization programs, the focus was placed on the balance of payments. In the IMF stabilization programs the balance of payments deficit was usually attributed to excessive demand, and a situation of full employment was implicitly supposed. Consequently, in these programs, the expenditure-switching induced by devaluation had to be accompanied by simultaneous contractive fiscal and monetary policies, precisely intended to compensate for the expansionary effect of devaluation and to avoid the intensification of inflationary pressures.

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[3] The condition on the exports and imports elasticities is generally satisfied in the international trade of middle income economies.

The potential contractive mechanisms of a devaluation are well known. Among others, the redistribution of income towards higher savings propensity sectors caused by the fall in real wages; the effects of the fall in the real value of the money stocks, as a consequence of higher prices; and the negative financial effects on debtors in international currency, if those are higher than the positive wealth effect on international currency assets holders. (Díaz Alejandro (1963), Krugman and Taylor (1979).

It is important to stress that the potential existence of contractive effects in a devaluation does not question the positive relation between the RER and employment described by the traditional macroeconomic argument. The contractive effects overlap with the expansionary effects of the expenditure-switching. Some of the contractive effects are once and for all impacts – for instance, those affecting the value of stocks (the monetary, financial and wealth effects). In comparison, the contraction in consumption caused by the income redistribution may last longer. But the demand-expansionary effect of the rise in investment in tradable activities have to be taken into account also.

In any case, if idle capacity and unemployment exist, and the dominance of the contraction effects can be predicted, the real devaluation should be implemented together with fiscal and monetary expansionary policies *(*instead of contractive ones*)*. The analyses that highlighted the potential contractive effects of devaluation pointed precisely to the characteristics that should have the policies complementing the devaluation.

Beyond the impact effects, if the depreciated exchange rate persists, the expenditure switching effect on demand will also be permanent, inducing relatively higher external and domestic demand on local activities.

II. ii. The development channel

This channel points to the influence of the RER on the rate of economic growth and consequently, on the rate of employment generation. Development economics has not emphasized the role of exchange regimes and policies, but the importance of the RER in development has received greater attention in recent years.

As an introduction to the discussion, we show in first place the analogy between the role played by a competitive RER and the essential mechanisms of some industrial policies

intended to foster development. To that purpose we follow a recent paper by Wing Thye Woo (2004) reviewing the historical debate on industrial policies.

Woo describes the domestic relative price of exports and imports with the equation:

$PI / PX = PWI (1+t) / PWX (1+s)$

With PI: domestic price of imports; PX: domestic price of exports; t: effective tariff rate; s: effective subsidy rate; PWI: international price of import and PWX: international price of exports.

Woo characterizes import substitution industrialization strategies (ISI) with t > s and t > 0. Consequently, PI / PX > PWI / PWX. ISI strategies distort prices towards the production of importables.

On the other hand, Woo calls export promotion industrialization (EPI) those policies distorting relative prices towards the production of exports. He stresses that EPI are not characterized by s > t with s > 0, but by s = t with t > 0. Consequently, in EPI strategies PI / PX = PWI / PWX. The domestic relative price of exports and imports equals the international relative price, because the effective subsidy to exports is similar to the effective protection rate on imports.

The equalization of domestic and international relative tradable prices also characterizes a free trade setting, because in this setting t = s = 0. If the incentives regime is neutral in both the free trade setting and EPI, why should we assume the costs and administrative complications of industrial policies? The rejection of industrial policies and the promotion of free trade would be both justified.

Woo rejects that conclusion because he argues that EPI objective is to distort domestic relative prices towards tradable activities against non-tradable activities. This is easy to show by defining the domestic and international prices of tradable goods:

$PT = a PI + (1 - a) PX$; the domestic price of tradable goods,

$PWT = a PWI + (1 - a) PWX$; the international price of tradable goods.

PN is the domestic price of non-tradable goods. In an EPI strategy, the domestic price of tradable goods is $PT = (1 + t) PWT$. Consequently, the tradable/non-tradable relative price in EPI is $PT / PN = (1 + t) PWT / PN$; while in a free trade setting this price would be $PT / PN = PWT / PN$.

As can be seen, Woo´s synthesis of the industrial policies debate characterizes the EPI strategies with a pattern of incentives that is similar to that established by a competitive RER. Indeed, the RER determines the relative prices of exports, imports and non-tradable goods. A more depreciated RER is equivalent to a uniform tariff on imports. As in the EPI strategy, a depreciated RER does not distort relative prices against exports because it simultaneously implies a "subsidy" to exports (an income transfer) of the same size[4]. A more depreciated RER implies the distortion of the domestic tradable/non-tradable relative price in favor of tradable activities: the combination of higher protection of local activities competing with imports with higher competitiveness of exporting activities.

In spite of the obvious above-commented role of the RER, development economics have not focused on exchange regimes and exchange policies. The discussion of these issues concentrated on short run macroeconomic problems, while long term analyses focused more on external and financial sustainability rather than on growth and employment.

John Williamson (2003) points to that omission. Following Max Corden, he identifies three "approaches" with regard to the choice of the exchange rate regime in the orthodox thought, none of which give place to the RER as a development tool. The "Nominal Anchor Approach" stresses the role of the exchange rate as an anchor of inflationary expectations. Latin American stabilization programs based on nominal fixed exchange rates are examples of this approach. The "Real Targets Approach" emphasizes the role played by the exchange rate in the balance of payments results. Those following this approach favor the free floating regime, arguing that it guarantees external equilibrium and facilitates the use of monetary policy to pursue domestic targets. Finally, the "Exchange Rate Stability Approach" stresses the negative effects of exchange volatility, caused by changes in the markets sentiment. It favors a credible and permanent fixation of the exchange rate (as in the European Union) able to coordinate expectations and warrant nominal stability.

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[4] It used to be an open economy macroeconomics text-book exercise to demonstrate the equivalence between a devaluation and the imposition of a tariff on imports and a subsidy to exports.

In the search for an exchange rate policy with development objectives, Williamson reconsiders arguments exposed by Bela Balassa (1971). Balassa believed that exchange rate policy was a key for development. If the RER is competitive enough to incentive the entrepreneurs to sell in the international market, then firms will invest and hire local labor force and the economy will grow. Based on Balassa arguments, Williamson suggests a fourth approach to the choice of the exchange regime: the "Development Strategy Approach". This approach emphasizes the importance of preserving a competitive RER to promote the profitability of tradable activities and incentive firms to invest and expand production and employment[5]. Both Balassa and Williamson, as most of development thought, attribute to the expansion of the tradable sector the generation of externalities that favor modernization and growth in other sectors of the economy.

Also Dani Rodrik (2003) has recently highlighted the importance of a competitive RER in the development process. Rodrik reexamination of development strategies suggests that successful paths are based on two factors. An ignition factor in the short run, able to push the rates of growth, as a necessary initial condition. Given this initial condition, the second factor is the creation of institutions and the implementation of policies able to sustain high rates of growth in the long run. Coinciding with most of development idea, Rodrik affirms that development economies are characterized by many market failures (learning externalities and coordination failures) in non traditional sectors, blocking private initiative and restraining investment and growth. His main point is that it does not exist a unique universal formula able to compensate for the market failures and incentive the entrepreneurs to invest. The policies should be country-specific, depending on each country particular context and situation. However, in looking for a more general ignition factor, he points to the effectiveness of sustained RER depreciation in driving investment and growth[6]. Rodrik arguments in favor of a competitive RER give importance to its easy implementation and to its markets-friendly quality, because it is a way of subsidizing all non-traditional (mostly tradable) sectors, without administrative costs and without risking rent-seeking behavior and corruption.

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[5] The Williamson proposal reformulates ideas suggested in different ways by the author is his many studies on international economics and exchange regimes. For instance, competitive RER as a policy to incentive investment in tradable activities is exposed in Williamson (1983).

A recent study by Polterovich and Popov (2002) presents cross-country regressions showing that the rapid accumulation of foreign exchange reserves (FER), associated with policies intended to sustain depreciated exchange rates, leads to export-led growth. Countries with rapidly growing FER/GDP ratios exhibit higher investment/GDP ratios, higher trade/GDP ratios, higher capital productivity and higher rates of growth[7]. The authors' explanation of these results points to the positive effects on investment of the higher profitability in the tradable sectors. The impact of investment on growth is amplified by the higher productivity of the invested capital, mostly in sectors submitted to international competition. The development of tradable activities generates specialization economies and learning externalities that are capitalized by less dynamic sectors. As Rodrik, Polterovich and Popov also praise the easy implementation of RER development policy and its advantages vis-à-vis policies involving administrative costs and the risk of corruption.

A significant portion of the above mentioned papers by Williamson and Polterovich and Popov is devoted to the discussion of the difficulties and possibilities of implementing competitive RER policies in the present financial globalization context. The implementation problems are related to the discussion of the more appropriate exchange regime, monetary policies and the regulation of capital flows. These issues are also the main focus of the work of other economists favoring the competitive RER as a development tool[8]. We do not comment on these issues here because we will discuss the implementation problems with more detail in section IV. However, there is an aspect that should be mentioned here. Ricardo Ffrench-Davis (2003) makes the point that exchange rate policy is presently one of the most appropriate development policy instruments because the international context strongly constrains the utilization of trade and other traditional incentive policies. Also, arguments favoring the protection of infant industries have recently received support from the historical comparative work developed by Han-Joon Chang (2002). Chang convincingly shows that industrialized nations reached their present developed status after implementing protectionist policies in their early development

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[6] He quotes as examples the depreciated and stable RER policies implemented by Chile as from 1984 and by Uganda as from 1987.

[7] As examples they quote the development strategies of Japan, Korea, Singapur and, more recently, China.

[8] For instance, the work developed by José Antonio Ocampo and Ricardo Ffrench-Davis in ECLAC.

stages. The exchange rate policy did not belong to the set of instruments used by the developed nations because their protectionist phases took place under the gold standard international regime. The "rules of the game" of the gold standard did not allow the utilization of exchange rate policy (McKinon (1993). The situation is just the opposite in the present international setting: while trade and other traditional incentive or compensatory policies are not allowed, the developing countries enjoy more degrees of freedom (so far) with regard to the choice of exchange regimes and exchange rate policies.

II. iii. The labor intensity channel

Throughout the macroeconomic channel, the RER affects employment in the short run by its contribution to determining the activity level. Throughout the development channel, the RER affects the rate of growth of employment in the long run, as a consequence of its influence on the rate of output growth incentivating investment in tradable activities. In both cases, the effects of the RER on employment derive from the RER effects on the level and rate of growth of output.

As was noted above, the third channel has been much less explored[9]. Throughout this channel, the RER influences employment by affecting the labor intensity of output, mainly –but not only- in the tradable sector.

The mentioned effect results from the role played by the RER in the determination of relative prices. For instance, the RER is an important factor of the labor/capital goods relative price in developing countries, because capital goods have a significant portion of imported components. It is also the main variable determining the imported inputs/labor relative price. On the other hand, the RER determines the value of wages measured in international currency, which is the most relevant labor cost in tradable activities. So, significant changes in these relative prices, caused by changes in the RER, should be expected to affect the employment/output ratio.

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[9] The so called Dutch Desease Syndrome can be considered an example of the kind of effects we are pointing to in the third channel. But most of the Dutch Desease analysis has been developed with a neoclassical perpective, assuming flexible prices and full employment. The third channel points to effects that may cause involuntary unemployment.

The influence of the RER on employment throughout its weight on the employment/output ratio is not a short run effect. The variation of the employment/output ratio takes place via changes in the structure of output – among firms and sectors - and also by changes in the production basket of each firm and sector, changes in technology and changes in the organization of production. The effects arise from a restructuring process in which individual firms and the whole economic activity adapt to a new set of relative prices.

The adaptation process is guided by the incentives placed by the new relative prices. For instance, a more depreciated RER incentivates tradable activities that were not profitable before (the development approach argument). But a more depreciated RER also incentivates the more intensive use of labor, because the relative price of this production factor (the price of labor measured in the international currency) has fallen. In the opposite direction, a more appreciated RER reduces the level of protection on local tradable activities. The production of some goods may turn unprofitable and some firms may be forced to close. But an appreciated RER also incentivates surviving firms to preserve competitiveness by reducing the utilization of labor, because the relative price of this production factor has gone up.

The influence of the RER on the employment/output ratio is not restricted to the tradable sector. The effect can also be seen in the non-tradable sector. Non-tradable activities are not exposed to international competition, but relative prices also affect the relative utilization of labor. If capital goods used by the non-tradable sector have a significant import component, the competition forces in the local market will drive firms to reduce their relative utilization of labor in contexts of RER appreciation and to increase it in contexts of RER depreciation.

Both in the cases of RER appreciation and RER depreciation, the above mentioned changes will take place only if the new set of relative is expected to last for a relatively long period (this consideration is valid also in relation to the effects described by the development channel). Even in the case when those expectations were firmly established, it should not be expected that the changes in the employment/output ratio will take place swiftly, because they involve restructuring processes in firms and sectors. So, given a

significant change in the RER, it should be expected that the aggregate effects take place as a gradual adjustment process.

III. The RER, employment and unemployment in Argentina, Brazil, Chile and Mexico.

In this section we look at the employment performance in Argentina, Brazil, Chile and Mexico and present empirical results about the relationship between the RER and employment in these economies. In the first place, we show some stylized facts in the four countries. In the following subsection we present econometric results giving support to the influence of the RER on the employment performance in the four countries. The third subsection reviews other empirical results obtained by research projects focused on the same issue in the four countries.

III. i. Some stylized facts

As we mentioned in the Introduction, there have been many experiments with exchange rate policies in the period of financial liberalization. Many of these policies focused primarily on controlling inflation used the exchange rate as anchor for stabilization, as in Argentina and Chile in the late seventies, Mexico in the late eighties-early nineties, an Argentina and Brazil in the nineties. Those policies led to crisis in all cases. Maxi-devaluations followed the crises and in the immediate post-crisis the balance of payments became the main focus of exchange rate policies. More recently, floating exchange rates were adopted, while macroeconomic polices focused almost exclusively on inflation[10]. It is not an exaggeration to say that in the period of financial globalization real targets - such as growth and employment - were never placed as the main focus of exchange rate policies (with the possible exception of Chile in the period between the mid-eighties and the mid-nineties). However, applied macroeconomic policies and their failures undoubtedly had

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[10] Central banks actual behavior is more pragmatic than what is prescribed by the rules of the game and intervene in the exchange market. But these interventions have short run motivations. No longer term orientation is given to the exchange market.

significant real effects. The fluctuations in the activity levels, the patterns of growth and the employment performances were surely affected.

The histories of the four mentioned countries are characterized by both abrupt changes in the RER and by relatively long periods in which the RER remained relatively stable in either appreciated or depreciated levels. So, they provide a particularly favorable context for the observation of the real effects of the RER. Abrupt changes in the RER make effects stronger and facilitate their observation. Relatively long periods of appreciation or depreciation gives room to the full materialization of the RER effects on employment, as on other aspects of the economic performances.

In Chile, for instance, a long period with a relatively stable depreciated RER – from the mid eighties to the mid nineties – followed a phase of acute appreciation. The cases of Argentina, Brazil and Mexico show long periods of RER appreciation. The Mexican case in the nineties provides an uncommon opportunity to observe the effects of a depreciated RER after a long period of appreciation, in the first and second halves of the decade, with a singularly advantaged comparative perspective.

In tables 2 to 5 we present some macroeconomic and labor market indicators for Argentina, Brazil, Chile and Mexico between 1980 and 2003. We include only real variables and the inflation rate. The inflation rates have been included to remind us why inflation became, at some point, in all countries the main target of the economic policy. On the other hand, the variable also shows that inflation has more recently lost its threatening character. Although macroeconomic policies, including exchange rate policy, should keep alert to prevent the acceleration of inflation, the prevailing low rates enlarge the degrees of freedom to pursue real targets.

The tables also include trade variables, in order to show that the RER has always had the external trade effects that old economists learned in the first open-economy macroeconomics course.

The rest of variables in the tables are the annual GDP levels and rates of growth, the RER, some measures of the employment rates, and the unemployment rates. As can be seen in the tables, the data on employment is heterogeneous and incomplete. A relatively homogeneous and complete employment data set for the four countries is not available. The data on unemployment rates is relatively more homogeneous and complete. Even though,

the unemployment rates data set does not allow inter-country comparisons, because there are national differences in definitions and measuring. But, the unemployment rates can be used as proxy variables of the time evolution of employment in each country. We do so here.

The Graph 1 provides information about the medium and long run trends in the unemployment rates. In each country, unemployment rates series have been transformed in indexes with base 100 in 1991. Then, the trends of those indexes have been calculated with the Hodrick-Prescott filter.

Let us comment first on the changes between the beginning and the end of the 1980-2003 period. Between those starting and ending points, unemployment rates in Argentina strongly augmented, while in Brazil are more or less the same level and in Chile and Mexico they have fell significantly. The order of the countries unemployment long-term records are inversely correlated with the growth performances in the period. In 1980-2003, Argentina grew 0.9% per year; Brazil 2%; Mexico 2.4% and Chile 4.5%. But, in spite of this correlation, it seems pretty obvious that the differences in average growth are insufficient to explain the differences in the long-term unemployment performances.

On that regard, the changes observed in the unemployment trends along the period are suggestive of other factors contributing to the long-term results. As can be seen in the graph, the Chilean unemployment trend is negative between 1984 and 1994-95 and positive from then on. The negative trend phase matches with the relatively stable depreciated RER period, and the turning point in the nineties coincides with the appreciation of the RER. Brazil's trend is negative in the eighties and positive in the nineties, when trade opening and appreciated RER policies were implemented. The Mexico's unemployment trend shows two turning points. The first is in the end of the eighties, when the stabilization program with appreciated RER initiated and the unemployment trend becomes positive. The second turning point is in 1995, when the RER was depreciated and unemployment trend sign turns to negative. Even in Argentina, where the unemployment trend is always positive, an increase in the trend can be seen in the beginning of the nineties, coinciding with the initiation of the long appreciated RER phase.

The negative correlation between the RER and the unemployment rate in each country can easily be seen in Graphs 2 to 5. In these graphs, the unemployment rates, the

GDP and the RER are depicted as indexes with base 100 in 1991. The line RER(-2) shows the RER lagged two years. The graphs suggest a strong negative correlation between the unemployment rates and the RER with a two years lag, in each of the four countries. Although it may be true that four graphs tell us more than one thousand words, let us provide econometric support to this finding in the following subsection.

III. ii. Econometric results

The four graphs showing the evolution of real output, the unemployment rate and the RER in each of the countries neatly indicate an inverse relation between the RER and the unemployment rate. The appreciation (depreciation) is associated with higher (lower) unemployment. In order to test the suggested relation we estimate a simple model relating the unemployment rate with the evolution of output and the RER.

The basic estimated model is:

$$\log U = g \log GDP + e \log RER (-2) + x\ TIME + k + \varepsilon$$

The variables U (the unemployment rate), GDP and RER do not need further explanation. The variable TIME (the time trend) is included to capture any autonomous trend in the unemployment rate. k is a constant and ε is a stochastic disturbance. The estimations are based on annual data for the 1980-2003 period. RER (-2) indicates the real exchange rate lagged two years.

Firstly we present estimations made with pooled data of the four countries. The estimation includes country dummy variables to control for the permanent different levels in the national unemployment rates. The estimated model is:

$$\log U = g \log GDP + e \log RER (-2) + x\ TIME + b\ DB + c\ DC + m\ DM + k + \varepsilon$$

where DB, DC and DM are dummy variables for Brazil, Chile and Mexico. The coefficients b, c and m estimate the systematic difference in the explained variable between each of the countries and Argentina. The main results are:

$g = - 1.49\ (- 6.46)$ $e = - 0.56\ (- 6.06)$ $x = 0.06\ (6.86)$

t statistics of the estimators are shown between parenthesis.

All coefficients are highly significant (at 1%). The estimation of g is negative, as expected. It indicates that, on average in the four countries, a 10% increase in GDP is associated with a 14.9% unemployment rate fall. The negative sign of the e coefficient indicates the negative relation between the lagged RER and the unemployment rate. The magnitude of the effect is important. On average in the four countries, a 10% appreciation (depreciation) of the RER is associated with a 5.6% increase (fall) in the unemployment rate two years later. The significance and value of x indicates that there is a 6% per year autonomous upward trend in the unemployment rate (not explained by the GDP and the RER).

We also estimated the same model in first differences:

$$\text{dlog } U = g \text{ dlog GDP} + e \text{ dlog RER } (-2) + b \text{ DBRA} + c \text{ DCHI} + m \text{ DMEX} + k + \varepsilon$$

In this estimation the variables are the annual rates of U, GDP and RER. The main results of this estimation are:

$$g = -2.68 \ (-7.91) \qquad e = -0.37 \ (-4.92) \qquad k = 0.10 \ (3.62)$$

The three coefficients are significant (at 1%). The sign and magnitudes of g and e show results qualitatively similar to those presented above, although this estimation indicates a stronger effect of output growth and a slightly weaker effect of the lagged RER. In this estimation the autonomous trend in the unemployment rate is captured by the constant k. It indicates an average 10% per year autonomous upward trend in the unemployment rate.

The countries' time series allows separate estimations of the model in each of the countries. So, with each time series of country annual data, in the period 1980-2003, we estimated the model:

$$\log U = g \log \text{GDP} + e \log \text{RER } (-2) + x \text{ TIME} + k + \varepsilon$$

Te main results are presented in the following table:

	g	e	x
Argentina	-0.42 (-0.80)	-0.31 (-3.01)*	0.07 (6.89)*
Brazil	-2.86 (-2.31)**	-0.47 (-2.15)**	0.08 (2.68)**
Chile	-3.20 (-9.78)*	-0.88 (-6.96)*	0.18 (8.79)*
México	-4.44 (-2.87)**	-0.86 (-2.31)**	0.09 (1.96)***

(the stars indicate the significance level. *: 1%, **: 5% and ***:10%

       Except for Argentina, where it is not significant, g is significant and negative in all the countries. The lagged effect of the RER on the unemployment rate estimated by e is highly significant, negative and has considerable magnitude in the four countries. The estimations also indicate a significant and important upward autonomous trends in the unemployment rate in the four countries.

       In the same way we did with the pooled data, we also estimated with each country data the first difference form of the log model. The model estimated with each country's time series is:

dlog U = g dlog GDP + e dlog RER (-2) + k + ε

       The main estimation results are presented in the following table:

	g	e	k
Argentina	-1.77 (-3.88)*	-0.29 (-3.00)*	0.08 (2.96)*
Brazil	-3.08 (-3.40)*	-0.37 (-2.07)***	0.09 (2.74)**
Chile	-3.80 (-4.67)*	-0.63 (-2.13)***	0.21 (3.86)*
México	-5.33 (-5.80)*	-0.39 (-1.65)	0.14 (3.35)*

(the stars indicate the significance level. *: 1%, **: 5% and ***:10%

       With this estimation form, the estimation of g is highly significant and negative in the four countries. The estimation of e shows the negative sign in the four countries, it is significant in Argentina, Brazil and Chile but is not significant at the 10% level in the case of Mexico. In all cases the magnitude of the RER effect is important. Autonomous upward trends in the unemployment rates are also significant.

The estimation results do not reject the hypothesis of an important influence of the RER on unemployment. The GDP variable resumes the indirect effects on RER on employment – via the level and rate of growth of output. So, the remaining effect shown by the results should be mainly attributed to the labor intensity channel. The two years lag between the changes in the RER and the changes in the unemployment rate is consistent with the hypotheses presented above about the ways in which the labor intensity of the economy adapts to a new set of relative prices.

III. ii. Review of other research results

In this subsection we review some research projects focused on RER effects covering the experiences of Argentina, Brazil, Chile and Mexico.

In a recent paper Ros (2004) presents a study about the determinants of unemployment in Latin America during the nineties, with annual data for 17 countries[11] in the 1990-2002 period. The paper presents a cross-country regression explaining the changes in the unemployment rate between 1990 and 2002. The results show that both capital accumulation and GDP growth have an expected negative effect on the change in the annual urban unemployment rates, although none of the coefficients is significant. The share of manufacturing in exports has highly significant and negative coefficients in almost every regression, while the RER coefficients have the expected sign and are significant in all specifications. Individual regressions with time series for each country confirm the commented result: 13 out of 17 RER (lagged two years) coefficients have the expected sign, and 10 of these 13 are significant. These findings support Ros interpretation about the different unemployment trajectories of LA countries in the 1990s. In his view, the sharp increase in unemployment in several South American countries is closely associated to the de-industrialization processes that have taken place, which led to an important fall in industrial employment. This process seems to be the result of two main factors operating during the 1990s: the real appreciation of the exchange rates and the reorientation of the trade pattern towards natural resource intensive activities that followed the adoption of

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[11] The sample includes: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Peru, Uruguay and Venezuela.

trade liberalization programs. By contrast, Mexico and Central American and Caribbean countries managed to develop labor intensive manufacturing activities that, in most cases, prevented such increase and contributed to the reduction of unemployment, despite the real appreciation.

In Argentina, Damill, Frenkel and Maurizio (2002) investigated the effects of the RER appreciation on the labor market and income distribution in the Convertibility period. The main employment variable considered in the study is the urban rate of full-time employment (more than 35 hours per week). The RER strongly appreciated in 1990-91 and the appreciated level remained (comparatively) stable until 2001. The econometric results of this study - based on semiannual data - show that the change in relative prices that took place in the beginning of the decade and persisted afterwards, induced a contractive trend in the full-time employment rate of 1.45 percentage points (of total urban population) per semester (about 3 percentage points per year). This trend overlapped with the short run effects of the output fluctuations. The mentioned results are consistent with some striking stylized facts. The GDP grew rapidly between 1990 and 1994. In spite of this output growth, the rate of full-time employment contracted as from 1992 while the unemployment rate showed an upward trend. The contractive trend dissipated as from 1996. From then on, with a relatively stable RER, the employment rate fluctuations are fully explained by the output fluctuations. Both output and employment grew in 1996-98 and fell in the recession that started in 1998 and lasted until 2002.

A book prepared for ILO and edited by Tokman and Martínez (1999) presents the results of a research project focused on the effects of exchange rate policies and trade opening on manufacturing industry employment, in the experiences of lasting RER appreciation in Argentina, Brazil and Mexico in the nineties[12]. The studies show that the combination of RER appreciation and trade opening drives firms and sectors to rise labor productivity by substituting capital for labor and changing the production basket towards lower labor utilization. The basic research methodology consists in decomposing – using econometric techniques -the employment changes in two trends: a contractive trend

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[12] Frenkel and González Rozada (1999) analyzed the Argentine case, Amadeo and Melo (1999) the Brazilian case and Hernández Laos (1999) the Mexican case.

resulting from the rise in productivity and an expansionary (or contractive) trend generated by the increase (or decrease) in industrial output.

The chapter by Camargo (1999) summarizes and compares the results of the national studies. In the three countries the combination of RER appreciation and trade opening generated high negative trends in labor utilization per unit of output (see Table 1). In Argentina and Brazil, those negative trends were largely higher than the expansionary trends induced by the increase in output, resulting in important net contractions of employment. In Mexico, there was a small net increase in industrial employment because the positive effect of output expansion was higher than the negative trend (see Table 1).

The studies also decomposed the employment effects of the changes in the activity level according to the sources of demand on manufacturing industry: domestic demand, exports and imports. In the three countries imports generated negative displacement effects on employment, compensated by the expansions in domestic demand. Mexico is the only case in which exports had an important expansionary effect on industrial employment (see Table 1).

Table 1

Decomposition of manufacturing industry
employment changes (%)

	Argentina 1991-1996	Brazil 1993-1996	Mexico 1988-1994
Employment	-17	-14,6	2,2
Productivity effect	-25	-17,6	-16,6
Activity effect	8	2,9	18,9
-Domestic demand	13,3	4,3	45,9
-Imports	-7,6	-1,8	-50,9
-Exports	2,3	0,5	23,9

Source: elaboration based on Camargo (1999)

In another comparative study, Frenkel and Ros (2003) analyze the influence of the RER on manufacturing industry employment in Argentina and Mexico in the nineties. The study compares the effects of the long-lasting RER appreciation in Argentina with the effects of an appreciation period followed a depreciated RER phase in Mexico. The authors

show, in both countries, the association between the performances of employment and the evolution of wages in constant dollars (mainly determined by the RER). Indeed, in the first half of the decade, wages in dollars showed a significant increase and employment contracted in both countries. In Mexico, the increase in dollar-wages was lower than in Argentina and the contraction of total manufacturing employment was not important. A key factor for this performance of total manufacturing employment in Mexico was the maquiladora industry activity. Because it is a low productivity and low wage sector, the competitiveness of maquiladora industry was less affected by the RER appreciation than the rest of Mexican manufacturing industry in the first half of the nineties. In this period, employment in maquiladora industry grew 37.8% (1990-95), absorbing a good proportion of the contraction of employment caused by the displacement effect of higher imports and the reduction of labor per unit of output that took place in the non-maquiladora industry.

The national trends diverge in the second half of the nineties. In Mexico, wages in dollars fell strongly after the devaluation, but partially recovered afterwards. Total manufacturing employment grew strongly in this period. The employment growth was led by the maquiladora industry (additionally stimulated by the NAFTA agreement) but industrial employment in the non-maquiladora sector also grew. In Argentina, the negative trend in industrial employment continued in this period although there was a slight negative trend in industrial wages in dollars. As from 1998, the effects of the negative trend in output overlapped with the longer term trend to the reduction of employment per unit of output.

A recent paper by Damill and Frenkel (2003) looks at the employment effect of a depreciated RER in Argentina, after the collapse of the Convertibility regime in 2001. The authors re-estimate - including the 2002-2003 period in the data set - the full-time employment function presented in Damill, Frenkel and Maurizio (2002). The employment data do not include jobs subsidized by social programs. The estimation shows that the post-2001 employment/output elasticity is significantly higher than the elasticity estimated with the Convertibility period data. The result suggests that the employment/output ratio is higher after the change in relative prices generated by the depreciated RER.

Lastly, we consider two studies focused on the Chilean experience from the mid-eighties on. In spite of being a striking experience of recovery from the devastation effects

of the "Chicago boys" policy applied between1977and 1982 and the following crisis, there are few Chilean studies focused on the relationship between the RER and the employment performance.

Díaz (1995) indicates the exchange rate policy, intended to preserve a competitive RER, and the rise in tariffs, as crucial factors in the employment recovery in the second half of the eighties. The data presented by the author suggest that labor demand in tradable industries was fostered by the reduction in the international currency labor cost. In the 1983-88 period, manufacturing employment grew 70%, while wages in constant dollars fell by 37.8%.

In a similar way, an ILO study (OIT (1998) indicates that RER depreciation in the second half of the eighties and the early nineties was important for the employment growth. The study identifies a change in the employment trend in 1993-94, associated with an appreciation trend. There was an important fall in the employment/output elasticity, associated by the authors with the reduction of competitiveness caused by the appreciation trend.

IV. Macroeconomic policy regimes with a stable RER as an intermediate target

We conclude that preserving a competitive and stable RER is the best contribution macroeconomic policies can make to the improvement of employment and growth performances.

The assertion is only a point of departure for two reasons. On the one hand, preserving the RER target could not be the only objective of macro policies. On the other hand, macroeconomic policies - exchange rate, monetary and fiscal policies – are closely interconnected and have to be coherently designed and implemented. So, the exchange rate targeting policy proposal has to be presented as a component of a macroeconomic policy regime, able to pursue multiple (conflicting) objectives in a coherent way.

The challenge is to delineate a macroeconomic policy regime capable of targeting the RER and accomplishing two other objectives: the control of inflation and the full utilization of available resources. The regime has to be compatible with the financial

globalization international context and has to be particularly aware of capital flows volatility.

Besides the real and inflation-control objectives, any macro policy regime also has to perform other preventive functions. For instance, it has to prevent crisis. In this regard, the main reason for the recent adoption of floating exchange rates is the prevention of crisis triggered by speculative attacks to the central bank reserves. Actually, pure floating exchange rates prevent those attacks, but do not suffice to prevent the emergence of unsustainable trends in the current account and external debt. The competitive exchange rate prevents by itself unsustainable external trends, but the regime including RER targeting, has to be delineated to perform the prevention of speculative attacks too.

We want to argue in favor of our policy proposal in a positive way, by showing that it is viable and manageable. So, in this section we present the basic lines of a macroeconomic policy regime with a stable and competitive RER as an intermediate target. But is worth taking explicitly into account the orthodox objections, because of the weight these ideas have in the IMF and the LA countries. This discussion with such views contributes to the presentation and defense of the proposed regime. In order to do so, we present first the orthodox arguments against RER targeting. Then, we present the exchange rate and monetary policy components of the regime and discuss the orthodox objections.

IV. i. The orthodox arguments against RER targeting

We already mentioned that the orthodox rejection of RER targeting does not question the stable and competitive RER by it self. In occasions, welfare arguments against public intervention in the exchange market are raised. But the optimality of the free market determination of the exchange rate and the argument indicating that the public sector has no informational advantage over the private sector are not very appealing ideas in the specialized discussion of exchange rate regimes and policies. The apparent volatility of capital flows and the instability and unpredictability of free-floating exchange rates greatly lessen the relevance of those ideas.

The relevant orthodox objections are based on the impossible trinity argument. It says that it is impossible for a country to simultaneously maintain free capital flows, active

monetary policy and the ability to control the exchange rate. One of these features is necessarily impossible. The impossible trinity is a logical argument, a text-book theorem lying behind the orthodox objections. But the objections apply to the real world. They focus on true problems in the management of exchange and monetary policies posed by an open capital account in the financial globalization context. The objections point to the implementation difficulties that exchange and monetary policies confront in such a setting.

One way to express the orthodox argument is the following. Targeting the exchange rate implies a central bank intervention in the exchange market. In doing so, its is argued, the central bank losses its ability to control the money supply. So, targeting the exchange rate and controlling the money supply can only be simultaneously pursued if capital flows are regulated. The regulation of capital flows is undesirable and probably ineffective, because the private sector is innovative capacity is greater than the public sector regulation ability. The conclusion is that central bank has to avoid intervening in the exchange market and targeting the RER is not possible.

Another way to reach the same conclusion is by focusing the argument on the control of inflation. If the interventions in the exchange market target the RER (instead of the nominal exchange rate), no nominal anchor remains for the public to configure inflationary expectations. Since the central bank cannot control the money supply, the inflation rate is completely out of control.

The above orthodox arguments do not involve logical necessity. They refer to practical implementation possibilities and these possibilities depend on the magnitudes of the quantities involved. For instance, central bank exchange interventions are a source of money creation, but central banks have other instruments to control money supply. The central bank's ability to control depends on the size of the intervention vis-à-vis the practical limits of sterilization and other compensatory instruments.

On the other hand, the size of central bank intervention depends on the magnitude of excess supply or demand for foreign currency in the exchange market. The foreign currency flows depend on the volume of capital flow. The flows also depend on exchange rate expectations and consequently, can be influenced by the monetary authority's behavior and signals.

Also the capital flows regulation ability is a matter of degree. Some capital flows are easier to regulate than others. Regulations do not need to be implemented once and for all, they may be implemented only in certain periods or can be made contingent to transitory circumstances. Besides, it is simply not true that capital flow regulations are always ineffective.

So, the viability of RER targeting cannot be questioned on logical grounds. It is a practical matter that has to be assessed in each case, taking into account the context and circumstances of the policy implementation. We will go beyond the mentioned general considerations and discuss more in depth the orthodox objections while presenting our exchange and monetary policy proposals.

IV. ii. The exchange rate policy

The central bank interventions in the exchange market are intended to maintain a stable and competitive RER. The main objective is signaling the medium and long term RER stability. The emergence of appreciation trends should be avoided for two reasons. First, to avoid self-fulfilling bubbles that increase the monetary "cost" of buying interventions. Second, because the effects of expected trends in the RER are not symmetrical. The countries have experienced long appreciated RER periods that harmed the profitability of tradable activities, made many of them unviable and forced many firms to close. Investment in tradable sectors is mostly irreversible. Consequently, there are reasons to give high weight to the appreciation risk. To reduce the perceived risk of appreciation is crucial in order to incentivate investment and employment in tradable activities.

The preservation of RER stability does not mean the short run indexation of the nominal exchange rate to domestic prices. The flexibility and advantages of the short run nominal exchange rate floating should also be preserved. So, the central bank interventions in the market have to achieve two conflicting targets: they have to prevent the formation RER appreciation expectations and they have to allow the nominal exchange rate to float in order to de-incentivate short term speculative capital flows. The interventions interval has

to be narrow enough to perform the first function and wide enough to also perform the second.

The so called "crawling-bands" policy rule – implemented in Chile in the early nineties – attempts the conciliation the two mentioned targets by issuing long term RER stability signals while preserving short term nominal rate uncertainty. Its implementation is possible. But the recent experiences of exchange rules leading to disasters have surely impaired the credibility of any exchange rule. Taking recent histories into account, it seems better to avoid rules announcements and commitments and deliver signals in implicit ways, throughout the central bank interventions in the market. Nevertheless, in order to contribute to the expectations formation, it is important that the central bank and the government make clear the important role given to the competitive RER in the country development strategy, even if it does not imply any formal commitment.

The exchange market behaves like an asset market. Buying and selling decisions are mostly based on expectations. If central bank interventions and signals stabilize expectations around the stable RER – a necessary condition for that is the consistency of monetary and fiscal policies and the robustness of the external sector accounts – the market forces by themselves will tend to stabilize the rate. The monetary "costs" of central bank interventions will be lower and less interventions will be required. For this reason, the central bank market interventions should be firm, in order to clearly show to the market the willingness and strength of the monetary authority.

IV. iii. The exchange market and the capital flows

It is implicit in the above presentation of the exchange policy that the buying and selling flows of international currency are manageable. This means that the central bank can manage the compensation of the money contraction or expansion resulting from the exchange market interventions, in order to maintain the money stock fluctuations between tolerable limits.

In the discussion of this issue, it is convenient to analyze international currency excess supply and excess demand situations separately.

The orthodox argument against RER targeting focuses on an excess supply situation that makes exchange interventions unmanageable[13]. If capital inflows are massive -up to the point to make monetary policy unmanageable- the orthodox argument is right. But in this situation it would have little sense to risk macroeconomic stability in order to preserve the capital account full openness principle. The preservation of the macroeconomic policy regime requires in this case capital account regulations, intended to restrict capital inflows and facilitate the management of exchange and monetary policies. There is a menu of measures able to accomplish this function[14]. The orthodox argument about the lack of effectiveness of restraining policies is not true. They do not work perfectly well, but they contribute to soften capital inflows in a booming situation. The need for restraining policies is not permanent, they have to do their job only in a boom phase, and we now know well that booms do not last forever.

Let us consider the excess demand situation. There is an excess demand for international currency that is not manageable with the normal exchange and monetary policies. In order to sustain the exchange rate, the market intervention would cause an excessive monetary contraction and the rise in the interest rate -triggering recession. The defense of some nominal exchange rate may risk an speculative attack on the central bank reserves. The situation has similarities with a fixed exchange rate regime crisis. But there is also an important difference. If there are not fundamental reasons to expect a RER devaluation – generated, for instance, by an important balance of payments deficit expectation -, the fiscal and monetary policies are consistent with the targeted RER, and inflation is under control, the macroeconomic policy regime should be preserved. This would be only be possible in this situation if exchange controls and restrictions on capital outflows are imposed[15]. If, as we assume, there are not fundamental reasons inducing the excess demand for international currency, there is no need for the controls and regulations to last for long.

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[13] The argument originated in the early nineties capital inflows boom.
[14] Measures like those applied by Chile and Colombia in the nineties did not completely restrain capital inflows, but affected their amount and composition. (see Ocampo and Tovar ,(2003) and Le Fort and Lehman (2003)
[15] Argentina, for instance, successfully managed exchange controls and capital outflow regulations in mid-2002. The measures were transitory. They were gradually soften when the buying pressure in the exchange market diminished.

The orthodoxy and the IMF reject capital outflows regulations with particular emphasis. They present some technical arguments we are not going to discuss here. Instead, we want to mention an implicit argument that is deeply rooted in the orthodox view about the markets functioning. A priori, this view leaves out of consideration the possibility of a run on the currency not motivated by fundamental reasons. If such a situation is observed, there should be fundamental reasons that explain the agents' behavior, even if those reasons are not detected by the authorities and the IMF officials. But it is evident that runs without fundamental motivation can take place. For instance, the bankruptcy of an important bank or the uncertainty generated by a political crisis may trigger runs. The financial globalization context has broadened the potential for capital outflows triggered by international contagion.

IV. iv. The monetary policy

In the stable and competitive RER macroeconomic regime, the monetary policy could no be exclusively focused on inflation. Monetary policy have to be simultaneously focused on the RER, the control of inflation and the activity level. The orthodox argument emphasizes the potential conflicts between these targets.

The proposed regime certainly has multiple and potentially conflictive targets. In no way this is a particular characteristic. For instance, US monetary policy also has multiple and conflicting objectives. Even more similarity with the proposed regime appear in the monetary policies of many developing countries, whose central banks intervene more or less systematically in the exchange markets. The main difference between those countries' regimes and the one proposed in this paper resides in the competitive RER target of the latter. The RER target puts additional demanding pressures on the monetary management ability of the central bank.

The multiple objectives of the monetary policy in the proposed regime conflicts with the orthodox and IMF orientation. In this orientation, inflation should be the only objective of monetary policy and it has to be managed by an independent central bank with a narrow inflation control mandate. To prescribe and exclusive inflation focus for the monetary policy is consequence of the orthodox impossibility argument commented above.

The technical orthodox reason for the independence of the central bank is to enhance the credibility of monetary policy.

Beyond the orthodox technical arguments, in the foundations of an exclusive inflation focus for the monetary policy and a narrow mandate for an independent central bank lies a deep distrust about the ability of governments to take care of inflation and submit themselves to monetary discipline.

In the proposed regime, the central bank should have a broader mandate. Monetary policy has to be formulated jointly with the other macroeconomic policies and their implementation frequently coordinated. In any case, the central bank independence should help to strengthen the credibility of both exchange and monetary policies.

Let us add two other comments before focusing on the management of monetary policy, both related to inflation. The first point is to show that the proposed regime performs a preventive role with regard inflation acceleration. In developing economies, the exchange rate is the main transmission mechanism of monetary impulses to the inflation rate. The RER target precisely incentivates the central bank to implement monetary policies avoiding fluctuations in the money supply that affect primarily the nominal exchange rate and cause RER fluctuations. In contrast, for the same reason, an exclusive inflation focus of monetary policy generates incentives to RER appreciation.

The second comment relates to the low inflation contexts in which the proposed regime would be implemented. These contexts facilitate giving to the inflation control a hierarchy similar to the other objectives of monetary policy. Fortunately, we are far from the high inflation contexts that justified the primacy of inflation control.

Let's turn the attention to the monetary policy management. This refer to the normal operations that the monetary authority can implement to compensate for the interventions in the exchange market, if it is necessary. Out of the extreme situations discussed above, the monetary authority can manage different instruments for that purpose.

The most common one are the sterilization operations. They consist in the selling of public sector or central bank papers with the objective of money absorption. They imply financial costs to the treasury or the central bank, proportional to the difference between the interest rate of those papers and the interest rate earned by the central bank international reserves.

The central bank can also reduce money expansion by raising the cash requirements of the banking system. Higher cash requirements imply a lower expansion effect of the central bank basic operations in the exchange market.

Some prudential regulations can be focused on smoothing the selling pressure in the exchange market. For instance, if local banks are not allowed to issue credit in international currency, there are less incentives to the banks procuring of international funding.

The public banks can also be coordinated in order to help the central bank in both the management of liquidity and the exchange market interventions.

It should be stressed that central bank operations oriented to neutralize or attenuate the money expansion resulting from its exchange market intervention have incremental effects on interest rates. In occasions, those effects may constitute an additional incentive to capital inflows, frustrating the main purpose of the sterilization operations. In this regard, the effectiveness of sterilization policies obviously depends on the magnitude of exchange market selling pressure. If the above mentioned operations do not suffice – given the size of the supply in the exchange market – they should be reinforced with restrictions on capital inflows, or other measures intended to directly reduce the selling pressure in the exchange market.

The management of the mentioned instruments should allow the central bank to keep monetary expansion under control. But there is another crucial problem: the demand for money is usually highly uncertain.

The same problem also affects the monetary policy exclusively focused on inflation and implemented by quantitative money targets. This is precisely the main motivation to abandon the traditional quantitative monetary policies and adopt fashionable inflation targeting policies[16].

In the proposed regime, the monetary policy has multiple objectives, as was mentioned, and suffers the same uncertainty problem suffered by other monetary policies. So, in accomplishing its ample mandate, central bank requires frequent assessments of the country macroeconomic evolution and enough policy discretion – in opposition to rigid

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[16] In this sense, inflation targeting is a way to increase the central bank discretion. More discretion is needed because the uncertainty problem makes quantitative money targets impractical. We also believe that central bank should have enough degrees of freedom to pursue its targets. But we question inflation targeting because

rules - to operate throughout all its instruments. Even if it is an independent institution, the central bank measures should be coordinate with other governmental policies. The transparency of analyses and policy decisions undoubtedly contributes to the credibility of the signals issued by the central bank. This way of practicing monetary policy is not an exercise in imagination. It is, for instance, the way in which the US Federal Reserve executes monetary policy. Why should we do it differently?

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of its exclusive inflation focus. Our proposed targets comprise the inflation rate, the RER and the aggregate demand management.

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Table 2
ARGENTINA
Macroeconomic and labor market indicators

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
GDP (Index) (a)	101,4	95,9	92,9	96,7	98,7	91,8	98,3	100,9	99,0	92,1	90,4	100
GDP (Variation rate, %) (a)	1,5	-5,4	-3,2	4,1	2,0	-6,9	7,1	2,6	-1,9	-6,9	-1,8	10,6
Inflation (%, dec. to dec.) (b)	87,6	131,3	209,7	433,7	688,0	385,4	81,9	174,8	387,7	4.923,5	1.343,9	84,0
Real Exchange Rate (Index) (c)	65,2	105,7	188,7	198,9	184,9	209,1	174,0	190,9	229,3	333,5	157,3	100
Unemployment rate (d)	37,4	36,8	36,3	35,6	36,1	35,7	36,5	36,9	36,6	36,7	36,1	37,0
Employment rate (e)	2,6	4,8	5,3	4,7	4,6	6,1	5,6	5,9	6,3	7,6	7,5	6,5
Exports (f)	8.021	9.143	7.623	7.836	8.107	8.396	6.848	6.360	9.428	9.579	12.352	11.977
Imports (f)	9.394	8.431	4.859	4.119	4.118	3.518	4.406	5.343	4.892	3.864	3.726	7.559
Trade balance (f)	-1.373	712	2.764	3.717	3.989	4.878	2.442	1.017	4.536	5.715	8.626	4.418

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GDP (Index) (a)	109,6	115,9	122,6	119,2	125,7	135,9	141,2	136,4	135,3	129,3	115,3	125,3
GDP (Variation rate, %) (a)	9,6	5,7	5,8	-2,8	5,5	8,1	3,9	-3,4	-0,8	-4,4	-10,9	8,7
Inflation (%, dec. to dec.) (b)	17,5	7,4	3,9	1,6	0,1	0,3	0,7	-1,8	-0,7	-1,5	41,0	3,7
Real Exchange Rate (Index) (c)	85,3	80,0	78,8	78,4	80,5	82,0	82,5	85,3	89,0	92,5	228,0	202,4
Unemployment rate (d)	37,3	37,3	36,3	34,7	34,3	35,0	36,8	36,5	36,2	35,2	34,1	36,2
Employment rate (e)	7,0	9,6	11,5	17,5	17,2	14,9	12,9	14,3	15,1	17,4	19,7	15,6
Exports (f)	12.399	13.269	16.023	21.162	24.043	26.431	26.434	23.309	26.341	26.543	25.709	29.566
Imports (f)	13.795	15.633	20.162	18.804	22.283	28.554	29.531	24.103	23.889	19.158	8.473	13.119
Trade balance (f)	-1.396	-2.364	-4.139	2.357	1.760	-2.123	-3.097	-795	2.452	7.385	17.236	16.447

(a) At constant 1986 prices (1980-1992) and 1993 prices (1993-2003). Source: Ministerio de Economia. / (b) Consumer prices (IPC). Source: INDEC. / (c) Billateral with USA, deflacted by consumer prices. Source: Centro de Economía Internacional (CEI), Cancilleria Argentina and Bureau of Labor Statistics, USA. / (d) Urban Employment (35 or more hours per week) / Total urban population. Source: Encuesta Permanente de Hogares (EPH), INDEC. / (e) Urban Unemployment / Active population. Source: EPH, INDEC. / (f) Goods, in millions of dollars, fob. Source: Ministerio de Economia and ECLAC.

Table 3
BRAZIL
Macroeconomic and labor market indicators

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
GDP (Index) (a)	84,7	81,1	81,7	79,3	83,6	90,2	96,9	100,4	100,3	103,5	99,0	100
GDP (Variation rate, %) (a)	9,23	-4,2	0,8	-2,9	5,4	7,8	7,5	3,5	-0,1	3,2	-4,4	1,0
Inflation (%, dec. to dec.) (b)	99,7	93,5	100,3	178,0	209,1	239,0	59,2	394,6	993,3	1863,6	1585,2	475,1
Real Exchange Rate (Index) (c)	94,7	89,7	93,2	126,3	144,7	158,2	149,9	137,4	132,5	108,1	85,2	100,0
Unemployment rate (d)	6,5	7,9	6,3	6,7	7,1	5,3	3,6	3,7	3,8	3,3	4,3	4,8
Employment rate (e)	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	58,1
Exports (f)	20.132	23.293	20.175	21.899	27.005	25.639	22.349	26.224	33.789	34.383	31.414	31.620
Imports (f)	22.955	22.091	19.395	15.429	13.916	13.153	14.044	15.051	14.605	18.263	20.661	21.040
Trade balance (f)	-2.823	1.202	780	6.470	13.090	12.486	8.304	11.173	19.184	16.119	10.752	10.580

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GDP (Index) (a)	99,5	104,4	110,5	115,1	118,2	122,1	122,2	123,2	128,5	130,4	132,3	132,1
GDP (Variation rate, %) (a)	-0,5	4,9	5,9	4,2	2,7	3,3	0,1	0,8	4,4	1,4	1,52	-0,22
Inflation (%, dec. to dec.) (b)	1149,1	2489,1	929,3	22,0	9,1	4,3	2,5	8,4	5,3	9,4	14,7	10,4
Real Exchange Rate (Index) (c)	109,0	107,2	100,5	87,4	85,3	88,3	93,0	141,8	139,2	170,8	196,0	184,0
Unemployment rate (d)	5,7	5,3	5,1	4,6	5,4	5,7	7,6	7,6	7,1	6,2	7,1	n.a
Employment rate (e)	55,8	55,5	56,3	56,5	56,4	55,2	53,8	52,7	53,9	52,9	52,7	n.a
Exports (f)	35.793	38.555	43.545	46.506	47.747	52.994	51.140	48.011	55.086	58.223	60.362	73.084
Imports (f)	20.554	25.256	33.079	49.972	53.346	59.747	57.714	49.210	55.783	55.572	47.216	48.283
Trade balance (f)	15.239	13.299	10.466	-3.466	-5.599	-6.753	-6.575	-1.199	-698	2.650	13.146	24.801

(a) At constant 2002 prices. Source: Banco Central do Brasil (BCB) / (b) Consumer prices (IPCA). Source: BCB. / (c) Billateral with USA, deflacted by consumer prices. Source: Centro de Economía Internacional (CEI), Cancillería Argentina y Bureau of Labor Statistics, USA. / (d) Unemployment / Actvie population. Source: IBGE and Fundación Getulio Vargas. / (e) Employment (1 hour or more per week) / Population above 15 years. Source: Pesquisa Mensual de Emprego (PME) Antiga Metodologia, IBGE./ (f) Goods, in millions of dollars fob. Source: BCB.

Table 4
CHILE
Macroeconomic and labor market indicators

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
GDP (Index) (a)	68,2	71,9	61,8	61,4	65,3	66,9	70,6	75,3	80,8	89,3	92,6	100
GDP (Variation rate, %) (a)	7,8	5,5	-14,1	-0,7	6,4	2,5	5,6	6,6	7,3	10,6	3,7	8,0
Inflation (%, dec. to dec.) (b)	30,6	9,5	19,9	23,1	23,0	26,4	17,4	21,5	12,7	21,4	27,3	18,7
Real Exchange Rate (Index) (c)	52,4	48,1	60,1	76,2	82,5	106,9	109,7	107,9	109,4	106,6	102,1	100,0
Unemployment rate (d)	10,4	n.a.	n.a.	n.a.	15,3	n.a.	12,1	10,9	9,7	7,9	7,8	8,2
Employment rate (e)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	44,4	45,1	46,9	48,5	48,6	48,4
Exports (f)	4705	3.836	3.706	3.831	3.650	3.804	4.191	5.303	7.054	8.078	8.373	8.942
Imports (f)	5.469	6.513	3.643	2.845	3.288	2.920	3.099	3.994	4.844	6.595	7.089	7.456
Trade balance (f)	-764	-2.677	63	986	362	884	1.092	1.309	2.210	1.483	1.284	1.485

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GDP (Index) (a)	112,3	120,1	127,0	140,5	150,9	160,9	166,1	164,7	172,1	178,0	181,9	187,9
GDP (Variation rate, %) (a)	12,3	7,0	5,7	10,6	7,4	6,6	3,2	-0,8	4,5	3,4	2,2	3,3
Inflation (%, dec. to dec.) (b)	12,7	12,2	8,9	8,2	6,6	6,0	4,7	2,3	4,5	2,6	2,8	1,1
Real Exchange Rate (Index) (c)	92,6	94,3	90,3	80,9	80,6	79,1	83,8	91,7	96,6	113,0	122,0	123,8
Unemployment rate (d)	6,6	6,5	7,9	7,3	6,4	6,1	6,3	9,8	9,2	9,1	8,9	8,5
Employment rate (e)	49,7	51,6	51,1	50,8	50,7	50,9	50,9	49,1	48,7	48,1	47,8	48,4
Exports (f)	10.007	9.197	11.604	16.024	16.627	17.870	16.323	17.162	19.210	18.272	18.177	21.046
Imports (f)	9.285	10.187	10.872	14.643	17.699	19.298	18.363	14.735	17.091	16.428	15.921	18.031
Trade balance (f)	722	-990	732	1.382	-1.072	-1.428	-2.040	2.427	2.119	1.844	2.256	3.015

(a) At constant 1986 prices (1980-1996) and 1996 prices (1996-2003). Source: Banco Central de Chile (BCC) and ECLAC / (b) Consumer prices (IPC). Source: BCC. / (c) Billateral with USA, deflacted by consumer prices. Source: Centro de Economía Internacional (CEI), Cancillería Argentina y Bureau of Labor Statistics, USA. / (e) Unemployment / Actvie population. Source: INE / (e) Employment (1 hour or more per week) / Population above 15 years old. Source: INE /(f) Goods, in millions of dollars fob. Source: BCC and ECLAC .

Table 5
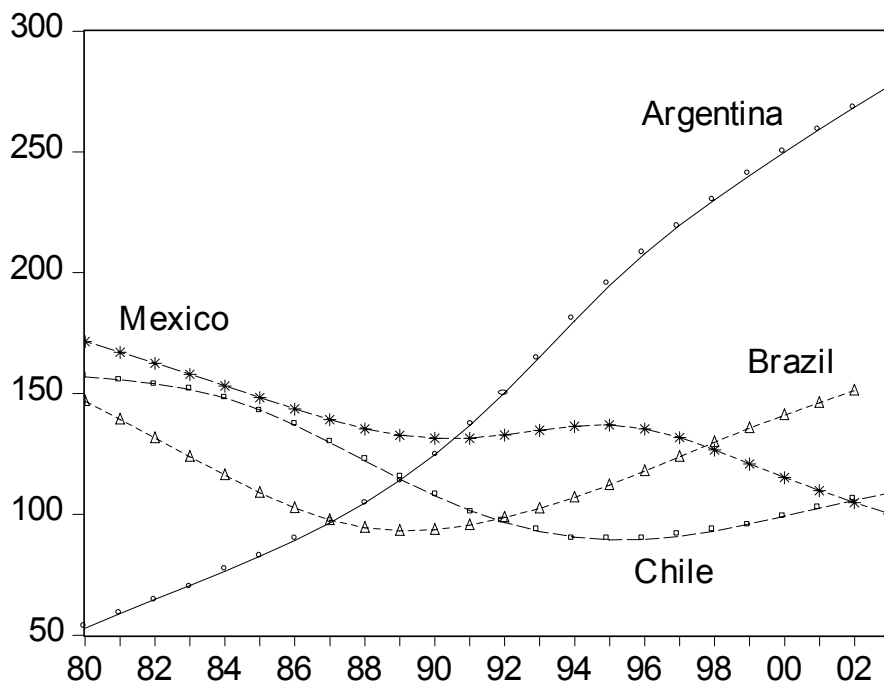## MEXICO
Macroeconomic and labor market indicators

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
GDP (Index) (a)	80,2	87,3	86,7	83,1	86,1	88,3	85,0	86,6	87,6	91,3	95,9	100
GDP (Variation rate, %) (a)	n.a.	8,8	-0,6	-4,2	3,6	2,6	-3,8	1,9	1,2	4,2	5,1	4,2
Inflation (%, dec. to dec.) (b)	29,9	28,7	98,8	80,8	59,2	63,8	105,8	159,2	51.7	19.7	29.9	18.8
Real Exchange Rate (Index) (c)	85,0	78,3	117,7	131,3	115,7	114,7	149,1	154,0	122,4	115,2	109,7	100,0
Unemployment rate (d)	4,5	4,2	4,2	6,8	6,0	4,8	4,8	4,3	3,5	2,9	2,7	2,7
Employment rate (e)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	48,9	49,8	50,3	50,4	51,8
Exports (f)	18.031	23.307	24.056	25.953	29.101	26.758	21.803	27.599	30.692	35.171	40.711	42.687
Imports (f)	21.087	27.184	17.009	11.848	15.915	18.359	16.784	18.813	28.081	34.766	41.592	49.966
Trade balance (f)	-3.056	-3.877	7.047	14.105	13.186	8.399	5.019	8.786	2.611	405	-881	-7.279

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GDP (Index) (a)	103,6	105,6	110,4	103,5	108,8	116,2	122,1	126,5	134,9	134,5	135,4	137,2
GDP (Variation rate, %) (a)	3,6	2,0	4,5	-6,2	5,1	6,8	5,1	3,6	6,6	-0,3	0,7	1,3
Inflation (%, dec. to dec.) (b)	11.9	8,0	7,1	52,1	27,7	15,7	18,6	12,3	9,0	4,4	5,7	4,0
Real Exchange Rate (Index) (c)	91,4	86,3	89,7	130,6	118,1	104,2	105,1	96,8	90,2	86,0	86,2	94,5
Unemployment rate (d)	2,83	3,43	3,7	6,23	5,45	3,73	3,16	2,5	2,2	2,42	2,71	3,29
Employment rate (e)	52,3	53,3	52,7	51,6	52,4	54,1	54,8	54,4	55,0	54,2	53,5	53,8
Exports (f)	46.196	51.886	60.882	79.542	96.000	110.431	117.460	136.391	166.455	158.547	160.763	164.922
Imports (f)	62.130	65.367	79.346	72.453	89.469	109.808	125.373	141.975	174.458	168.276	168.679	170.546
Trade balance (f)	-15.934	-13.481	-18.464	7.089	6.531	624	-7.914	-5.584	-8.003	-9.729	-7.916	-5.624

(a) At constant 1980 prices (1980-1987) and 1993 prices (1988-2003). Source: INEGI and ECLAC / (b) Consumer prices (INPC). Source: BANMEX. / (c) Billateral with USA, deflacted by consumer prices. Source: Centro de Economía Internacional (CEI), Cancillería Argentina and Bureau of Labor Statistics, USA. / (d) Urban Unemployment / Active Population. (from 1980 to 1984 unemployment for big cities) Source: INEGI and ECLAC. / (e) Employment (1 hour or more per week) / Population above 12 years old / (f) Goods, in millions of dollars, fob. Source: INEGI and ECLAC.
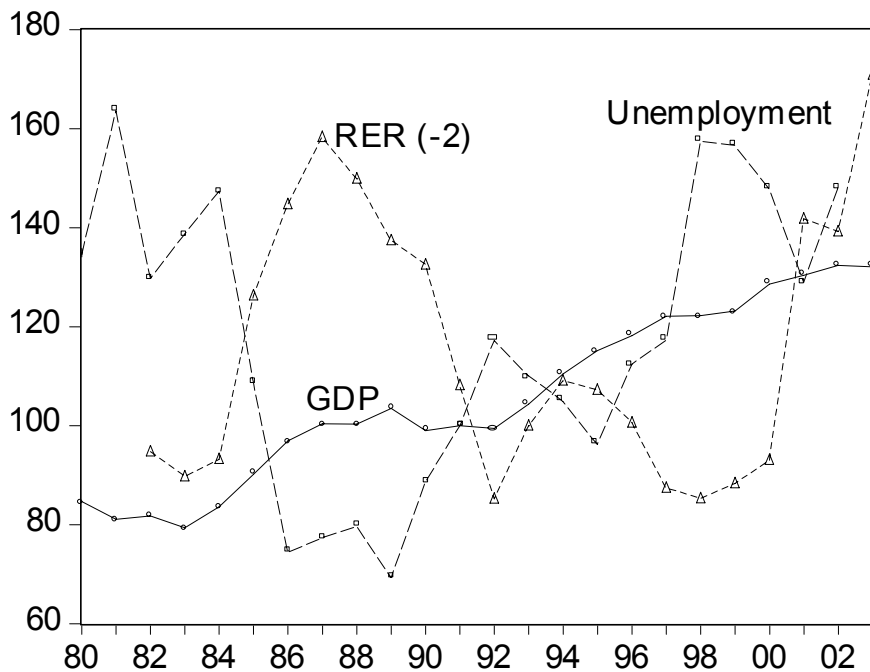
Graph 1
Unemployment trends
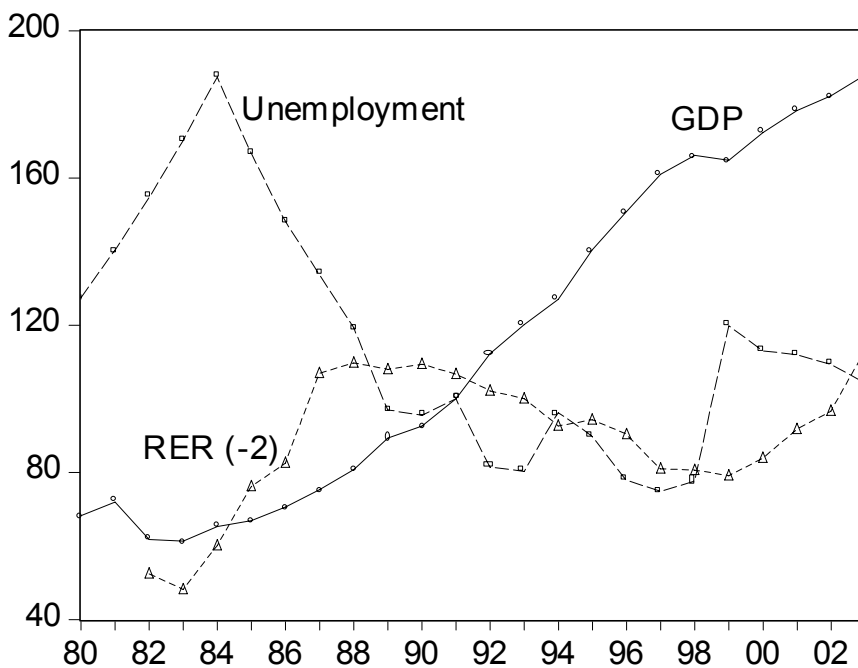Hodrick-Precostt filtered Indexes 1991= 100

Graph 2
ARGENTINA
Unemployment rate, RER and GDP
Indexes 1991 = 100
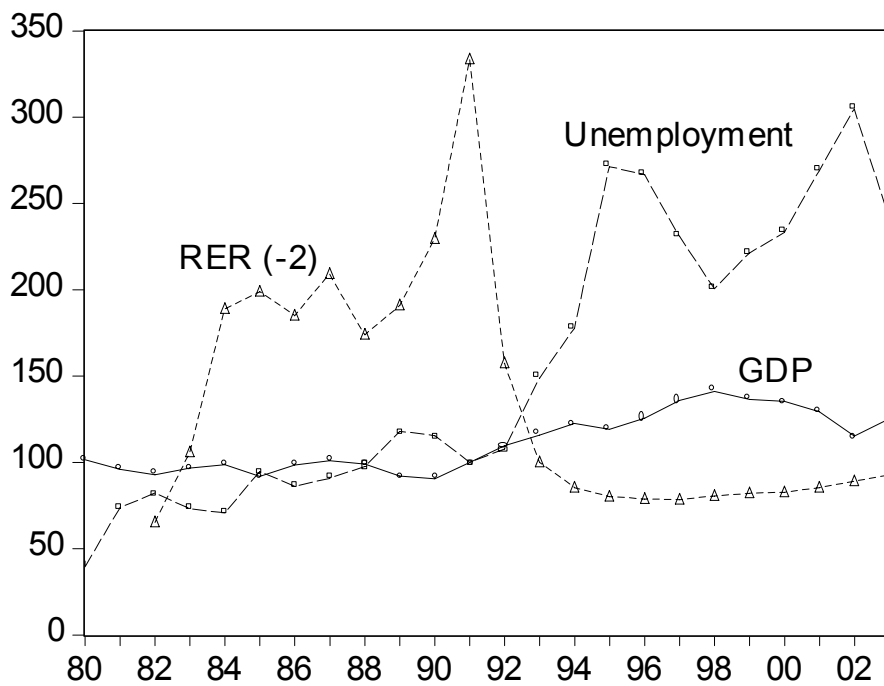
Graph 3
BRAZIL
Unemployment rate, RER and GDP
Indexes 1991 = 100

Graph 4
CHILE
Unemployment rate, RER and GDP
Indexes 1991 = 100

Graph 5
MEXICO
Unemployment rate, RER and GDP
Indexes 1991 = 100