

## **Argentina's Miracle? From Hyperinflation to Sustained Growth**

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The East Asian miracle is usually identified with high rates of output growth. In some cases this growth was accompanied by rapid and sustained growth in productivity. According to a recent World Bank (1993) study, total factor productivity growth in the most successful East Asian economies ranged from 1.0 percent to 2.4 percent a year over a thirty-year period. In this context Argentina's average total factor productivity growth of 6.5 percent a year during 1990-94 is a remarkable feat. While the jury is still out on whether this rate of growth can be sustained over a much longer period, the growth in productivity is so remarkable that it deserves closer examination. This seemingly miraculous productivity growth inspired the title of this address.

In April 1991 Argentina embarked on a far-reaching program of economic reforms designed to bring inflation down to acceptable levels and to restore growth on a sustainable basis. The program rested on four pillars: opening of the economy, deregulation and reform of the tax code, privatization and elimination of other forms of government interference in resource allocation, and stabilization of inflation and the crucial relative prices. The program is popularly known as "the convertibility plan" thanks to its most notorious and innovative feature: the introduction of a bimonetary currency board.

Notwithstanding its remarkable success in reducing inflation, the program was conceived mainly as a tool to overcome decades of economic stagnation and to regain sustained growth. It is on these grounds that we assess (in preliminary fashion) the accomplishments of the reforms. From the historical and cross-country evidence on productivity growth, we argue that something fundamental has changed in Argentina and that macroeconomic stabilization is a key component of that change. We also consider some other issues—typically overlooked—that are associated with economic reform (such as income distribution and unemployment) and that are important for their impact on social welfare and the development of the coalitions needed to support stabilization.

### **Productivity Growth and Economic Reform**

An economy grows because it accumulates factors of production, like physical and human capital, because its labor effort grows, or because it improves the efficiency with which it uses the factors of production. Increases in productivity can result for a number of

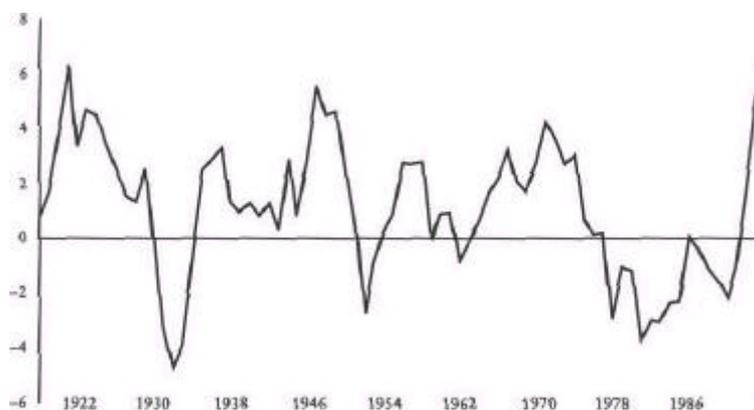
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reasons: a push or shift of the technological frontier, a gradual movement toward the frontier (international best practice), or a reallocation of resources to more efficient uses. In a developing nation any reform that affects the use of factors of production is also likely to alter productivity. For instance, when governments meddle in the allocation of resources through commercial or industrial policies, through changes in incentives (affecting relative prices) to certain types of capital accumulation, or through unstable macroeconomic policies, the rate at which factors are accumulated and the incentives to introduce technological innovations are bound to be affected.

For nearly six decades the Argentine economy experienced continuous deleterious government intervention. Early in the century Argentina's economy had been well integrated with international goods and asset markets, its relative prices reflecting international scarcities. Per capita income was high, economic growth was strong, and productivity growth was remarkable (figure 1). Then, from the 1930s to the early 1950s Argentina's global integration was severely set back by the Great Depression and World War II. As an adjustment mechanism, Argentina partially closed the economy, initiated some industrial policies, and began to reorganize its labor market. But once the external factors that had prompted these policies disappeared. Argentina never returned to openness, low levels of government intervention, and flexible markets. Instead, Argentina experienced a profound move toward import substitution, sectorally biased policies, interventions to affect other relative prices, and overall macroeconomic instability. The interventions and instability had a devastating effect on the efficiency of resource allocation.

Figure 1. Total Factor Productivity in Argentina, 1918-94  
Four-year moving average (percentage change)



Source: Institute for Economic Research on Argentina and Latin América (IEERAL) data.

Consider the rates of total factor productivity growth for selected periods (table I).<sup>2</sup> Productivity increased at an average annual rate of 2.3 percent for 1915-30, 1.7 percent for

<sup>2</sup> Note: Our estimates of total factor productivity are calculated using Argentine capital, labor, and human capital elasticities. The parameter estimates are remarkably close to the estimates for industrial countries reported in World Bank (1993).

1930-50, and 2.8 percent for 1960-74. The period from 1975 to 1990 is astonishing, however. Productivity growth plunged by a cumulative 34.3 percent—a loss in efficiency of 2.8 percent a year! This was a remarkable—and remarkably long-lasting—collapse in productivity. Capital accumulation grew by 168 percent between 1960 and 1990, yet output increased only 85 percent, indicating a very low marginal product of capital. Labor productivity, however, as measured by the ratio of GDP to employment, grew by 25 percent during that period. The difference in performance is clearly explained by the artificially low return on capital. It is difficult to imagine that any firm facing world market conditions would undertake a productive investment under those circumstances. Indeed, a large share of aggregate capital accumulation during the period was the product of government fixed capital formation.

### Macroeconomic Stability and Growth

Previous research has explained that the very low rate of return on Argentine capital, here identified by the large drop in productivity, was the result of increasing macroeconomic instability, the dramatic detachment from world market conditions, and the substantial drop in the (already low) efficiency of public sector operations. But what explains the recovery of productivity in the 1990s? Recent research shows that productivity growth (both total factor and labor productivity) is closely associated with the macroeconomic environment. For instance, Stanley Fischer (1993) finds that a stable macroeconomic environment is conducive to sustained growth. In particular, the evidence amassed in his and other papers shows that high inflation, large budget deficits, and exchange rate mismanagement all impede growth.

Table 1. Total factor Productivity, 1915-94

Period	Cumulative rate	Average annual rate
1915-30	40.0	2.3
1930-50	40.6	1.7
1960-74	46.4	2.8
1975-90	-34.3	-2.8
1990-94	28.9	6.5

**Source:** Institute for Economic Research on Argentina and Latin América (IERAL) data.

To check how important the removal of these impediments is in explaining Argentina's growth performance in the 1990s, we simulated the regressions reported in Fischer's study, using the average inflation rate, the budget deficit (in fact a surplus), the foreign exchange black market premium (none), and the variability of inflation for 1991-94. The regression predicted total factor productivity growth of 2.1 percent a year, well below the observed rates. One reason for the discrepancy is that Fischer's estimates are for a country closer to steady state rather than one in the process of reform. Yet the results suggest that something beyond his measure of macroeconomic stability was operational.

Perhaps Fischer's results do not fully capture the impact of macroeconomic volatility on growth. For instance, one of the most damaging effects of inflation in Argentina was its variability, often associated with repeated government efforts to stabilize the economy using a variety of mechanisms. This series of stabilization attempts, each followed by policy collapse, has had deleterious effects on the level and efficiency of investment and the allocation of resources.

The same argument could be made about the effects of volatility in output and demand (particularly for a relatively closed economy). Ramey and Ramey (1994) present empirical evidence supporting the view that volatility of output is detrimental to growth. Theoretically, there are several mechanisms through which volatility in relative prices (both atemporal and intertemporal) and output could hinder growth. One mechanism is of particular interest for Argentina. When a country precommits to a choice of technology, an increase in volatility leads to lower average output and, through any of the typical endogenous growth mechanisms, the rate of output growth (Ramey and Ramey 1991). The example of technology precommitment we have in mind in Argentina is the inflexibility of labor markets. When it is very costly to hire and fire workers, adjusting the level of production can also be very costly. An economy with a sclerotic labor market is bound to have high average costs of production or low average GNP. There are other arguments that emphasize the increased chance of survival of inefficient firms when uncertainty about relative prices increases. In search-intensive markets with inflation, volatility may increase the market power of firms, allowing those with relatively high costs of production to survive at the expense of the relatively efficient ones. Once again, the link between low productivity and relative price variability and inflation would be established (Tommasi 1994; De Gregorio and Sturzenegger 1994).

To evaluate the importance of this variability (and therefore unpredictability) in relative prices, inflation, and output, we performed a simple exercise. We ran cross country growth regressions to explain the rate of growth of labor productivity for fifty industrial and developing countries over the period 1960-87. The regressors were level of output per worker in 1960, investment-output ratio, high school enrollment, population growth, and the volatility of the unforecastable component of changes in output growth, real exchange rates, inflation, and the relative price of investment and consumption goods (the data are from Summers and Heston 1991, the IMF, and the World Bank). The unforecastable components were calculated after regressing each variable on itself and on the other three variables lagged one period. We decomposed the period (before and after 1973) to allow for the general change in exchange rate regimes that took place in 1973. While we held all the parameters to be the same across periods, we allowed the means and variances of variables to change from one period to the next. This technique allowed us to identify much more precisely the effects of volatility on growth.

Beyond the typical results for the importance of investment in physical and human capital, the results show that it is mainly the variability of real exchange rates and inflation that matters (table 2). We found the surprising result that while variability in the real exchange rate does substantial damage to productivity growth, unforecastable inflation is positively related to growth (though the level of inflation is very detrimental to growth).

Next, we simulated the effect of macroeconomic stabilization by plugging in the realized values of the variables for Argentina in 1991-94. The results, again, fall short of the observed growth in labor productivity. Taking into account the dramatic drop in the volatility of the exchange rate and inflation helps increase predicted labor productivity growth to an average 4.2 percent. Actual labor productivity growth was 6.3 percent (using Argentine national accounts data, not that of Summers and Heston).

Table 2. Cross-Country Growth Effects of Volatility for Fifty Countries, 1960-87

<i>Independent variable</i>	<i>Regression 1</i>	<i>Regression 2</i>	<i>Regression 3</i>
Y base <sup>a</sup>	-0.298 (-3.98)	-0.284 (-3.77)	-0.282 (-3.45)
High school enrollment* <sup>1</sup>	0.156 (1.72)	0.124 (1.40)	0.156 (1.82)
Population growth	-0.316 (-1.27)	-0.122 (-0.45)	-0.244 (-0.76)
Investment <sup>b</sup>	0.65 (5.68)	0.611 (5.64)	0.577 (4.66)
Output volatility <sup>c</sup>		-1.217 (-0.72)	-1.511 (-0.88)
Realexchange rate volatility <sup>d</sup>		-1.939 (-3.33)	-2.013 (-2.31)
Investment-consumption price volatility			0.003 (-0.72)
Inflation			-0.2 (-1.77)
Inflation volatility			0.159 (1.65)
<b>R<sup>2</sup></b>	<b>0,42</b>	<b>0,5</b>	<b>0,48</b>
<b>SSR</b>	<b>5,98</b>	<b>5,05</b>	<b>4,85</b>

Note: Numbers in parentheses are t-statistics; they are heteroscedasticity consistent through a White correction.

a. Level of output per worker in 1960 and 1973.

b. Average for 1960-73 and 1973-87.

c. The unforecastable component of output growth.

d. Changes in real exchange rates.

Source: Authors' calculations based on data from Summers and Heston 1991; IMF; and World Bank.

## Alignment of Relative Prices

These exercises illustrate that although macroeconomic stabilization was an important determinant of growth, other factors must have been operating to produce the healthy recent growth rate in total factor productivity. These factors probably include privatization, deregulation, the opening of the economy, and the substantial drop in the relative price of capital goods.

The literature on economic development has always emphasized the importance of having relative prices aligned with those of the rest of the world. The argument was typically used

to point out that substantial static efficiency gains could be achieved through this mechanism. Recently, however, some researchers have gone further to argue that investments in machinery have large growth externalities and should be encouraged (DeLong and Summers 1990; Lee 1994). Since machinery investments in developing countries typically have large imported components, this argument calls for more favorable tariff treatment of capital goods than consumption goods.

There have been large swings in the prices of machinery and other capital goods in Argentina. The relative price of capital goods was very low before the 1930s and then started to rise during the Great Depression (figure 2). Indeed, Diaz Alejandro (1975) and Cavallo and Mundlak (1989) point out that the high price of capital goods helped explain the poor growth performance for the postwar period. The relative price of capital goods remained high until 1985, when a downward trend began. Since 1991 a concerted effort has been made to bring capital goods in line with world prices. The administration has gone a step further and introduced tax incentives to encourage the accumulation of the machinery and equipment shown by international evidence to have large growth externalities. This treatment of capital goods applies across the board, to avoid favoring certain sectors (though the policy is not entirely neutral since it favors capital-intensive industries).

### **Trade Reform, Privatization, and Deregulation**

Argentina drastically reduced trade barriers, eliminating all quotas, taxes, and non-tariff barriers and reducing tariffs and the spreads between them. Argentina's structure of protection now consists of three levels of tariffs, except in a few targeted sectors like the automobile industry textiles, and paper.

On the export side Argentina eliminated all export taxes and most regulatory institutions. It perfected a mechanism (consistent with the rules of the General Agreement on Tariffs and Trade) to reimburse firms for all indirect taxes incurred in production. To equilibrate the incentives of firms in tradable sectors, exports are subsidized at rates similar to the rate of taxes levied on imports in the sector. Since some protection was viewed as unavoidable during the transition, relative prices between domestic and foreign markets were equalized, so that firms would have the proper incentives to export. Research suggests that exports produce positive growth externalities, and therefore this policy was considered an important building block of the program. The reforms liberalizing trade have operated effectively. Exports grew by 20 percent in 1994 and by nearly 45 percent in the first quarter of 1995, following on three years of relative stagnation (a cumulative growth rate of 6.2 percent from 1991 to 1993).

Perhaps the most dramatic trade reform, however, involves the Mercosur agreement for the creation of a customs union with Brazil, Paraguay, and Uruguay. There are several reasons why Mercosur was actively pursued. First, it expanded the market for Argentine exports. Second, it introduced an important dose of commitment to liberal trade, since any change in tariffs now requires the approval of the other three parties. Third, it created a mechanism for disciplining the countries on their macroeconomic policies, since instability would be severely punished by neighboring countries and capital relocation. There are, however,

several problems with the agreement that must be worked out over the next few years, concerning rules of origin, dispute settlement mechanisms, tax subsidies and other fiscal asymmetries, and the common external tariff.

Privatizations have given productivity growth a large boost as well. After decades of inefficient investment, deteriorating service provision, and rampant corruption, government-owned corporations were a major stumbling block for the private sector. Privatization was not only fiscally beneficial, since it allowed the government to settle several debts that were fast accumulating, but also productivity enhancing. Investment by privatized firms is very high, accounting for about half of total investment according to some private estimates. Argentina has privatized firms and activities in all areas, from telecommunications and airlines to oil and petrochemicals, water, and sewers. Government business activity has been severely curtailed and will probably be completely eliminated by the end of 1995.

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Figure 2. Relative Prices of Capital Goods in Argentina, 1918-94  
Four-year moving average (ratio to GDP)



Source: Institute for Economic Research on Argentina and Latin America (IEERAL) data.

It is this combination of trade reform, privatization and deregulation, and macroeconomic stabilization that lies behind the historically and internationally high rate of productivity growth in Argentina.

### **The Inflation Stabilization Program**

Inflation stabilization programs are typically either money- or exchange rate-based programs. Argentina opted for what is an uncommon combination of the two. The program is not a standard, 100 percent reserves currency board. The convertibility reform introduced a currency that must compete in the market against other currencies.

The idea behind convertibility is theoretically simple and draws on Milton Friedman's concept of the optimal quantity of money. Friedman understood that a monopolist would never set price to equal marginal cost. Rather, with complete disregard for consumer surplus, the monopolist would extract the maximum potential rent. Since money has (basically) zero marginal cost of production, the money monopolist would drive the price to the point where marginal revenue is zero, or the point of maximum seigniorage collection along the Laffer curve. If it were possible to implement a competitive mechanism for issuing money, the price would quickly be forced down to equal marginal cost. Since the price of holding money is the forgone nominal interest earnings, the optimal quantity of money would be reached at the point where inflation was equal to minus the real rate of interest.

The convertibility program had exactly that feature in mind. It allowed for two (or more) currencies to compete against each other in the domestic market. When the program was introduced, many transactions were being carried out in dollars. Rather than forbid their use (doing so had proved futile in the past), the program made all contracts legal and fully enforceable in Argentina, whatever currency they were written in. This freedom to choose the currency to be used in any transaction has dramatic implications. In effect, the government has relinquished its monopoly power over money. Convertibility forces the peso, if it is to be used and held at all, to be price competitive with other currencies of reference. In particular, since the U.S. dollar was in widespread use, it forced the peso to compete against the dollar. In practice, people can purchase anything, anywhere, and at any time in dollars (supermarket purchases, restaurant meals, shoe shines, taxi rides). The market has also chosen to denominate most long-term contracts (particularly loans and rents) in dollars to eliminate any remaining uncertainty.

The second important feature of convertibility, and perhaps the most widely understood, is that the central bank is required by law to hold enough foreign currency or marketable (and liquid) assets denominated in dollars to fully back its monetary liabilities. In other words, every peso that makes up the monetary base has a counterpart dollar resting in the vaults of the central bank. In order to print pesos, the central bank must buy an equal amount of dollars. It is impossible to debase the currency. If the domestic financial market required more liquidity, it would have to provide the central bank with dollars. The only scope left for a marginally independent monetary policy is to conduct open market operations in dollar-denominated securities. Even these are restricted by law to no more than 20 percent of the base; in fact, they represent a smaller proportion of the base. Monetary policy is, then, for any meaningful economic time span, completely subordinated to U.S. monetary policy.

Finally, and perhaps trivially, the rate at which the peso exchanges freely against the dollar has been set at one to one. While this property is inconsequential from an economic perspective, it simplifies calculations, has restored credibility, and provides a clear yardstick for price setting. Argentina does not really have an exchange rate. It has only an accounting rate that allows easy conversion between pesos and dollars. This accounting rate has been set by law, and the government is forced to abide by it.

What most clearly sets the convertibility program apart from other fixed exchange rate stabilization programs is the management of international reserves. In a fixed-rate regime the amount of foreign currency reserves at the central bank indicates the potential sustainability of the plan. The smaller the amount, the more difficult it becomes for the central bank to sustain a fixed parity. But this is not true of the convertibility program. Because for every peso that circulates there must be a dollar waiting at the central bank, the foreign currencies at the central bank are not "reserves" in that they cannot be freely used by the bank. For instance, they cannot be used to cancel foreign debt. The truth is that the reserves are the property of the peso holders. Therefore, when central bank statistics show that reserves are decreasing, they are only showing that people prefer currencies other than the peso for their transactions. In an extreme scenario, economic agents could completely substitute away from pesos and carry out all their transactions in dollars. In this sense, the movements of international reserves or the change in the composition of deposits (according to the currency of denomination) are only the reflection of a continuous currency reform engineered by the private sector. Whether the economy becomes dollarized or not is the choice of private citizens.

Convertibility was remarkably successful in bringing down inflation. Inflation dropped from 30 percent a month in March 1991 to an average of 0.4 percent a month during 1994. This success, plus the elimination of spurious variability in relative prices and, lately, the weathering of the "Tequila" storm, makes it attractive as a potential new variant for the well-developed toolbox of stabilizers. Yet two aspects must be borne in mind when such a program is considered. First and foremost, fiscal discipline is the backbone. Inflation stabilization is impossible without it. Second, the bimonetarism of the economy is important, since that is the strongest disciplinary check on the government. Any attempt to break convertibility would be punished with the sudden elimination of domestic currency demand.

### **The Social Costs of Reforms**

Argentina is one of the few countries that attempted drastic reform under a fully functioning democracy. That adds a new dimension to the social costs since political support for the program must be preserved. The convertibility program was not a costless reform. The costs must be clearly analyzed to avoid drawing the wrong policy conclusions.

### **Employment and Labor Markets**

The first element that stabilizers worry about when considering the costs of their policies is employment loss. Argentina's unemployment rate rose substantially under the stabilization program, from 6.3 percent in 1990 to 12.2 percent in 1994. But the unemployment rate does not reflect a drop in total employment. Rather, it mirrors the large increase in the labor force participation rate. In fact, total urban employment grew by about 515,000 new workers between 1990 and 1994 while the total urban labor supply increased by 1,290,000 people. Whether the increase is due to a reversal of the "discouraged worker" effect or the response to higher potential earnings is still an open issue. Some estimates put the real

wage increase (in levels) at close to 30 percent, while others show almost no change. Any tests based on these statistics are bound to be tremendously data dependent. Not only has the rate of unemployment increased substantially in the last few years, but the average duration of a spell of unemployment has gone up as well (approximated by the ratio of the stock of the unemployed to the inflow of unemployed, which encompasses those who claim to have been searching for work for less than a week). The average duration of unemployment for an unemployed worker in Buenos Aires is now 32.2 weeks, up from 21.7 weeks in October 1989 and 12.9 weeks in 1991. This increase in duration, together with the increase in labor supply (and they are not independent), generates a problem that a reformist government must address. The rapid growth in output and the high levels of capacity utilization are, however, clear indications that pumping up aggregate demand is not the solution.

A better diagnosis of the trends in the labor market is possible after considering the breakdown of unemployment and its duration. The unemployment rate is heavily concentrated among the young (males), the older worker (over 50), and the unskilled (the fraction of the unemployed who have not finished high school is 34 percent higher than that of the labor force as a whole). The largest increases in the duration of unemployment have been among the unskilled (83.9 percent). Increases in duration have also been greater for women (240 percent) than for men (100 percent), and for workers with previous experience (177 percent increase) than for inexperienced workers (4 percent increase, though the duration of unemployment is still longer than for experienced workers). The trends in the labor market are indicative of a workforce that has difficulty reallocating itself between sectors and jobs, because of a mismatch between old skills and new requirements. These trends also suggest a heavily regulated labor market that works against price flexibility and rapid job creation and worker reallocation.

Simultaneously with these trends in employment, the labor market shows a narrowing of the differential in income between skilled and unskilled workers. In October 1989 the hourly compensation for skilled workers was 2.3 times that of unskilled workers. By 1994 the ratio had fallen to 1.76. While the data show a substantial increase in hourly incomes for both groups between 1989 and 1991, the earnings of skilled workers have dropped in absolute values since then, while those of the unskilled have remained flat. As with unemployment and its duration, the market once again seems to be reflecting greater flexibility for those with education than for those without it. To ease the pain of transition, labor markets need to be deregulated to allow for greater mobility among workers.

### **Income Distribution and Poverty**

A related aspect, though typically addressed in a different setting, is the behavior of income distribution. In Argentina income distribution has improved since the beginning of economic reforms and stabilization. The Gini coefficient for the distribution of income in Buenos Aires (close to the country average) has shown a steady decline since 1989, with a 10.7 percent drop in the first two years and a 2.8 percent fall in the next two. Not only did Gini coefficients improve. The share of the population below the poverty line went from an alarming 47.4 percent in October 1989 to a still worrisome but much improved 19 percent.

And, finally, not only are fewer households below the poverty line. Those that are poor are also improved their standing. The share of the population at every level of income below the poverty line is smaller today than it was in 1989. For instance, about 5.5 percent of the population earns half the poverty-line income (\$82 or less a month); in 1989 the share was 7.0 percent. The moderate increase in real wages for unskilled labor and the disappearance of the regressive inflation tax are responsible for at least some of these improvements in income distribution.

## **Conclusion**

Unemployment and poverty are two issues to which development economists must give top priority. Yet it is not through paternalism, redistribution policies, and macroeconomic expansionism that we will solve those problems. The only way to lift the curse of underdevelopment is by creating the conditions for rapid productivity growth and by letting the benefits spill over to all of society. Argentina's experience with reform, successful stabilization, and rapid productivity growth within a democratic society should be a case study for reformist governments. Argentina has not yet graduated to the status of miracle economy. But can we afford to wait thirty years to evaluate the lessons and correct the mistakes? The poor and unemployed surely do not think so.

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