The Argentine labour market in a financially globalized world

Mario Damill and Roberto Frenkel

Argentina's experience in recent decades as regards employment generation and wages has been very disappointing, and has had clear consequences for income distribution and other social indicators. This study examines the evolution of the labour market, with special emphasis on the 1990s, and also addresses the notable changes that have been taking place in recent years after the crisis of the convertibility regime. In general terms, it finds that the evolution observed in the labour market and income distribution is very closely linked with macroeconomic performance, both in previous phases and in the recent recovery stage. It examines in particular the negative effects of the experiences of trade openness and exchange rate appreciation in the late 1970s and the 1990s, which are in stark contrast with the present situation, especially in terms of employment generation.

Mario Damill

➺ **damill@cedes.org**

Roberto Frenkel

➺ **frenkel@cedes.org**

Researchers of the Centre for Studies on the State and Society (CEDES), Buenos Aires

I

Introduction

For a number of decades, the Argentine economy has been turning in a very unsatisfactory performance in terms of employment generation, as regards both the quantity and the quality of the jobs generated. There has also been a long-term downward trend in average real wages and a sustained deterioration in income distribution.

Our general argument is that these features of the labour market and income distribution are closely linked with macroeconomic performance. Since the mid-1970s, in particular –except for a few relatively brief periods– labour conditions have been adversely affected by a number of macroeconomic factors: instability of the gross domestic product (GDP), its low long-term growth, high rates of inflation, frequent oscillations in relative prices associated with successive attempts at stabilization and their failure, and a prolonged period of exchange rate appreciation. Special mention should be made of the unfavourable effects on employment of the experiences of trade openness accompanied by exchange rate appreciation in the late 1970s and the 1990s, as well as the crises through which the country's economy has passed.

The features of the country's macroeconomic performance in this period were the result of the combination of reform processes, stabilization policies, and major changes in the international context. The reforms and macroeconomic policies adopted defined the particular way in which the Argentine economy fitted in with the new external financial framework during the phase known as the second financial globalization. In short, the above-mentioned tendencies of employment and income distribution are associated with the international integration path followed by the country from the mid-1970s.

Broadly speaking, four main phases may be distinguished in the macroeconomic history of this period. The first stage –one of deregulation and trade and financial openness– extended from 1977 to 1982. It ended in an exchange-rate, financial and debt crisis and was followed by the closure of external financial markets or the rationing of international credit, from 1982 to 1990. Then came a new phase of deregulation and trade and financial openness, corresponding to the period in which the convertibility regime was in force, between 1991 and 2001. This phase too ended in crisis and payments defaults. Finally came the present period of economic recovery. To sum up, the two periods of trade and financial openness ended in serious banking, exchange-rate and debt crises, while the intervening stage of credit rationing ended in the episodes of hyperinflation of 1989 and 1990.

In the present paper we will concentrate on analysing what happened from the early 1990s on, with special attention to the processes associated with macroeconomic dynamics under the convertibility regime and their effects on the labour market. We will also examine the main features of the present phase, subsequent to the 2001-2002 crisis. It should be noted, however, that some of the most important broad features of macroeconomic behaviour in the 1990s are similar to what was observed in the previous period of openness in the late 1970s. Both these stages may be interpreted on the basis of a common model, as is also true of various comparable experiences in other economies, especially in Latin America. This common model, together with the comparative analysis of the experiences in question, has been developed elsewhere, so we will not describe it in detail here.[1] With this interpretative framework as the background, the following section of this paper (section II) presents the main events in the Argentine macroeconomic field during the 1990s, including the final crisis of the convertibility plan and a description of the main features of the economic recovery subsequent to that crisis.

Section III contains an analysis of the quantitative evidence on the impact of the country's macroeconomic performance on employment, unemployment and wages, with special emphasis on the 1991-2002 period. In particular, this section analyses in some detail the effects to be expected from the combination of an

☐ A more extensive version of this paper was submitted at the International Conference on Globalization and National Development: Towards Greater Coherence between Economic and Labour Policies (Buenos Aires, August 2005), organized by the International Labour Organization.

[1] See for example Frenkel (2003a and 2003b) and Damill, Frenkel and Rapetti (2005).

appreciated exchange rate and trade openness. It then describes the evolution of aggregate employment, underemployment and unemployment in the 1990s, going on to focus on the behaviour of the same variables in the recent recovery stage. A quantitative model is given for estimating the aggregate impact of the evolution of economic activity and relative prices on employment, and an analysis is presented which covers both the convertibility period and the recovery phase. The structure of the contraction in employment in the 1990s is described, showing that it originated mainly in the tradeables sectors. Finally, the analysis is completed with a study of the evolution of income and the estimation of wage curves showing real wages as a function of unemployment rates in both the convertibility period and the recovery phase.

II

Argentine macroeconomic dynamics in the 1990s

1. Performance under the convertibility regime

During the last third of the twentieth century, a process known as the second financial globalization took place in the world. In this new stage of international financial evolution, various countries in Latin America and other regions went through external and financial crises which had dramatic effects in real terms. These episodes generally involved high economic and social costs and setbacks in growth. The crises in Mexico (1994-1995), Argentina (1995), Brazil (1998-1999) and once again Argentina (2001-2002) occurred in the Latin American countries which had received the biggest capital flows in the previous boom periods. These countries were also the biggest economies and the leading "emerging markets" of the region.

In the various national experiences in question, the application of reforms such as trade openness and greater openness and liberalization of the capital account –together with privatization processes, fiscal reforms and deregulation measures in other markets– was combined with anti-inflationary macroeconomic policies in which fixed or virtually fixed exchange rates played a crucial role. Thus, Mexico applied a programme of this type in 1988, Argentina in 1991 and Brazil in 1994.

A summary examination of these cases allows us to identify a set of common features of the institutional and economic policy contexts in which the crises took place: i) the nominal exchange rate was fixed or virtually fixed; ii) there was an appreciated real exchange rate; iii) there were practically no barriers to the free movement of capital; iv) capital inflows in the preceding boom period were very large in comparison with the size of the existing national money and capital markets, and v) regulation of the national financial systems in the boom period was relatively weak and permissive.

In all cases, the experiences in question show that, in addition to these characteristics, there was a cyclical macroeconomic dynamic, with an initial expansionary phase, followed by a period of stagnation or recession, growing financial and external fragility and, finally, financial and exchange-rate crisis.[2]

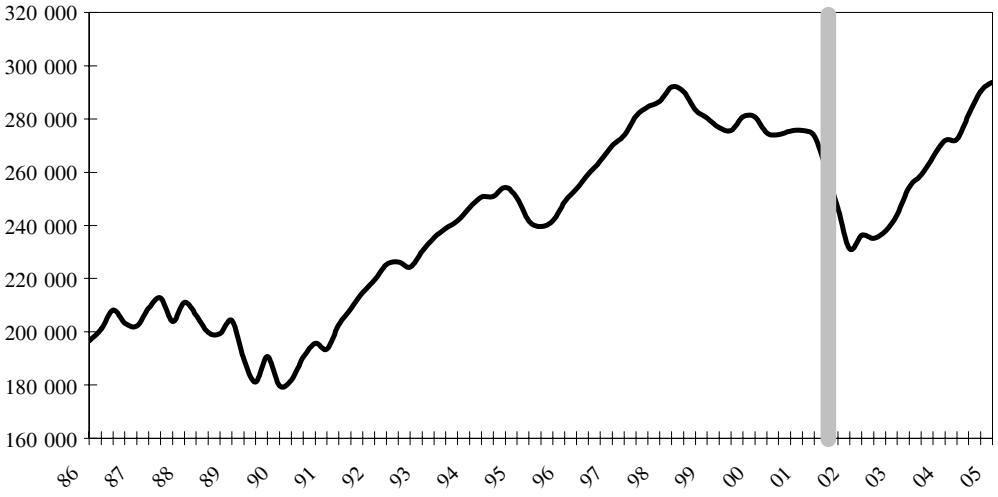
Under the stabilization scheme with an exchange-rate anchor and trade and financial openness adopted, together with the convertibility plan, by Argentina in the 1990s, the features referred to above, such as the cyclical dynamic, were also present. The openness and expansion cycle, followed by an increase in external financial fragility, contraction and crisis, was experienced by that country twice in the decade, however. The first time was between 1990 and 1995 (the year in which the economy was stalled by the spillover effects of the Mexican crisis), while the second time was between 1995 and 2001 (figure 1). The first of these cycles did not result in an exchange-rate crisis, but it did cause a recession and a financial crisis.

The various positive changes which took place in the international financial context had a strong impact at the domestic level in the early part of the period. International interest rates fell sharply as from 1989, while access to external finance was restored. In 1991 capital inflows began to reach substantial levels. As well as expulsion factors (especially the fall in interest rates in the developed world), which explained much of the

[2] Summary descriptions of the cycle are given, for example, in Frenkel (2003a and 2003b), Damill, Frenkel and Maurizio (2003) and Damill and Frenkel (2005). See also Taylor (1998).

FIGURE 1

Argentina: Gross Domestic Product, 1991-2005[a]
(At constant 1993 prices)



Source: Prepared by the authors on the basis of figures from the Ministry of the Economy and Production.

[a] De-seasonalized quarterly data.

flow of capital to emerging markets, domestic "attraction" factors were also important: in the case of Argentina, special mention may be made in this respect of the privatization process begun in 1990, financial liberalization, and the application of the stabilization programme. Thus, in the early years of the decade net inflows of funds exceeded the current account deficit, making possible a rapid and substantial accumulation of international reserves, the initial level of which was very low. The accumulation of reserves fed the increase in the supply of money and credit, and this, together with the decline in both external and domestic interest rates, led to rapid growth of aggregate demand and GDP. The increase in GDP, in its turn, affected the balance of payments, since it stimulated imports and thereby contributed to the current account deficit. Trade openness and the appreciation of the exchange rate acted in the same direction.

The growth led by capital inflows continued up to 1994. In that year, however, there was a rise in international interest rates (following the Federal Reserve's decision to raise its discount rates as from February). This began to affect the inflow of funds negatively and, because of the growing current account deficit, the foreign exchange reserves stopped growing.

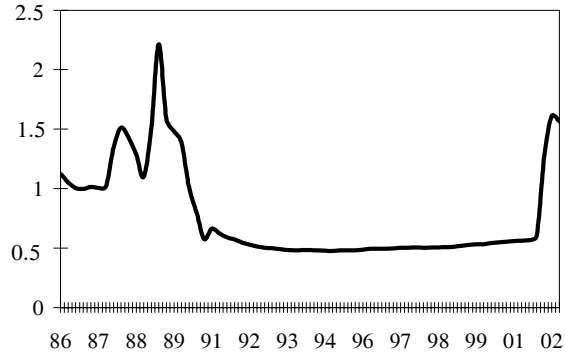
It may be noted that, in this first stage, the stabilization programme was very effective in checking inflation. Following its adoption, there was an immediate slackening in price rises. In the case of internationally tradeable goods, for which the wholesale price index is a good approximate indicator, the fixing of the exchange rate had a marked impact. Inflation at the wholesale level went down immediately to levels of the order of 1% per month and continued to go down. This index registered total variation of 12.5% from the beginning of the plan up to December 1994, which is equivalent to a little over 3% in annualized terms and is in line with international inflation as measured, for example, by the United States consumer price index.

The Argentine consumer price index (CPI), in contrast, rose by 58.5% over the same period. Although in this case, too, there was a sharp fall in the rate of inflation, the residual inflation built up in the first three years was very substantial. This is explained by the greater weight of non-tradeable goods and services in the calculation of the CPI, and therefore reflects the change in relative prices which took place over the period. The divergence between the variations of these two price indexes disappeared towards the end of 1994, however. From that time, and up to the final crisis of the macroeconomic regime in December 2001, inflation rates always tended to be very close to zero, with a predominance of slight negative figures.

Figure 2 and table 1 give information on the evolution of the real exchange rate. It is important to note that this variable, which had reached

FIGURE 2

Argentina: Real exchange rate,[a] 1986-2002
(Second half of 1986 = 1)



Source: Prepared by the authors on the basis of figures from the National Institute of Statistics and Censuses (INDEC) and the Central Bank.

[a] Nominal exchange rate multiplied by the United States consumer price index (CPI), over the local CPI.

extraordinarily high levels during the exchange-rate stampede which set off the crises of hyperinflation in 1989 and 1990, dropped almost vertically in the course of the latter year, that is to say, before the launching of the convertibility plan.

As may be seen from table 1, already in the period immediately before the launching of the stabilization plan, real parity was almost 50% below its average level in the 1986-1990 period. Compared with this decline, that which was observed from the second quarter of 1991 onwards may be considered of only second order. This was followed by a long period of stability in which the variations in real parity were very small, until the monetary regime broke down in December 2001.

Figure 3 and table 2 give data on wages in dollars and average real dollars in the manufacturing sector. Once again, in the case of wages in dollars, the drastic change at the beginning of the period should be noted. The increase in wages measured in this currency is over 50% when the level in the period before the launching of the plan is compared with the average for 1986-1990. Here, too, the subsequent variations may be considered as being of second order.

Real wages in manufacturing, in contrast, behaved very differently, which also reflected the process of exchange-rate appreciation. As the prices of non-tradeable goods and services measured in dollars rose considerably, and these goods and services weighed heavily in the CPI, wages deflated by this index only rose slightly at the beginning of the stabilization plan, after having fallen in the preceding months. After a

TABLE 1

Argentina: Average real exchange rate in different periods
(Second half of 1986 = 1)

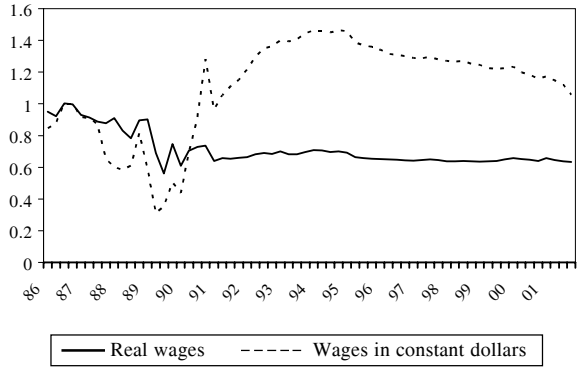
Period	Real exchange rate
1986-1988	1.16
1986-1990	1.22
1990:4-1991:1[a]	0.62
1991:2-1994:4[a]	0.52
1995-2001	0.52
2002	1.48

Source: Prepared by the authors on the basis of data from INDEC and the Central Bank.

[a] Quarters.

FIGURE 3

Argentina: Average real wages in manufacturing and average wage in constant purchasing power dollars, 1986-2001



Source: Prepared by the authors on the basis of data from INDEC.

moderate rise in the first years of convertibility, average real wages in manufacturing showed a slight downward trend during the second half of the decade.

During the expansionary phase which lasted from 1990 to 1994, the economy became increasingly vulnerable to unfavourable external shocks. The current account deficit tended to rise, while at the same time external indebtedness was increasing. The dependence on inflows of funds was thus further increased. In other words, the macroeconomic scheme became more vulnerable to changes that could more or less abruptly affect the availability of external finance. This source of vulnerability became more evident in the case of Argentina because the regime involved complete liberalization of capital flows.

The rise in international interest rates in 1994, which was already mentioned earlier, and its consequences for the inflow of capital and the inherent

TABLE 2

Argentina: Average wages in manufacturing at different periods
(Second half of 1986 = 100)

Period	1986-1988	1986-1990	1990:4-1991:1	1991:2-1999:4	1995-2001
Real wages[a]	90.8	82.9	68.8	68.4	64.8
Wages in dollars[b]	80.6	73.9	112.3	133.4	125.8

Source: Prepared by the authors on the basis of data from INDEC.

[a] Average wage deflated by CPI.
[b] Average wage in constant purchasing power dollars (deflated by the United States consumer price index).

mechanics of the convertibility regime could of themselves have led to a contractive phase. At the end of that year, however, Mexico suffered a run on the peso which ended in heavy depreciation. The effects immediately spread to Argentina. Consequently, instead of the country registering an endogenous adjustment in line with the typical workings of a currency board regime, the external shock led to a massive and rapid outflow of funds early in 1995, with a parallel very marked rise in domestic interest rates. The stock of foreign exchange reserves went down abruptly, and there was a corresponding contraction in liquidity. Aggregate demand behaved similarly. In this phase, the unemployment rate (which had actually already begun to show an upward trend two years earlier, when the economy was still expanding very strongly) rose substantially and from then on always remained at historically very high levels.

Nevertheless, the recession in the middle of the decade was very short. A powerful set of external and domestic financial support measures, arranged with the coordination of the International Monetary Fund (IMF), made it possible to quickly change the negative tone of expectations. In addition, by various means and in spite of the limitations imposed by the convertibility rule, the government carried out intensive monetary activity designed to shore up the banks and thus stop the financial crisis from deepening.

Thanks to the favourable effects of the financial support from the exterior, it was possible to keep the monetary regime in being, and towards the end of 1995 a new spell of expansion was beginning. The monetary mechanism behind this recovery was the same one used in the early years of the 1990s. Access to external funds was recovered; the inflow of capital began to exceed the current account deficit (which had gone down as a result of the recession), and the foreign exchange reserves recovered once again, as did the supplies of money and credit. The elements of the cyclical dynamic were again in motion.

This new expansionary phase had similar features to the first such phase, but it was to be shorter. The risk premium went up in mid-1997, after the Thai devaluation, and growth slackened. The Russian crisis in 1998, which also had a very strong impact on Brazil, brought the period of expansion to an end. Inflows of funds declined from then on, and the accumulation of reserves slowed, and then became negative somewhat later. As a result, a phase contraction of GDP began in mid-1998, culminating in the collapse of 2001-2002, in which, among many other events, there was the violent depreciation of the peso already referred to earlier, and the government began to default on a large part of its external and domestic financial commitments.

The plot of the macroeconomic story of the late 1990s is quite simple. To begin with, the unfavourable turn in the external financial situation which took place in 1997-1998, after the Southeast Asian and Russian crises, found Argentina with a high and growing current account deficit, an over-appreciated currency, and an evident shortage of policy instruments for dealing with this set of problems, because of the rigidity of the macroeconomic scheme adopted. Not surprisingly, in these conditions the country risk premium rose sharply and remained so, while access to external funds became more and more problematical. The subsequent increase in the debt interest burden had a negative impact above all on debtors, including of course the public sector.

In view of the lack of other instruments, the government responded to this situation with restrictive fiscal policies. The official story regarding this approach was usually as follows: fiscal discipline would restore confidence in the public sector's capacity to pay, so that the risk premium on the sovereign debt would go down, leading to a decline in domestic interest rates. Domestic demand for goods and services would therefore recover, bringing the economy out of its recessive slump. Lower interest rates and a higher GDP would also help, in turn, to balance the public accounts, which would also help to restore confidence, thereby creating a virtuous circle.

The macroeconomic history of the last years of the 1990s is the story of the failure of this view of events. In spite of the perceptible adjustment in the public sector's primary result in those years, it was not possible to reopen credit channels. Moreover, the tax rises and cuts in public expenditure further strengthened the recessionary trends, thus helping to confirm the negative expectations which were impeding the longed-for decline in the country risk premium.

Fiscal policy alone was obviously powerless to offset the heavy macroeconomic imbalances whose roots lay elsewhere: in effect, in the external sector. Under this self-destructive fiscal policy approach, the economy was trapped in a vicious circle for several years, thus suffering the longest recession since the First World War.[3]

2. The macroeconomic situation after the cessation of payments and devaluation

After three years of recession, economic activity suffered a further abrupt fall as from mid-2001. The massive flight to external assets that took place in the second half of that year precipitated the collapse of the convertibility regime and culminated in payments defaults and devaluation of the peso. The sharp decline in the foreign exchange reserves suffered in the course of the year rapidly put a squeeze on liquidity. After the imposition of a series of restrictions on the withdrawal of bank deposits by the public (the so-called "corralito"), there was a veritable interruption in the chain of payments. The GDP and employment went the same way as the violent contraction in reserves and liquidity. Social indicators such as unemployment rates and indices of poverty and indigence. which had already deteriorated considerably in the course of the 1990s, suffered a further serious impairment, thereby also heightening the social tensions and political crisis which put an end to the ruling government (the coalition administration named "Alianza"; Damill, Frenkel and Maurizio, 2003).

a) *The economic recovery*

The near-vertical drop in the product and employment continued after the breakdown of convertibility, but only for a very short time. Thus, in contradiction to most opinions and beliefs, including those of various IMF officials, the traumatic political and economic episodes which put an end to the convertibility regime were not followed by an even deeper depression, but instead by an extraordinarily rapid recovery, which began only three months or so after the events described.

Figure 1 above shows the V-shaped path formed by the phase of economic collapse in the last quarters of convertibility and the subsequent rapid recovery. As we just noted, the recovery of GDP began very shortly after the exchange-rate depreciation which marked the end of a decade of convertibility (some three months after, as may be seen from the monthly economic activity indicators available). The recovery was sparked off precisely by the abrupt change in relative prices in favour of the tradeable goods sectors. Initially, the impulse came from the substitution of imported goods with locally-produced articles.

It is worth noting that the start of the new phase began to be perceptible when the country was still sunk in a situation of marked economic instability and political uncertainty, and service payments on part of the public debt were still interrupted.[4] In other words, the "rebound" took place in spite of that extremely complicated initial situation and the negative effects that the currency devaluation had at various levels.

In addition to the favourable effects of the change in relative prices, the merit for the rapid economic recovery following the crisis is also due to a set of policies which, notwithstanding the errors and the stop-and-go actions sometimes observed, were generally aimed at recovering the basic macroeconomic balances. It is noteworthy that several of the policies which played very important roles in this stage had to face the opposition of the IMF. Among these, mention may be made of the re-imposition of exchange controls (which obliged exporters to change a large part of the foreign exchange receipts from international trade on the local market and limited outflows of funds on the capital account); the establishment of export duties (retentions), which enabled the government to share in the favourable effect of the devaluation on the income of the producers of tradeable goods (thus greatly aiding in the restoration of fiscal balance) and softened the impact on domestic prices and, ultimately, real wages; a flexible monetary policy which made it possible, on the one hand, to help

[3] The role of fiscal policy in the convertibility crisis is dealt with and discussed in, for example, Damill, Frenkel and Juvenal (2003) and Damill, Frenkel and Rapetti (2005).

[4] The exchange rate rose rapidly when the initial devaluation which had brought parity to 1.40 pesos per dollar gave way to a currency float; the rises in parity dragged nominal prices with them, and the financial system was in the midst of a profound crisis.

the banks in the crisis phase and, on the other, to satisfy the growing demand for money, thus supporting the recovery process; and an exchange policy which sought to avoid appreciation of the peso through intervention by the Central Bank (and later also by the National Treasury, with fiscal resources) when supply began to exceed demand in the foreign exchange market.

The IMF insisted on the free floating of the peso, and the government did indeed adopt this system for a short time. Once the float was in place, however, the exchange rate shot up and reached levels close to four pesos per dollar, in a context of expectations of much higher increases. The re-imposition of exchange controls was essential in order to burst the exchange-rate bubble. By forcing exporters to change foreign exchange on the local market and limiting outflows of funds, the government managed to stabilize the nominal exchange rate by mid-2002.

When there began to be a perception that this situation could last, the demand for pesos began to settle down and the foreign exchange market registered an excess of supply. The bursting of the foreign exchange bubble decisively aided in containing price rises. Similar effects were secured by, on the one hand, the freezing of public utility rates[5] and, on the other, the very high rates of unemployment, which kept down nominal wages in the private sector. All these factors made possible a rapid decline in inflation as early as the second half of 2002.

b) *The main features of the recovery phase*

The recovery in GDP growth which began in the first half of 2002 went through a brief initial phase in which global demand barely increased, while all the components of domestic spending (private consumption, public consumption and investment) continued to contract, as they had done throughout the prior depression, albeit more slowly. It was therefore not domestic expenditure which stopped the decline in the level of activity. The factors which favoured expansion were above all the international trade variables: exports and imports, and especially the latter. Demand began to be satisfied to a larger extent with domestically produced goods, and this import substitution benefited the manufacturing sector in particular. After this short initial stage, however, the source of economic growth clearly shifted to the components of domestic demand, especially investment (which grew at an annualized rate of nearly 40% between 2002 and 2004) and private consumption.

The favourable external environment is often cited as one of the important elements behind economic recovery. Indeed, in some studies the bulk of the credit for recovery is attributed to a set of "exogenous" positive factors. According to those studies, this was so even though the economic policies applied were considered to be riddled with errors from that standpoint: lack of planning, excessive interventionism, the use of unsuitable instruments (such as taxes that cause distortions), delays in the implementation of "outstanding reforms", etc. Although the impact of external factors (especially the high prices of some commodities) has been undeniable, at least until recently, the fact that the buoyancy of growth was due substantially to domestic demand factors takes away the validity of that interpretation.

It should also be noted that the recovery of consumption and investment took place in a context of marked rationing of credit, both external and domestic. Investment was apparently fed by the bigger retained profits of enterprises and producers, although it was also certainly helped by the "wealth effect" due to the considerable holdings of foreign assets of the resident private sector. These assets, which today stand at around US$ 125 billion, rose in value as a result of the exchange-rate depreciation, whether measured in pesos or in comparison with domestic assets such as real estate and land. This same factor was also undoubtedly one of those behind the recovery of private consumption expenditure.

[5] Many of these rates were dollarized and were adjusted in line with United States inflation, as laid down in the contracts signed when the enterprises in question were privatized.

III

The effects of macroeconomic evolution on employment and wages

1. The consequences of the processes of greater openness plus exchange-rate appreciation

The features of the macroeconomic evolution in Argentina described above were paralleled by developments in the labour market. The initial achievements of the stabilization programme and reforms of the 1990s had positive effects in terms of higher levels of activity and lower inflation rates. On the one hand, greater economic activity meant greater demand for labour, while on the other, the decline in inflation favourably affected the purchasing power of wages. In more general terms, that decline reduced the impact of the "inflation tax", which hit those with the lowest wages hardest.

These consequences are typical of programmes of this type, at least in their initial phase. Other effects of such programmes are often of a negative nature, however. Privatization processes are often followed or preceded by business rationalization measures which involve substantial staff cuts. Adjustments in the expenditure of national, provincial and municipal levels of government have a similar effect, usually involving the reduction of employment and wages. These negative effects on employment and wages are a "once only" phenomenon.

The joint effects of trade openness and exchange-rate appreciation, for their part, call for special consideration, since they have lasting adverse consequences for employment in the production of tradeable goods, especially in the manufacturing sector.

The policy of reducing tariff and non-tariff protection is aimed at increasing the efficiency and productivity of the tradeables sector, through greater competition in the domestic market for imported goods and by giving local firms access to cheaper and higher-quality inputs and capital goods. At all events, trade openness involves the displacement of firms and workers in the less efficient areas of the tradeables sector. In a simple version of this theory, these negative effects should be offset by the simultaneous creation of employment in activities which are made more competitive through increased productivity. In more complex versions, however, it is acknowledged that there may be a more or less long period of lower employment and adverse distributive effects, which must be relieved through public policies. In addition to this, the fact is that in Argentina, as in other Latin American countries in the 1990s, the greater trade openness was accompanied by exchange-rate appreciation.[6] This factor accentuated the loss of competitiveness of the existing industries and hindered the emergence of new export or import substitution activities, thus aggravating the adverse effects on employment.

All these effects, both positive and negative, were observed to a greater or less extent in Argentina and in other economies of the region during the 1990s. The extent to which they occurred determined the direction and magnitude of the aggregate impact in each case. The evolution of employment and income distribution over time also depended on the different speeds of the processes in question. A very significant case, because of the relative importance of the countries involved, is that of the dynamics generated by shock stabilization processes with an exchange rate anchor which also more or less simultaneously included trade openness, privatization, and fiscal adjustment. In keeping with the cyclical macroeconomic dynamics described above, there is usually also a cyclical evolution of employment and of the lowest incomes, with a first upward phase in which the positive effects of reactivation and the fall in inflation predominate, and a second downward phase in which these initial effects tend to weaken and there is predominance, in particular, of the persistent consequences of joint trade openness and exchange-rate appreciation.

[6] These circumstances are in contradiction with conventional recommendations on the macroeconomic policies that should accompany trade openness. Greater openness means less protection for local activities. Consequently, given the real exchange rate, this would bring about an increase in the trade deficit. In order to eliminate this unwanted effect, conventional theory on trade openness recommends that this should be accompanied by a depreciation in real terms.

The above-mentioned employment cycle is clearly observable in the case of Argentina. As we shall see in more detail in the following section, the aggregate employment rate tended to rise between the launching of the convertibility programme (1991) and 1993, subsequently going down steadily and standing at the end of 1996 well below the 1990 employment rate. The contraction mainly affected the jobs of male heads of household working over 35 hours per week, and was concentrated in employment in manufacturing. Although the privatization operations and the fiscal adjustment of the provinces had negative effects on employment, the heaviest negative impact came from the restructuring and concentration of activities in the production of tradeable goods caused by trade openness and exchange-rate appreciation.

The importance of the effects of openness with exchange-rate appreciation make this topic worthy of being developed in greater depth. The behaviour of the demand for labour generated by industrial production may be broken down into three components. First, there is the positive component due to the growth of global demand (domestic demand plus exports). The greater the increase in demand, the greater will be its effect on industrial production and employment in that sector. Second, given the growth in global demand, there is a negative effect due to the degree of penetration of imports to satisfy that demand. The greater the proportion of demand covered by imports, the smaller will be local production and employment. Third, the need to increase competitiveness quickly in a context of greater openness, on the one hand, and the change in relative prices in favour of imported inputs and machinery, on the other, lead to a significant reduction in the amount of labour per unit of production of the firms affected. This increase in labour productivity is the result of changes in the structure of production (for example, a smaller range of products, with a larger content of imported inputs), gains in efficiency through reorganization, and the replacement of labour with machinery.

As already noted, these processes have generally resulted in a tendency towards the contraction of industrial employment. In other words, the growth in the demand for industrial goods has not been sufficient to offset the negative components, namely, the direct displacement of local products by imports and the process of the reduction of the amount of local labour per unit of production which occurs in the surviving firms. It should be noted that it is the medium-sized and small firms which have the greatest difficulty in keeping going, so that the closure of this type of firm is a significant aspect of the overall contraction in employment.

It is worth emphasizing the role played by exchange-rate appreciation in each of the components thus disaggregated above. Let us consider the growth rate of the demand for industrial goods. The appreciated exchange rate acts as a restrictive factor because it hinders the growth of exports and also limits the growth rate of domestic demand. In the economy's long-term growth path, the external fragility associated with exchange-rate appreciation is a factor that limits the potential growth rate.

Exchange-rate appreciation also played a clearly negative role through the second of the above-mentioned components. Such appreciation joined with trade openness to further reduce the competitiveness of local activities. As a result –given the level of global demand– this tends to increase the effects of the direct displacement of local production and employment by imports. At the same time, it inhibits industrial production activities for the domestic market or for export which, with a more depreciated exchange rate, could have been competitive even in an open economy.

Lastly, exchange-rate appreciation also has a significant adverse effect on employment through the third channel: the microeconomic process of the reduction in the amount of labour per unit of production. The appreciated exchange rate exaggerates the incentives to reduce the amount of labour per unit of production in enterprises, because it also reduces the relative price of imported inputs and machinery compared with the cost of labour.

The macroeconomic configuration that tends to be formed in a process of trade openness with exchange-rate appreciation may be summarized in three main features. These are fragility of growth, high rates of unemployment, and a tendency towards growing inequality of income distribution. The external fragility implies difficulty in maintaining high growth rates without running the risk of external crises, and it forces the economy to follow a low growth path, which naturally inhibits the capacity to create employment. Secondly, behind this external fragility is the low international competitiveness of local activities. In Argentina, aggregate competitiveness did not tend to increase in the 1990s in spite of substantial improvements in labour productivity, because the change in relative prices neutralized the effects of that greater productivity.[7] The

[7] For calculations for various countries, made with a common methodology, see Tokman and Martínez (1999).

third feature is mainly a consequence of the first two. High unemployment, both by its very nature and by the downward pressure it exerts on wages, causes a persistent trend towards greater inequality of income distribution.

2. Employment, underemployment and unemployment in Argentina in the 1990s

In this section, we will present empirical evidence on the evolution of labour market conditions in Argentina in the circumstances described. We will begin by examining the evolution of aggregate employment, underemployment and unemployment in the decade in question.

The series analysed below refer to the urban population and are taken from the Permanent Household Survey (PHS) which the National Institute of Statistics and Censuses (INDEC) carried out twice-yearly, in May and October.[8]

Unless otherwise indicated, the series analysed here are defined as percentages of the total urban population. They are:

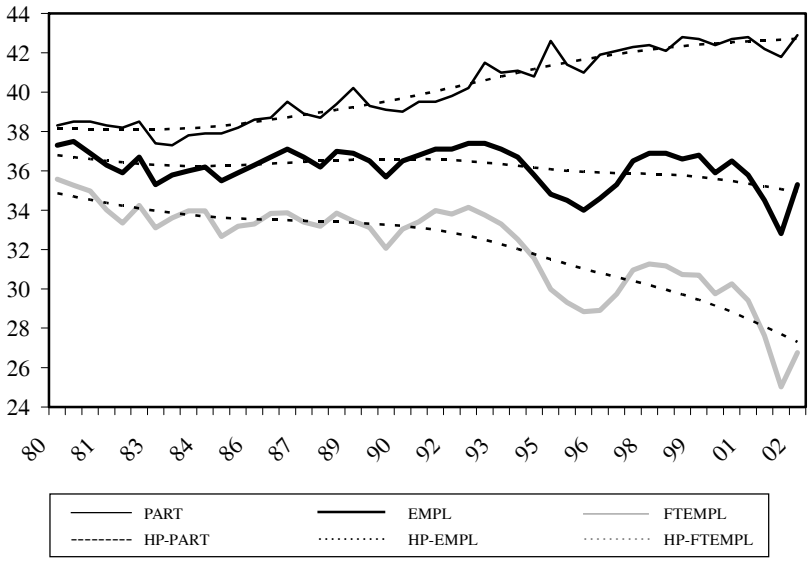
PART = participation rate;
EMPL = employment rate;
FTEMPL = full-time employment rate;[9]
SUB = involuntary underemployment;
U = unemployment rate.

Figure 4 shows the evolution of these variables since the early 1980s. Firstly, it may be observed that the full-time employment rate shows a marked downward trend, dropping from 35-36% in the early years of that decade to 32% in the first half of 1990 and 27.6% in the second half of 2001.[10]

In addition to this negative trend, FTEMPL also displays clear correlation with the macroeconomic cycle. As in the case of the gross domestic product (GDP),

FIGURE 4

Argentina: Labour market indicators[a]
(As percentages of the total urban population)



Source: INDEC Permanent Household Survey.

[a] Participation rate (PART), employment rate (EMPL), full-time employment rate (FTEMPL), and their respective Hodrick-Prescott trends (HP-PART, etc.).

[8] The methodology and frequency of the PHS have recently been changed, as will be described below.

[9] In the survey, an individual is considered to be employed full time if he works at least 35 hours per week. This group also includes those who, although they worked less than 35 hours per week, do not wish to work more hours (i.e., this variable includes "voluntary underemployment").

[10] As in figure 4, in this section we have used half-year periods. Thus, the first half of the year corresponds to the survey carried out in May, while the second half corresponds to that carried out in October, so that 2000:1, for example, stands for the first half of 2000. Furthermore, in most cases in this section the % sign stands for "percentage points of the population". Henceforth, however, whenever there may be any ambiguity, we will use the expression "percentage points of the population" in full when referring to measurements of this nature.

this variable displays two clear cycles in the 1990s. It goes up as from 1990, then registers a pronounced fall reaching its lowest point in 1996, goes on to rise once again with the second period of expansion in the decade, but subsequently goes down again as from 1998.

It is important to note, however, that the highest level reached by FTEMPL in the period of expansion in the early 1990s was registered in the second half of 1992: i.e., before the turning-point in GDP observed at the end of 1994, after the Mexican crisis. Thus, in 1993 and 1994, when the economy was still expanding at a significant rate, the ratio between full-time jobs and the total population was already going down.

Between the high point of 34.14% and the minimum observed in the second half of 1996, FTEMPL fell by approximately 5.2%. It then recovered by about 2.4%, reaching a new peak in the first quarter of 1998. It should be noted, however, that the latter value is well below the maximum attained in the previous period of expansion.

The subsequent decline went along with the recessionary trend, both in the period of moderate contraction, up to mid-2001, and in the sharp fall in activity that occurred in the second half of 2001. At that moment, towards the end of the convertibility regime, FTEMPL was 6% below the level it had reached in the first half of 1991.

The ratio between total employment and the population (EMPL) also showed a downward trend in the early 1990s, but this was considerably less pronounced than in the case of FTEMPL, indicating that the rate of underemployment (involuntary underemployment), SUB, tended to rise in that same period. The increase in SUB became more marked in 1999-2000.

Furthermore, as we shall see below, SUB was counter-cyclical: it tended to rise when FTEMPL fell and to fall when the latter rose. Consequently, EMPL is less closely linked with the economic cycle than FTEMPL.

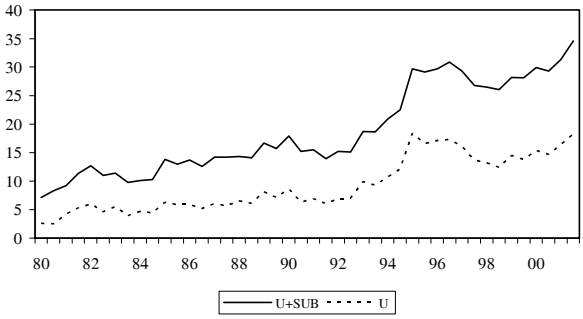
Finally, the rate of participation of the population in the labour force (PART) shows a markedly positive trend which is not correlated with the macroeconomic cycle. Starting from around 38% in 1980, it went up to 39% in 1990 and then rose sharply still further, reaching 42.8% in the first half of 2001. Throughout the convertibility period, the trend of PART corresponded to an increase of approximately one percentage point of the urban population every three years. The main reason for this behaviour was the sustained increase in female participation in the labour force, although this participation is still low in Argentina by international standards.

As a result of the positive trend of PART and the relative stagnation of the employment rate, the unemployment rate (U) rose sharply in the 1990s, with a marked upward jump in the 1992-1995 period (figure 5).

The impact of the 2001-2002 crisis caused a further unfavourable jump in these indicators. The urban open unemployment rate rose to a peak of 21.5% in May 2002 but began to go down thereafter. Underemployment, for its part, reached a peak of 19.9% of the economically active population in October 2002 but also went down afterwards when the economic recovery began to take hold.

FIGURE 5

Argentina: Rates of unemployment (U) and involuntary underemployment (SUB)



(As percentages of the urban active population)

3. The evolution of employment and unemployment in the recent recovery phase

a) *Full-time employment*

In 2002, with economic reactivation, employment began to recover. In this section[11] we will first of all analyse the evolution of full-time employment since the second half of 2002. We are interested in obtaining a long-term view which will allow us to analyse changes over time and make comparisons with the period when the convertibility regime was in force. A difficulty in this respect, however, is that the twice-yearly permanent household survey (PHS) was discontinued in the first half of 2003 and replaced with an ongoing PHS which gives quarterly figures. The results of the ongoing PHS, by quarters, are available as from the first quarter of

[11] Both the analysis of the recent evolution of employment and unemployment, in the present section, and that of wages (further below) are based on Damill and Frenkel (2003) and Frenkel (2005).

2003, but the employment rates of the two surveys are not directly comparable because of changes in the methodology used.

In order to solve this problem, we proceeded as follows. We calculated half-yearly averages of the employment rates of the ongoing PHS, so as to have half-yearly data with a frequency similar to that of the PHS in the past. Moreover, instead of working with the levels of the employment rate, we calculated a long series of half-yearly differences (i.e., the difference between one half-year and the preceding one). The coupling together of the series of differences between half-year periods from the half-yearly surveys and the data from the ongoing surveys was effected by taking advantage of the fact that in the case of the first half of 2003 we have observations made in both surveys. This makes it possible to calculate all the differences with half-yearly data from a single PHS: the twice-yearly one up to the first half of 2003 and the ongoing one as from the second half of that year. Although the half-yearly differences thus calculated are not strictly homogeneous, the error arising from this procedure may be assumed to be very slight.

Let us call the variable that interests us D(FTEMPL). This is the difference in the full-time employment rate, **without social plans**, between one half-year and the preceding one. The exclusion of social plans when measuring FTEMPL is important, because the introduction of the Plan for Heads of Households led to a considerable increase in the voluntary underemployment rate.[12] If the full-time employment rate did not exclude the social plans, it would register an increase which had nothing to do with the economic processes. The full-time employment rate considered by us therefore **excludes** those working under social plans. The variable D(FTEMPL) is measured in percentage points of the total urban population. The tables below show the evolution of this variable from the second half of 2002 up to the first half of 2004, together with the de-seasonalized half-yearly growth rates of GDP which we have called DL(GDP).

Table 3 shows that in the four half-years considered, the GDP registered a cumulative increase of 15.9%, while the full-time employment rate went up by 4.56% percentage points of the urban population.

[12] We refer to the Plan for Heads of Households set up in 2002 to relieve the serious social situation generated by the worsening of the crisis. Under this Plan, allowances of 150 pesos are given to heads of households with children, in return for a certain amount of work.

TABLE 3

Argentina: Variation in full-time employment rate between one half-year and the similar preceding period, without social plans

Half-year	D(FTEMPL)	DL(GDP)*100
2002:2	0.68	1.32
2003:1	1.06	5.07
2003:2	1.86	5.32
2004:1	0.96	3.37

Source: Prepared by the authors.

b) *Full-time employment and the recent behaviour of unemployment*

In 2003 and the first half of 2004, the increases in full-time employment (without social plans) accounted for the whole of the reductions observed in unemployment rates. This may be seen in table 4, which shows the half-yearly variations in unemployment and full-time employment. In order to facilitate comparison, the variations in unemployment D(U) are expressed as percentages of the total urban population.

TABLE 4

Argentina: Half-yearly variations in unemployment and full-time employment

Half-year	D(U)	D(FTEMPL)
2003:1	-0.94	1.06
2003:2	-1.08	1.86
2004:1	-0.35	0.96

Source: Prepared by the authors.

In all the half-year periods, the increases in the full-time employment rate without social plans exceeded the corresponding falls in unemployment in absolute values.

In short, since 2003 the contractions observed in unemployment are explained by the increases in the full-time employment rate without social plans; these plans were present, as a relatively stable background to the situation, throughout the period in question. Consequently, the changes in labour market conditions as from that year can be represented by the variations in unemployment rates and also in the full-time employment rates.

4. An aggregate model for the labour market[13]

These stylized facts regarding the indicators of labour use can be organized in a simple labour market model,

[13] For more detailed versions of this model, as well as econometric estimates of it, see Frenkel and González Rozada (2000a and 2000b) and Damill, Frenkel and Maurizio (2002).

with an employment level determined by demand and relative prices, an underemployment function which reflects the counter-cyclical behaviour of this variable, and an exogenous participation rate (which follows a positive trend, as already mentioned). Thus, the unemployment rate is obtained as the difference between the exogenous participation rate and the employment rate determined by demand.

The behaviour of employment is associated with the economic activity trend. The evolution of total employment (as defined by the Permanent Household Surveys), however, although related with GDP, does not display a close correlation with that variable indicative of the level of activity. The main reason for this weak correlation is the dynamic behaviour of one of the components of the employment aggregate: involuntary underemployment, which displays counter-cyclical dynamic behaviour, like unemployment. In contrast, full-time employment is markedly pro-cyclical in the short term. In short, involuntary underemployment evolves in the short term in a direction which is opposite to that of full-time employment, so that the total employment aggregate varies more tenuously and "noisily" than full-time employment.

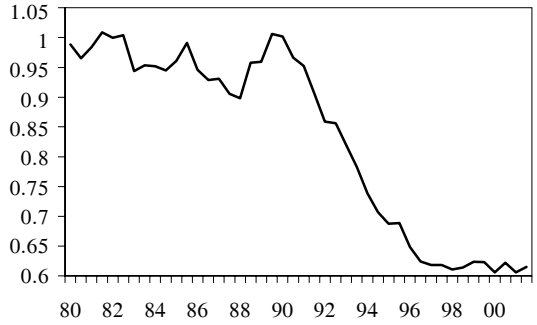
The level of activity is not the only determinant of the aggregate demand for labour. Other factors, such as relative prices, also affect the growth or contraction of employment. As in the case of the level of activity, the incidence of other macroeconomic factors which are determinants of labour demand can be seen more clearly through their effects on full-time employment. This is the aggregate variable of the labour market which best describes the linkages of that market with macroeconomic processes. Consequently, in order to analyse these linkages it is best to proceed in two steps: first, to examine the factors determining full-time employment, and second, to model the behaviour of total employment as a function of full-time employment and other variables.

The summary description of the main employment variables in Argentina which we gave in the previous section shows that the demand for labour, represented mainly by the variable FTEMPL, underwent profound changes in the 1990s. Although the ratio between full-time employment and the population had been going down since the 1980s, it was in the 1990s that this trend became perceptibly more acute.

Thus, various factors contributed in that decade to clear changes in firms in terms of production technology and production organization. Among these factors, trade openness and exchange-rate appreciation were undoubtedly among the most important.

FIGURE 6

Argentina: Ratio of full-time employment rate to GDP, 1980-2000
(1990:1 = 1)



Source: Prepared by the authors on the basis of data from INDEC and the Ministry of the Economy and Production.

The changes which took place in the demand for domestically produced goods and in relative prices affected firms' labour use. Figure 6 shows the ratio between the full-time employment rate and GDP. Starting from a tendency towards stagnation in the 1980s, the curve shows a striking fall between 1991 and 1996, after which the trend is once again one of stagnation.

As already noted, the new macroeconomic scheme did not emerge gradually. The main institutional changes and the change in relative prices mostly took place in the early 1990s. In view of this, we suggest that the adjustment in labour demand may be conceived as a process of admittedly gradual adaptation to a new environment defined from the beginning.

In order to examine the relation between activity growth and variations in the full-time employment rate, we worked out the following model:

$$D(FTEMPL) = a\ DL(GDP) + b\ DUMINIC + d\ DUMRECU + c + \varepsilon$$

where $D(FTEMPL)$ and $DL(GDP)$ have the meanings already mentioned. a, b, c and d are estimated parameters, and ε is a random variable. The model states that the half-yearly variations in the full-time employment rate are due to a short-term effect of the level of activity and an additional tendency, which may be conceived as the slow adjustment of the full-time employment rate to the surrounding conditions (mainly defined, at the beginning of the 1990s, by exchange-rate appreciation and trade openness).

The above model was estimated on the basis of half-year series providing data for the period from the first half of 1991 to the first half of 2004 (table 5).

The results of the estimation by ordinary least squares (OLS) are shown in table 5.

TABLE 5

Argentina: Estimation of model on behaviour of full-time employment by the ordinary least squares method

Dependent variable: D(T)
Sample (adjusted): 1991:1 2004:1
Number of observations: 27 after adjustment of end points
Standard errors and covariance consistent with White's heteroscedasticity

Variable	Coefficient	Standard error	t-statistic	Probability
DL(GDP)*100	0.19	0.03	6.36	0.000
DUMINIC	-0.64	0.27	-2.35	0.028
DUMRECU	0.62	0.26	2.35	0.028
C	-0.21	0.18	-1.14	0.260
R^2	0.72	f-statistic		19.27
Adjusted R^2	0.68	Probability (f-statistic)		0.000
Durbin-Watson statistic	2.54			

Source: Prepared by the authors on the basis of data from the Permanent Household Survey of the National Institute of Statistics and Censuses (INDEC) and the Ministry of the Economy and Production.

DUMINIC is a dummy variable, with a value of 1 between the first half of 1991 and the first half of 1996 and a value of 0 for the rest of the period, which was brought in to capture the magnitude and direction of the trend towards the contraction of full-time employment in the first five years of the convertibility regime.[14] DUMRECU is a dummy variable, with a value of 1 between the second half of 2002 and the first half of 2004 and a value of 0 for the rest of the period, which captures the additional trend in the recent recovery period.

The coefficients are significant at the 3% level, and the constant is not significant. The coefficient of variation of GDP is 0.19: an increase of 10% in GDP gives 1.9 percentage points of increase in the full-time employment rate. In addition to the short-term effect of the variation in activity level, the coefficients of DUMINIC (-0.64) and DUMRECU (0.62) describe tendencies (of the full-time employment rate) additional to those established by the rate of variation of GDP.

This additional trend is negative in the first phase of convertibility. It is the autonomous tendency towards a decline in full-time employment which may be interpreted as the result of slow adaptation to the relative prices context of the 1990s. In contrast, this additional trend is positive in the recent period of recovery.[15] In this last-named period, it corresponds to autonomous annual growth of the full-time employment rate by rather more than 1.20 percentage points of the total urban population.

[14] See Damill, Frenkel and Maurizio (2002).

[15] In Damill, Frenkel and Maurizio (2002) we give econometric estimates of this model for the period from 1980 to the first half of 2001, some of which are briefly summarized in this note. The equations estimated there for the 1990s have the following form: $d\ log\ FTEMPL = \alpha\ dlog\ YR + \lambda\ Dpost96 + \beta$, where the dependent variable is not the rate of change of the number of full-time jobs but the rate of change of FTEMPL, which in turn is equal to the rate of change of the number of persons with full-time jobs (*dlog N*) less the population growth rate (*dlog POB*), which is expressed as follows: $dlog\ FTEMPL = dlog\ N - dlog\ POB$.

The estimated coefficient β therefore reflects the joint negative effect on FTEMPL of the adjustment of employment to the new context, on the one hand, and population growth, on the other.

The variable *Dpost96* is a dummy variable designed to capture a change in labour demand after 1996. This variable has a value of zero up to the second half of 1996 and a value of 1 for all the subsequent half-year periods.

The econometric estimates of these equations give the following results for the 1990s. First, the elasticity a is positive and significantly different from zero. The estimates gave a value of approximately 0.6. This elasticity means that the full-time employment rate tended to grow (or fall) by 1 percentage point for every 6% of GDP growth (or contraction). The GDP-elasticity of full-time employment in the 1990s was greater than that for the 1980s.

The estimated parameter β was also significantly different from zero and was negative. The quantitative estimates indicated a tendency of the full-time employment rate to contract by 1.44 percentage points per year in the 1991-1996 period, which may be interpreted as the autonomous downward tendency of full-time employment –for a constant level of GDP– resulting from the gradual adaptation to the relative prices context of the 1990s.

Another important result is that for *Dpost96*. The estimated coefficient of this dummy variable was positive, with an absolute value very similar to that of the β estimator. This means that the autonomous tendency towards contraction β became zero in the period after 1996.

In the recent recovery period, the half-yearly increase in the full-time employment rate is explained very well by the equation:

$$D(FTEMPL) = 0.19 * DL(GDP)*100 + 0.62$$

(bearing in mind that DUMINIC = 0 in this period). Thus, for example, if the product grows by 8% in a year, the variation in the full-time employment rate can be estimated as approximately 0.19*8 + 1.24 = 2.76 percentage points.

Assuming that the function is stable, it is possible to project the contribution of GDP growth (through the full-time employment rate without social plans) to the decline in the unemployment rate. An increase of 10% in GDP in a given year would cause the full-time employment rate to rise by 0.19*10 + 1.24 = 3.14 percentage points of the total urban population. For an activity rate of 46%, this increase in the full-time employment rate would be equivalent to nearly 7 percentage points of the active population.

In order to complete the description of the aggregate labour utilization indicators, we must also take into account the evolution of involuntary underemployment. As already noted, this variable displays a counter-cyclical type of behaviour, so that it is negatively correlated with full-time employment. Our estimates using data from the 1990s indicate that the involuntary underemployment rate tends to fall (or rise) by 0.2 percentage points for each percentage point of increase (or decline) in the full-time employment rate. Thus, the increase (fall) in total employment resulting from an increase (fall) in full-time employment is less than the latter, since the variations in total employment are the result of adding together the variations in full-time employment and involuntary underemployment.

5. The contraction of employment in the 1990s, by sectors of production

a) *Full-time employment, by sectors of production*

So far, we have been examining the aggregate employment indicators generated from the nationwide Permanent Household Survey. The main urban area of the country, which comprises the city of Buenos Aires and the surrounding administrative areas, is Greater Buenos Aires (GBA), which accounts for around 37% of the total urban population. In the present section 5 we will be basing our examination on this subset of the sample –i.e., GBA– in order to analyse the evolution of employment at a more disaggregated level.

It has been argued above that in the 1990s there was a clear tendency towards the contraction of the ratio between full-time jobs and the population. Table 6 shows this ratio for GBA, by sectors of activity.[16] The figures include both the beginning and the end of the period of operation of the convertibility regime, as well as the maximum and minimum levels registered in it, and also the difference between the two extremes of the period (in the right-hand column).

As we already noted, trade openness and exchange-rate appreciation contributed to the contraction in employment in the 1990s through their negative impact on the sectors producing tradeable goods. Thus, table 6

TABLE 6

Argentina: Full-time employment rate, by sectors of production

(As a percentage of the total population of GBA; selected half-year periods)

	1990:1	1992:2	1996:2	1998:1	2000:2	2001:1	2001:2	Difference 2001:2-2001:1	Difference 2001:2-1990:1
Manufacturing	8.54	8.76	6.33	6.69	5.55	5.20	4.66	–0.54	–3.88
Construction	1.91	2.30	1.81	2.17	1.89	1.60	1.22	–0.37	–0.69
Commerce	6.60	7.17	6.22	6.15	6.55	6.00	5.79	–0.20	–0.81
Transp. and comm.	2.75	2.43	2.93	3.00	3.05	3.01	2.72	–0.29	–0.03
Financial services	2.38	2.59	3.33	3.66	3.74	3.26	2.93	–0.33	0.55
Other services	7.95	7.70	6.56	7.62	7.49	7.32	6.94	–0.38	–1.01
Total	*30.13*	*30.95*	*27.18*	*29.29*	*28.27*	*26.38*	*24.27*	*–2.11*	*–5.86*

Source: Prepared by the authors on the basis of data from INDEC.

[16] The definition of full-time employment used in this section is more restrictive than that used earlier in this study, since it excludes the voluntary underemployed. On the other hand, it may be noted that the figures for Greater Buenos Aires are very close to the nationwide figures. Thus, for example, the variation in FTEMPL was –1.86 percentage points between the first half of 1990 and the second half of 2000 in the case of Greater Buenos Aires (as may be seen from the table) and –1.8 percentage points at the nationwide level.

confirms that the considerable decline in the full-time employment rate in manufacturing explains most of the aggregate behaviour. The other two sectors with a substantial share in the number of full-time jobs (commerce and other services) also show negative figures, but much smaller. More exactly, in the period up to the first half of 2001, the contraction of this class of employment in industrial activities accounted of itself for a reduction in the number of full-time jobs equivalent to the total contraction in full-time employment. The collapse in activity in the second half of 2001, however, caused a contraction which was more uniformly distributed among the various sectors, thus tending to reduce to some extent the share of manufacturing in the total contraction in employment between the beginning and end of the period.

Furthermore, if we examine the evolution of full-time employment by categories, we see that the job losses were particularly marked among male workers and heads of household, who traditionally predominate in the manufacturing sector.[17]

The decisive weight of manufactures in the evolution of FTEMPL warrants an examination of employment in this sector in greater detail, and this is done in the following section.

b) *Industrial sector employment*

The Survey of Industrial Establishments which is published monthly by INDEC provides additional information on manufacturing. It is of nationwide scope and covers some 1,300 firms with over ten workers.

Figure 7 shows the series for physical volume of production, hours worked, and number of persons employed throughout the 1990s, on the basis of that survey.

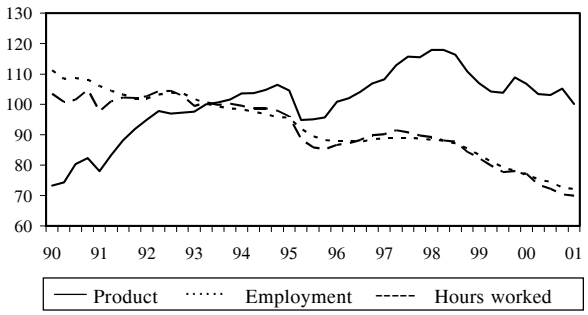
The evolution of industrial employment can be explained through a model similar to that describing the behaviour of total full-time employment which was given above.[18] In this case we specifically estimate the effect of the new conditions of openness and exchange-rate appreciation on employment in manufacturing, on the basis of an industrial employment demand function with the following form:

$$d \log Nind = \alpha\, d \log (GDP) + s$$

where *Nind* (employment in industry) is defined as the number of workers employed (*Npers*) or the total number of hours worked (*Nhours*); *GDP* represents the physical volume of production, while a is the employment-production elasticity and *s* represents the gradual adjustment of manufacturing employment to the conditions prevailing since the beginning of the 1990s.

FIGURE 7

Argentina: Manufacturing employment and product
(1993 = 100)



Source: INDEC.

The econometric estimates of equations with the above form, made with quarterly data for the period from 1990:0 to 2001:1, gave the results shown below.

First, the estimates of *s* were significant and were approximately –1% (quarterly), which implies an autonomous tendency to the contraction of industrial employment by rather more than 4% per year. This contractive tendency has a larger absolute value than that estimated for total full-time employment in the same period. This is in keeping with the hypothesis predicting a stronger contraction in the tradeable goods sector.

Second, unlike what was observed in the case of total full-time employment, the contractive tendency does not disappear in the second half of the 1990s, but persists up to the end of the period.

Third, the estimates for employment-production elasticity were significant and positive. As in the case of total full-time employment, manufacturing employment varies in the short term in line with the level of activity. With employment measured terms of the number of workers employed, the elasticity estimates are between 0.14 and 0.16. When measured in terms of the number of hours worked, the elasticities are between 0.55 and 0.59.

The considerable difference between the elasticities based on persons employed and those based on hours worked indicates that labour hoarding took place.

[17] See Damill, Frenkel and Maurizio (2002 and 2003).
[18] See Damill, Frenkel and Maurizio (2002 and 2003).

6. Evolution of average income in the 1990s

The rates of employment generation and unemployment, already analysed in this section III, are decisive variables for understanding the evolution of the incomes obtained by the population as a whole. In this sub-section we will deal initially with the evolution of the average income of the population in the 1990s and then go on to deal with the distribution of that income.[19]

Figure 8 shows the evolution of real average income per employed worker and per member of the active population from the first half of 1991 until October 2002. Both series follow pro-cyclical paths. In the period of expansion at the beginning of the decade, the average income of workers grew by 22% (reaching a peak in the first half of 1994), while that of the active population grew by 19%. From then on, both series showed downward trends, reaching local minimum levels in the second half of 1996. A second cycle then began, whose expansionary phase extended up to the second half of 1998, although neither of the series recovered their previous peak levels. Subsequently, the incomes of both workers and of the active population as a whole went down persistently until the end of the period shown by the figure.

In October 2001, before the end of convertibility, the income level of employed persons was 7% higher than at the beginning of the series, while in the case of the active population it was 6% lower, with both levels clearly below the peak registered in the first half of 1994. This shows that only at the beginning of the 1990s was there a substantial increase in real income, due basically to the price stability and economic growth registered in those years. Between the end points of the series, income went down by 30% in the case of employed persons and 38% in that of active persons as a whole.

The growing gap between the two series shown in figure 8 reflects the impact of the rise in the unemployment rate in Greater Buenos Aires from 1993 on, and especially from the second half of 1995 on. At that point, the average income of the active population suffered a sharp contraction. The reduction in unemployment between the end of 1996 and 1998 helped to reduce the gap somewhat, but this trend was

FIGURE 8

Argentina: Average real income of employed workers and active individuals, 1991-2002
(In constant May 1998 pesos)

Source: Prepared by the authors on the basis of data from INDEC.

reversed in the phase when there was a sustained increase in the unemployment indices. While at the beginning of the 1990s the average income of active persons was equivalent to 93% of that obtained by workers as whole, towards the end of the period studied that proportion had gone down to 82%.

These facts are extremely important when trying to explain the trend in household incomes. Figure 9 shows the dynamics of per capita family income.

Figure 9 shows phases of growth and decline similar to those referred to earlier. Per capita income grew by 23% up to the first half of 1994, but then fell sharply up to the first half of 1996. The subsequent partial recovery stopped in 1998. After that, following the tendency of labour income, the series went down sharply up to the end of the period. After the increase in the early years, by the end of the currency board regime average income had gone back to its initial level, and the resurgence in inflation early in 2002 caused a further loss of around 30% in average income.

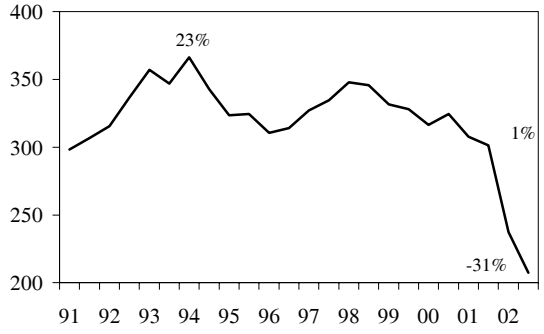
It may be concluded, then, that the unfavourable macroeconomic environment and the correlated sluggishness of the labour market –with low levels of demand for labour, predominance of precarious forms of employment and rising levels of unemployment– was reflected in a sharp drop in wages from 1994 on, later aggravated by the price rises which followed the abandonment of the system established in 1991.

Special mention should be made of the effect of the rising levels of unemployment on the generation of household income. The severe fall in the average income of the active population between the two end points of the period studied was due both to the behaviour of the wages of employed persons and the

[19] The income figures given in this sub-section, as well as the tables on its distribution given below in sub-section 7, correspond to data from the Permanent Household Survey for Greater Buenos Aires.

FIGURE 9

Argentina: Average real per capita family income
(In constant May 1998 pesos)



Source: Prepared by the authors on the basis of data from INDEC.

evolution of the unemployment level.[20] The latter factor has a direct impact on the generation of income from economic activities, since people who are unemployed probably do not have any income at all. The high levels of unemployment throughout the decade also had a substantial indirect negative effect on the wages of the employed population, as reflected in a high negative elasticity of remunerations to unemployment, as we shall see in the following sub-section.

7. Remunerations and unemployment

In this sub-section we will analyse the income of employed workers in the light of the evolution of unemployment. Unemployment has a direct and obvious impact on the average income of the active population, but it also affects the remunerations of employed persons. There are various theoretical schemes, such as the insider-outsider model for the determination of wages, the argument based on "efficiency wages" and the determination of wages through negotiation between trade unions and employers, which can explain the existence of a negative elasticity of real wages to unemployment. This relation can be termed the "wage curve", and we will estimate this relation for the Argentine labour market in the 1990s below.

a) *The wage curve in the 1990s*

We estimated wage equations using micro-data taken from the Permanent Household Survey (PHS) in the period from the first half of 1990 to the second half of 1998, on the basis of individual data for 11 urban centres studied by the PHS.

The estimated wage equation is as follows:

$$\ln w = \partial\,(x, U_r,\ r,\ s,\ \text{DUMINIC})$$

where w represents workers' wages in real terms and U_r stands for the unemployment rates in the different urban centres, in logarithms. The terms x, r and s correspond to control variables: x is a vector of workers' characteristics (sex, education, type of occupation and age, and age squared as proxies for the returns to experience), and r and s are vectors of dummy variables (regional and sectoral, respectively). The control group consists of full-time wage-earners in the manufacturing sector who are males, live in Greater Buenos Aires and have full primary education. Finally, DUMINIC is a dummy variable whose value is 1 between the first half of 1990 and the second half of 1993 and 0 thereafter. This variable captures the initial effect of the convertibility plan on the real income of workers.

Since unemployment rates varied from one region to another and over time, the coefficient estimated for that rate may be interpreted as the unemployment-elasticity of remunerations over time and by region.

Unemployment can affect total income in two ways. On the one hand, it reduces the number of hours worked, and on the other in can negatively affect hourly wages.

We thus estimated the unemployment-elasticity of the latter, and also of total income. In addition, we estimated an equation in which the hours worked (in logarithms) depend on the same explanatory variables, in order to distinguish the effect of the hourly wages (price effect) of the number of hours worked (quantity effect) on total income. We made separate estimates for full-time wage-earners and for all employed persons as a whole. We found that although the unemployment rate adversely affects hourly wages in all cases, it only affects the number of hours worked in the case of involuntarily underemployed workers. This effect was observed as from the first half of 1993.

Table 7 shows the estimates of the unemployment-elasticity of hourly wages. The estimates corresponding to hours worked and total income will be given further below, but only for the group of involuntary underemployed.[21]

[20] For an analysis of the way income distribution evolved from the beginning of the 1990s on, see Damill, Frenkel and Maurizio (2002 and 2003). See also Frenkel and González Rozada (2000b), Altimir and Beccaria (2000) and Beccaria and Maurizio (2001).

[21] The unemployment-elasticities of real wages obtained by us are very similar to those estimated for the United States, for example. For more details, see Blanchflower and Oswald (1996).

TABLE 7

Argentina: Unemployment-elasticity of real hourly wages

Variable	Hourly wages	
	Full-time All employed	wage-earners persons
Log(unemployment rate/100)	-0.095	-0.102
	(-17.74)	(-20.88)
DUMINIC*log(unemployment rate/100)	0.027	0.028
	(16.09)	(18.41)

Source: Prepared by the authors on the basis of data from the INDEC Permanent Household Survey.

TABLE 8

Argentina: Elasticity of real hourly wages to sum of unemployment and underemployment rates

Variable	Hourly wages	
	Full-time All employed	wage-earners persons
Log(unemployment + underemployment rate/100)	-0.133	-0.150
	(-20.86)	(-25.64)
DUMINIC*log(unemployment + underemployment rate/100)	0.039	0.043
	(17.86)	(21.17)

Source: Prepared by the authors on the basis of data from the INDEC Permanent Household Survey.

The explanatory variable in the wages equation was defined alternatively as the unemployment rate in the strict sense, or as the sum of this latter with the involuntary underemployment rate (table 8). In all the estimates, the ordinary least squares method was used. The coefficients estimated for the control variables were very significant in most cases and are very similar to those obtained for the statistical function of income estimated for the whole period. We left them out in the following tables.

In all the estimates the coefficients of the explanatory variables are very significant and have the expected sign (in the tables, the *t* statistics are shown in brackets under the estimator). These findings therefore do not reject the hypothesis of a negative unemployment-elasticity of income. At the same time, the coefficient of the DUMINIC variable is significant and positive, which indicates that the wage-unemployment elasticity was lower at the beginning of the period, when unemployment was not yet increasing.

The estimated elasticities are lower for full-time wage-earners than for the rest of the employed population: -0.095 for the former, as against –0.102 for employed workers as a whole.

This indicates that the group of non-wage-earners and involuntary underemployed displayed somewhat greater flexibility of their remuneration. Whereas an increase of 10% in the unemployment rate caused a fall of 0.95% in the hourly wages of full-time wage-earners, there was a fall of 1.02% in the case of the employed population as a whole.

It may be noted that the involuntary underemployment rate has a further negative effect on income. As may be seen from table 8, if this rate is added to unemployment, the estimated elasticities are –0.133 for full-time wage-earners and -0.150 for employed persons in general.

Let us now examine the estimated elasticities for the involuntary underemployed (table 9). The explanatory variables are the same, but the DUMINIC variable was suppressed because of the period considered in this case.

Table 9 shows that the increase in the unemployment rate adversely affects this group in two ways: through the reduction in hourly wages, on the one hand, and through a decline in the number of hours worked, on the other. An increase of 10% in the unemployment rate caused a contraction of 1.15% in hourly wages and a reduction of 1.35% in the number of hours worked. The total fall in income of the involuntary unemployed was therefore 2.5%.

Finally, we estimated the wage curve for full-time wage-earners separately for each of the urban centres in the sample, in order to determine whether the elasticities estimated primarily reflect the effect of variations in unemployment over time, or of variations between regions. The control variables used were the same and the coefficients estimated were significant in almost all cases. Table 10 shows the elasticities estimated for each urban centre.

It may be seen from table 10 that the unemployment-elasticities of real wages were negative and significant, except in Santa Cruz and Tucumán, which indicates that the coefficients estimated earlier basically reflect the effect of unemployment over time. The unemployment rates increased markedly during the 1990s in all the urban centres. When the equation is estimated for the whole sample, without including the dummy variables for each urban centre, the resulting elasticities are still significant, but less so than when the fixed effects are taken into consideration.

TABLE 9

Argentina: Unemployment-elasticity of real wages and of hours worked by underemployed persons

Variable	Hourly wages	Hours worked	Total remuneration
Log(unemployment rate/100)	-0.115	-0.135	-0.250
	(-6.58)	(-8.24)	(-13.65)

Source: Prepared by the authors on the basis of data from the INDEC Permanent Household Survey.

TABLE 10

Argentina: Estimates of elasticities, per region

Variable	Hourly wages	
	Log(unemployment rate/100)	DUMINIC*log (unemployment rate/100)
Whole sample	–0.073	0.026
	(–22.95)	(19.23)
Greater Buenos Aires	–0.120	0.036
	(–9.71)	(8.11)
Córdoba	–0.100	0.057
	(–7.75)	(11.65)
Jujuy	–0.092	0.021
	(–6.59)	(3.97)
La Pampa	–0.119	0.030
	(–10.64)	(7.71)
La Plata	–0.063	0.030
	(–3.81)	(5.53)
Mendoza	–0.301	0.046
	(–10.38)	(8.84)
Neuquén	–0.325	0.059
	(–5.86)	(4.76)
Rosario	–0.175	0.052
	(–5.34)	(7.09)
Salta	–0.169	0.016
	(–7.37)	(2.62)
Santa Cruz	0.017	0.016
	(0.85)	(4.81)
Tucumán	–0.034	0.035
	(–0.80)	(3.80)

Source: Prepared by the authors on the basis of data from the INDEC Permanent Household Survey.

b) *The wage curve in the recovery phase*

In the previous sub-section we analysed the relation between wages and the unemployment rate in the convertibility period. In this sub-section we will use a similar methodology to examine the recent recovery phase, on the basis of information from the Permanent Household Survey carried out in 2003 and the first half of 2004. As in the previous case, the estimates do not reject the association between variations in wages and unemployment. In this case, the increases in real wages are associated with the reduction in unemployment rates.

The relation between variations in wages and unemployment rates is analysed in both its temporal and geographical dimensions. The regional dispersion of wage increases and the concomitant differential evolution of unemployment rates in the period in question enhance the information available for testing the hypothesis.

The model estimated is similar to that of the previous sub-section. It assumes that workers' wages depend on individual characteristics (the region where they work, their level of education, the sector of activity in which they are employed, the size of their firm, their sex, and their age) and on the unemployment rate in the region to which they belonged at the time that the information was collected. The presence of regional dummy variables in the estimates takes account of the fixed effects of inter-regional differences in wage levels.

In addition to the estimates for the whole country, estimates were also made for each of the regions studied. In these estimates, the control variables are education, sector of activity, size of firm, sex and age.

We made separate estimates for officially registered and non-registered workers. We also made estimates for other categories of workers (such as own-account workers) in order to show that the evolution of their income was likewise associated with the indicators of changes in the labour market.

Table 11 shows the elasticities estimated for the nationwide level and for each of the regions studied, for the groups made up of registered and non-registered workers. The elasticities are significant at the 1% level, except where otherwise stated.

TABLE 11

Argentina: Unemployment-elasticities of registered and non-registered workers

Region	Elasticities (registered workers)	Elasticities (non-registered workers)
Greater Buenos Aires	–0.34	–0.46
Cuyo	–0.45	–0.49
North East Argentina	–0.48	–0.34
North West Argentina	–0.56	0.00[a]
Pampa	–0.40	0.00[a]
Patagonia	–0.29	–0.33
Total	*–0.34*	*–0.461*

Source: Prepared by the authors on the basis of data from the INDEC Permanent Household Survey.

[a] Not significant.

All the regional elasticities estimated are highly significant in the case of registered workers. For these workers as a whole, the elasticity estimated is –0.34, which is highly significant. This elasticity means that a fall of 10% in the unemployment rate (for example, a contraction of 1.5 percentage points of the active population, if the unemployment rate is 15%) represents an increase in wages of 3.4%.

In the case of non-registered workers, the elasticities are significant at the nationwide level and by regions, except in the North West Argentina and Pampa regions. This is in keeping with the fact that in these latter two regions the estimated variations in the wages of non-registered workers are very small.

(*Original: Spanish*)

Bibliography

Altimir, O. and L. Beccaria (2000): Distribución del ingreso en la Argentina, in D. Heymann and B. Kosacoff (eds.), *La Argentina de los noventa*, Buenos Aires, EUDEBA/ECLAC.

Beccaria, L. and R. Maurizio (2001): *Movilidad laboral e inestabilidad de ingresos en Argentina*, Buenos Aires, Universidad Nacional de General Sarmiento.

Blanchflower, D.G. and A.J. Oswald (1996): *The Wage Curve*, Cambridge, Massachusetts, The MIT Press.

Damill, M. and R. Frenkel (2003): *Las medidas recientes de política salarial y el contexto macroeconómico*, document prepared for ILO and the Ministry of Labour, Employment and Social Security, Buenos Aires, Centro de Estudios de Estado y Sociedad (CEDES), unpublished.

_____ (2005): Argentina: macroeconomic performance and crisis, in R. Ffrench-Davis, D. Nayyar and J.E. Stiglitz (eds.), *Stabilization Policies for Growth and Development*, New York, Initiative for Policy Dialogue/Macroeconomics Task Force, forthcoming.

Damill, M., R. Frenkel and L. Juvenal (2003): Las cuentas públicas y la crisis de la convertibilidad en Argentina, *Desarrollo económico*, vol. 43, No. 170, Buenos Aires, Institute of Economic and Social Development (ECLAC).

Damill, M., R. Frenkel and R. Maurizio (2002): *Argentina: A Decade of Currency Board. An Analysis of Growth, Employment and Income Distribution*, Employment Paper No. 2002/42, Geneva, International Labour Organisation.

_____ (2003): *Políticas macroeconómicas y vulnerabilidad social: la Argentina en los años noventa*, "Financiamiento del desarrollo" series, No. 135, LC/L.1929-P, Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC). United Nations publication, Sales No. S.03.II.G.84.

Damill, M., R. Frenkel and M. Rapetti (2005): La deuda argentina: historia, default y reestructuración, *Desarrollo económico*, vol. 45, No. 178, Buenos Aires, Institute of Economic and Social Development (IDES), July-September.

Frenkel, R. (2003a): Globalization and financial crises in Latin America, *CEPAL Review*, No. 80, LC/G.2204-P, Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC).

_____ (2003b): *From the Boom in Capital Inflows to Financial Traps*, Barcelona, Initiative for Policy Dialogue, Capital Market Liberalization Task Force, June.

_____ (2005): *Remuneraciones, mercado de trabajo y política salarial en la recuperación. Argentina 2003-2004*, document prepared for ILO and the Ministry of Labour, Employment and Social Security, Buenos Aires, Centro de Estudios de Estado y Sociedad (CEDES), unpublished.

Frenkel, R. and M. González Rozada (2000a): Argentina: balance of payments liberalization, effects on growth, employment and income, in L. Taylor (ed.), *External Liberalization, Economic Performance and Social Policy,* Oxford, Oxford University Press.

_____ (2000b): *Tendencias de la distribución de ingresos en los años noventa*, Buenos Aires, Universidad de Palermo/ Centro de Estudios de Estado y Sociedad (CEDES).

Taylor, L. (1998): Lax public sector, destabilizing private sector: origins of capital market crises, *International Monetary and Financial Issues for 1990s*, vol. 10, New York, United Nations Conference on Trade and Development (UNCTAD).

Tokman, V. and D. Martínez (eds.) (1999): *Productividad y empleo en la apertura económica*, Lima, International Labour Organisation (ILO).