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Development Cycles, Political Regimes and International Migration

Argentina in the Twentieth Century

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Abstract

At the turn of the twentieth century, a large number of Europeans, mostly from Italy and Spain, left their homelands and headed to the distant shores of Argentina in response to the good economic opportunities, fertile land and hopes for a better future that were to be found there. At the time, Argentina was one of the most vibrant world economies. Between 1870 and 1930, around seven million people migrated from Europe to Argentina, although nearly three million returned at some different point during those years. Also foreign capital responded to the opportunities offered by Argentina, and British financial institutions funded an important part of the construction of national infrastructure needed to support growth. In contrast, European migration to Argentina virtually stopped in the 1950s, and in the next 30 years or so the country become a net exporter of professionals who were fleeing economic decline, poor opportunities and authoritarian regimes. Moreover, during this period, financial capital steadily left Argentina looking for safer places. Nowadays, and in contrary to the flow of people a

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century ago, Argentineans are leaving in large numbers to Spain, Italy and other destinations. Emigration this time is associated with the collapse of the country's currency experiment of the 1990s which left a legacy of massive output decline, high unemployment, financial crisis and lost hopes.

This paper investigates the main patterns of international migration to and from Argentina in the twentieth century by examining the effects of relative income differentials, persistence effects, economic cycles and political regimes.

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Tables and figures appear at the end of this paper.

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1 Introduction

International migration is like a barometer of the economic and societal conditions in home countries with respect to the rest of the world. Poor economic performance, lack of employment and of wealth-creation opportunities, weak respect for civil and economic rights prompt the emigration of nationals. Conversely, good economic opportunities, jobs and open policies to migrants act as a magnet for immigration from abroad.

The case of Argentina is a very interesting, albeit dramatic, story of a country that switched from being the net importer of people and capital in the first few decades of the twentieth century to the net exporter of workers, professionals and financial capital to the rest of the world in the latter part of the century. Immigration and emigration patterns (particularly immigration flows from Europe) followed the long-run development cycle of growth and prosperity early in the century, followed by lagging growth performance and the recurrent crises that have characterized the Argentinean economy (with exceptions) since at least the 1930s. Argentina has also lived through a pattern of volatile politics, with democracy and authoritarian regimes alternating during the period from the 1930s to the 1980s. The last phase of these political cycles is democracy which has prevailed since 1983. Diminished economic prospects in conjunction with volatile politics have turned Argentina into a net emigration country in recent years.

This was in contrast with the last decades of the nineteenth and the early twentieth century when Argentina received mass migration from Europe, chiefly from Italy and Spain, induced by the prospects offered by a country with vast unexploited land and ample opportunities for exporting grain, meat and other staples, coupled with liberal policy toward international migration. Immigration slowed down in the early inter-war period, resumed again in the mid-1940s until the early to mid-1950s when, given the recovery of Europe and the looming economic decline of Argentina, it virtually stopped.

Since the 1950s immigration from Europe has been replaced by an influx from neighbouring countries. Thereafter, due to declining economic performance and unstable and often non-democratic politics, there has been a steady process of emigration of Argentinean professionals, scientists and intellectuals.

Market-oriented reforms have been attempted since the mid-1970s with more intense efforts in the 1990s. In spite hopes that these policies would recreate the prosperity that Argentina once enjoyed, efforts were often tampered by frequent macroeconomic and debt crises, as exemplified by the collapse of the currency board experiment in 2001-02. It left a legacy of output collapse, high unemployment and a severe financial crisis. These developments have prompted a new wave of emigration from Argentina to Spain, Italy and other countries, in reverse direction of the immigration flows from Europe until the 1950s.

The purpose of this paper is to look at the main economic and political determinants of migration flows to and from Argentina in the twentieth century. The paper is organized in four sections in addition this introduction. Section 2 provides the main stylized facts of migration patterns, development cycles and political regimes in Argentina during the twentieth century from an international perspective; section 3 looks at the main conceptual issues regarding the economic and political determinants of international

migration relevant to this study. Section 4 presents the empirical analysis based on econometric estimates of net immigration equations for Argentina based on time series for various periods of the century. Section 5 concludes.

2 International migration to and from Argentina in the last century

The last 130 years or so of economic and political history in Argentina are a fascinating period for studying issues of international migration. The period of 1870-1914 has been labelled by economic historians as Argentina's *belle époque* (see Diaz Alejandro 1970; Bunge and Garcia Mata 1931; Cortes-Conde 1979; Taylor 1994a). This was a period of rapid economic growth, large inflows of foreign capital and massive immigration from Europe. Emigrants came mainly from Italy and Spain, accounting for nearly 80 per cent of total migration to Argentina (see Bunge and Garcia Mata 1931). Massive international migration in that period reflects the diminishing economic opportunities in Spain, Italy and other European economies. Argentina, in contrast, had abundant land, scarcity of labour as well as of entrepreneurship (to a extent), and a dynamic export industry of grain and meat, oriented mainly to the British market.

In addition to inflows of people, the country received significant flows of foreign capital, mainly from England through bonds that helped to finance the domestic infrastructure in the second half of the nineteenth century until 1914. Foreign capital provided the resources to build and upgrade railroads, ports and roads. Foreign immigration, in turn, provided the labour and entrepreneurial capacity for seizing these opportunities. During 1870-1914, the Argentine economy managed to grow at a rate of 5.9 per cent per year, one of the highest in the world economy at that time. The level of income per capita of Argentina was 33-38 per cent per cent *higher* than that in Spain and Italy (see Table 1). However, this advantage became eroded as Spain (in the 1970s) and Italy (in the 1960s) caught-up and surpassed Argentina's living standards. Consequently, Argentina's economy declined, and during 1975-2000 its GDP per capita was on average 72 per cent of the level in Spain and 55 per cent of the level in Italy.

In the period 1870-1914 annual net immigration to Argentina averaged nearly 57,000 people per year and the rate of net migration per 1,000 people was nearly 15 per cent (see Table 1). Interestingly, annual net migration in the period 1900-14 went up sharply to 103,000 per year from around 34,000 in 1870-1900.

Net immigration fell sharply in the early inter-war years (1914-29) to around 40,000 per annum (nearly half of the number in the period 1900-14). The early inter-war years were highly disruptive for the world economy and Argentina was not immune. World War I interrupted the process of global integration that had developed in the first wave of globalization. In addition, world capital markets collapsed with the war and reconstruction was a slow, erratic process. Argentina's access to external financing was restricted by the disarray in world capital markets.[1]

1 See Della Paolera and Taylor (1997); Della Paolera (1994) and Taylor (1995).

The 1930s were bad years for the Argentine economy: GDP growth declined to 1.5 per cent per annum.[2] Similarly to other Latin American economies, Argentina adopted an inward-looking development strategy in the early 1930s, raising tariffs on imports of intermediate and capital goods,[3] and restricting the allocation of foreign exchange to government-mandated priority goods. Argentina's economic decline also sharply reduced net European immigration flows to 22,000 per year between 1930-40, only to resume again from the mid-1940s to the mid-1950s (see Solberg 1978) after which they virtually stopped. The human and economic devastation of World War II compelled Europeans to leave their homes, and Argentina was a natural destination because of previous ties and knowledge of the country gained during the earlier waves of migration. However, as mentioned before, the rapid economic recovery in Europe in the late 1940s and 1950s along with Argentina's lagging economic performance during the same period steadily reduced immigration incentive, as income per capita gaps between Argentina and European countries were closing (see Figures 1-6).

Immigration from Europe virtually stopped in the late 1950s (see Table 6). But coinciding with this decline, there has been an increase in migration (mainly of rural workers and unskilled urban labour) from neighbouring countries such as Paraguay, Bolivia and Chile (see Tables 6 and 7). Paraguayans and Bolivians generally settled in the northern regions, while Chileans immigrants often went to work in the southern farms and oil fields of the Patagonia. Since the 1930s, there has also been major internal migration within Argentina from rural areas to cities that was associated with import-substitution industrialization, the growth of government and increasing urbanization. Thus, immigrants from neighbouring countries performed the jobs in rural areas, as rural Argentinean workers had moved to the cities. Another important trend of the 1950s, 1960s and 1970s was the emigration of Argentineans, particularly, professionals, high skilled people, scientists and intellectuals.[4] An important reason for this emigration of the country's professionals—in addition to the economic decline—lies in the policies of both the Peron administration that excluded non-peronist intellectuals and professionals, and the open hostility of the military regimes against dissents in the universities. This situation reached a dramatic point in 1967 under General Juan Carlos Onganía, when 1,305 faculty members from the University of Buenos Aires alone were expelled by government intervention (Lattes *et al.* 1986). Furthermore, in addition to the direct expulsion of university professors, 'brain drain' followed, as intellectuals started to leave because of the risk of being fired (or eventually imprisoned). Moreover, the military regime initiated large budget cuts that retarded the country's development in research, teaching and culture.[5] Following an interlude of democratic governments in the early 1970s (see Table 3 for the succession of governments), the political situation worsened again after the 1976 coup, when the military again led a massive deportation

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2 See Della Paolera and Taylor (1997) and Diaz-Alejandro (1970) for analyses of the impact of the 1930s on Argentina and its domestic policy response: See also Di Tella and Zymelman (1973).

3 Diaz-Alejandro (1970) and Taylor (1994b) have shown that the import substitution policies adopted in the 1930s in Argentina contributed significantly to increasing the relative price of capital goods at home, thereby discouraging capital formation and growth.

4 See Lattes *et al.* (1986). See Table 5 for statistics of emigration of Argentineans to the US in the period 1950-70.

5 The case of Cesar Milstein is telling. This outstanding Argentinean scientist emigrated from Argentina, went to work at the University of Cambridge, and after a few years, received the Nobel Prize.

of scientists, professionals and students as part of its overall repressive strategy to abate potential opposition to the military regimes of Argentina.[6]

In the last quarter of the twentieth century, Argentina became a country of *net emigration* to the rest of the world. Macroeconomic instability (higher inflation), slow and unstable growth in the 1960s, 1970s and 1980s (partially reversed in the first half of the 1990s) clearly changed the earlier economic motives for immigration. In addition, the country's political history of populist-nationalist regimes and repressive military regimes (particularly in the late 1950s) with unstable and fragile democracy also conspired against sustained immigration from Europe.[7] Authoritarian regimes[8] compelled the best qualified and, hence, more mobile Argentineans to emigrate in significant numbers in the second half of the twentieth century (see Table 5)

2.1 Argentina's experience with foreign migration in international perspective

Argentina's *belle époque* and mass immigration coincided with a period of free trade, free capital mobility and ample international mobility of labour in the global economy. The prevailing monetary regime of the period was the gold standard.[9] Termed by economic historians as the *first wave of globalization*, this period lasted from around 1870 to 1913.[10] The years were also accompanied by large flows of international migration and became known as the *age of mass migration* (see Hatton and Williamson 1998). Around 60 million people migrated from resource-scarce, labour-abundant Europe to the resource-abundant, labour-scarce countries of the new world (Argentina, Australia, Brazil, Canada, New Zealand and the United States). Migrants came from Europe's 'core' countries such as England, Germany, France, and from 'peripheral' regions (e.g. the Scandinavian countries, Spain, Italy and Portugal, Poland, Russia, Rumania and the former nations of the Austro-Hungarian empire). The main destination country in Latin America was Argentina, but Uruguay, Cuba, Mexico, and Chile also received a considerable number of European migrants.

World War I interrupted the process of economic interdependence and labour market integration across countries that had characterized the first wave of globalization. The year 1914 introduced nearly 30 years of economic instability and political turbulence: WW I, high inflation in Europe in the 1920s, economic depression in the 1930s and

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6 An empirical complication here to understand the effect of this period on migration flows, lies in the fact that the military during the period 1976-81, largely stopped recording the outflows of Argentineans. It is worth noting that there were also military regimes in Bolivia and Paraguay during most of the period of emigration from these countries to Argentina.

7 Apparently, these political features did not deter immigration from Bolivia or Paraguay, countries that also had authoritarian regimes.

8 Argentina has experienced considerable political instability and frequent change between democratic and authoritarian regimes from the early 1930s to the early 1980s. The cycle of replacing democratically elected governments by authoritarian regimes started with Jose Uriburu in 1930, following the last government of Hipolito Irigoyen and ended with the military regime of General Galtieiri in 1983, followed by democratically elected President Raul Alfonsín introducing an almost 20 year cycle of uninterrupted democracy in Argentina (see Table 3).

9 See Eichengreen (1995) for an analysis of the gold standard in this and subsequent periods.

10 See Eichengreen (1995) and Solimano (2001a and 2001b).

WW II in the first half of the 1940s. This turbulence led to increasingly restrictive policies for international migration in certain countries such as the US which, through immigration quotas in 1921 and 1924, limited the flow of people from Europe. Migrants then turned to Brazil and Argentina, and in the 1920s the latter accepted around three million European immigrants, although as many as two million returned (see Chiswick and Hatton 2002). At the same time, *emigration* restrictions were enacted in the Soviet Union, thus reducing Russia's share in the global migration flows to the Americas. The Soviet experience also indicates a positive correlation between emigration pressures and authoritarian regimes. The former Soviet Union in general suppressed exit (contrary to Argentina during its military regimes) or controlled exit selectively as an expedient of getting rid of political dissidents.

The post-1950 period, the so-called *second wave of globalization*, has been characterized by constrained international labour markets. In fact, the increasing global integration in goods and capital markets of the second wave was not been followed by an equal degree of integration in international labour markets which operate under a far more constrained immigration policy framework than the one existing until 1913. The configuration of economic incentives for international migration to Latin America during the twentieth century was such that an inflow of people from Europe (until the 1950s and mainly to Argentina) co-existed with an outflow from various Latin America countries to the United States, Canada and other developed nations. It is interesting to notice that while most migrants to the US in the nineteenth century were Europeans (slightly over 91 per cent of total migration in the period 1820-70 and 88 per cent in the period 1820-1920), this percentage declined to around 14 per cent in during 1971-98. In contrast, during the same period immigration to the US originated mainly from Latin America (46 per cent of the total, mainly from Mexico), followed by Asia (34 per cent). Finally, another country, Ireland, also switched from net emigration to net immigration in a century and a half or so. Since the middle of the nineteenth century, Ireland, after its famine years, was a main emigration nation. In contrast, its rapid economic progress of late is turning Ireland into a nation of net immigration. This is, of course, the opposite to Argentina's experience of becoming net emigration country instead of a net immigration during the course of the twentieth century.

3 Issues and determinants of international migration

This section reviews the main issues regarding international migration relevant to the purpose of this paper. The review focuses on the determinants of migration, the links between labour market adjustment, growth and international migration, the specificities of migration of human capital and the interactions between democracy, authoritarianism and emigration.

3.1 Economic determinants

The economics of migration highlights the anticipation of higher incomes abroad as the chief cause of the decision to migrate. There are, however, other variables that also exert influence. Moreover, non-economic reasons also exist: war, ethnic discrimination, political persecution at home, etc. The choice of the destination country is often dictated

by the existence of a network of family and friends in a particular country.[11] Specifically, the magnitude and direction of international migration are often influenced by the following factors, some of a long-run nature and others cyclical:

i) *Per capita income or real wage differentials* for a given skill level: net immigration flows are positively correlated with the ratio between the per capita income (or real wage) in the destination country and in the country of origin;[12]

ii) *State of the business cycle and economic prospects*: During periods of boom, rapid economic growth and labour shortage in receiving countries tend to absorb more migrants than during periods of sluggish growth and higher unemployment (moreover, in boom periods, public attitude becomes more favourable to immigration). In contrast, recession and reduced economic possibilities in sending nations tend to encourage emigration;

iii) *Network effects*: Empirical analyses of migration flows (Hatton and Williamson 1998 and Borjas 2001) show that migrants tend to attach a high value to the existence of friends and relatives in their selection of the country of destination. In fact, family, friends and ethnic/nationals networks constitute an important support factor for obtaining information about jobs and other relevant national characteristics of the host nation, thus helping individual and family adjustment after migration;

iv) *Policies toward immigration*: Unfavourable migration policies in the host countries deter immigration, albeit not completely as some illegal migration always exists;

v) *Costs of migrating*: Emigrating entails several economic and emotional costs: travelling costs such as air tickets, shipping costs and living expenses in the host country, as well as the costs of job search. Unskilled and poor migrants are more affected by the economic costs of migration than high-skills migrants;

vi) *Cultural differences across countries*: Language, traditions, and family relationships affect migration patterns. As these cultural traits are often different in the host country than in the sending nation, they tend to act as dampening factors to international migration;

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11 Migration equations usually include the following variables as determinants: the ratio between real wage (or real per capita income) in the home country relative to the destination country, a lagged migration variable capturing persistence effects and friends and relatives effects (social network considerations), a two-decades lagged demographic variable representing population growth and a variable denoting the degree of industrialization in the home country, see O'Rourke and Williamson (2000).

12 This simple specification can be amended to include the expected real wage differentials. Empirical evidence in the literature is reviewed in Hatton and Williamson (1998: ch 3 and 4), who undertake a detailed discussion of the impact of wage gaps on emigration flows from Europe to new world countries in the late nineteenth century and early twentieth century. The real wage gap can be replaced by the gap of income per capita between the sending and receiving countries if migrants constitute also human capital and entrepreneurs, whose income does not necessarily follow real wages.

vii) *Geographical distance and proximity*: In general, immigration to border countries (or countries of proximity) tends to be higher than immigration to countries located far away. Thus geography matters in the direction and size of emigration flows.[13]

3.2 The labour market, growth and migration

Large negative economic shocks affect the labour market through different mechanisms: a cut in real wages, an increase in unemployment, a rise in the pool of people working in the informal sector. Most analyses often concentrate on the *national* characteristics of labour market adjustment to adverse shocks such as unemployment and underemployment. However, the *international* dimensions of labour market adjustment are also important. These international adjustment mechanisms act chiefly through migration flows in response to labour market imbalances induced by different shocks.[14] On one hand, *flows of emigration* that reduce the domestic labour supply serve to accommodate a decline in the demand for labour resulting from adverse aggregate shocks. On the other hand, in periods of labour shortages and rapid economic growth, *immigration flows* increase the total supply of labour, thereby easing adjustment in the labour market. Historically, the large immigration flows to the 'new world' countries (Argentina, Australia, Canada, Brazil, the US, New Zealand) in the second half of the nineteenth century and early twentieth century were associated with labour shortages as well as other factors such as abundance of land in the recipient countries. The labour market has been singled-out in the literature as an important mechanism governing migration flows.[15]

The relation between growth and migration can be illustrated also by the example of European mass migration in the late nineteenth and early twentieth centuries, when migration was mainly motivated by the perception in Europe of new economic opportunities available in the resource-rich, labour-scarce countries of the new world. In turn, massive immigration allowed the receiving countries to mobilize their vast natural resources, and this was the engine of their growth process.

Analytically, the causality between immigration and growth can be in two directions (see Solimano 2001a): rapid growth, expanding opportunities, technological discoveries and land availability in the host country often *precedes* immigration. At the same time, immigration is an important factor in sustaining and reinforcing a dynamics of enhanced growth and prosperity. Various mechanisms account for the positive effect of migration on economic growth in receiving countries. The entrepreneurial capacities and a favourable attitude of the immigrants towards risk-taking were an important contribution to business creation, resource mobilization, colonization and innovation in the new world during the first globalization era (pre-1914). Furthermore, migration can benefit the host country by moderating the growth of wages as the labour supply increases, therefore contributing to keeping profits high, rising the profitability of investment and accelerating growth. These two mechanisms (the transfer of

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13 See Jasso *et al.* (1998) and Markusen and Zahniser (1997) for analysis of immigration patterns in terms of skill composition to the US.

14 See Solimano (1999a and 2001a); Solimano *et al.* (2000).

15 See Hatton and Williamson (1998) and Timmer and Williamson (1996).

entrepreneurship and increased labour supply) operate essentially through *investment-led growth* mechanisms (see Solimano 1998). An additional macroeconomic mechanism operates through *savings*. As international immigration tends to raise profits by keeping wages down and profit-earners tend to have a larger propensity to save than wage earners, the net result is an increase in overall national savings. In a savings-constrained economy, this should translate into more rapid economic growth for the recipient country.

By symmetric logic, these mechanisms can induce a *growth-depressing effect* in the *source countries* if emigrants come from relatively productive activities at home rather than from the unemployment pool or from occupations with low labour productivity. Emigration of highly-educated or entrepreneurially capable people can have a positive growth effect in the recipient country and a negative growth effect in the sending country.

3.3 Migration of human capital[16]

The previous discussion of the determinants of international migration is applicable to individuals with different skills, although some factors are more relevant for the unskilled migrant (costs of migrating, importance of network effects, cultural barriers, etc.) than for the emigration of human capital.

The international mobility of human capital (HC) entails the movement of people with specialized knowledge and skills in the fields of science, technology and culture. We are referring to scientists, engineers (e.g. the information sector), executives, professionals, artists who move across national borders. Another dimension is entrepreneurial migration, people with talent for business creation and resource mobilization rather than individuals with a high level of formal education. The emigration decision on the part of scientists and professionals has some specific traits which need to be mentioned. These people leave for a variety of reasons: the possibility of acquiring an education at the best centres of the world (education phase), the lure of interacting with peers of international recognition, or pursuing a successful career abroad (phase of staying abroad).

As the literature on growth and development emphasizes, the emigration of human capital—of great relevance to Argentina—can lead both to a virtuous circle and a poverty trap.[17] Receiving countries can set in motion a cycle of vigorous knowledge creation and application by attracting the most talented people from abroad, who assimilate with the host country's often-strong knowledge base. Conversely, after outflows of talent, home countries can stagnate in the development of science, technology and knowledge.

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16 See Solimano (2002a) for an extensive discussion of emigration of human capital and its impact on developing countries and the global economy. Earlier analyses of emigration of human capital and brain drain are Johnson (1964), Patinkin (1964) collected in Adams (1964). More recent treatment and empirical analyses of emigration issues are Haque and Kim (1994), Carrington and Detragiache (1998), Sutcliffe (1998), UNESCO (2001), OECD (2002).

17 See Easterly (2001).

3.4 Political determinants of migration: democracy, authoritarianism and political instability

The outflow and inflow of people is not dependent on the source and host countries' economic considerations alone. Prevailing political regimes—democracy or authoritarianism—also affect the decision to emigrate. Individuals prefer countries where individual and economic rights (of speech, of voice, the right to be elected to office, etc.) are protected (e.g. in a democracy) rather than countries where these rights are restricted. Dictatorships tend to curtail individual rights and often engage in repressive activities.[18] At an analytical level, Hirschman (1995) draws a distinction between a purely economic choice and collective action, and identifies exit as a predominantly economic choice and voice as a political action. In a market, if a customer is not satisfied with the quality of a product or its price, then he can merely 'exit' the store and abstain from buying the item. In the realm of collective action, people exercise 'voice' in an attempt to change a situation through collective action. In turn, loyalty may lead people to avoid exit (and sometimes voice). In non-democracies, the voice mechanism can be suppressed or become very costly to exercise, and individuals, who are unsatisfied or discontent with current political and economic conditions, may choose to exit their home country.[19] This line of reasoning suggests a direct correlation between the emigration of nationals (or the repatriation of foreigners) and the existence of authoritarian regimes that suppress civil liberties. However, there are some qualifications here. Given the costs of migrating, it is likely that professionals, intellectuals, scientists and entrepreneurs (i.e. human capital) are more likely to emigrate under regimes curtailing individual and economic rights than unskilled labour who is often less mobile internationally and face financial constraints to migration.[20]

4 Econometric estimates of net migration equations for Argentina

In this section we present a time-series econometric analysis of a one-equation migration model that incorporates insights of the previous discussion on economic and political determinants of net international migration to and from Argentina:

$$NM(t) = a + b\ YPCGAP\ (t) + cNM(t-1) + d\ ECONCYCLE + e\ POLREGIME + \text{random term} \quad (1)$$

with $b<0$, $c>0$, $d<0$, $e<0$.

The variable NM(t) represents the flow of net immigration in period t from the sending country(ies) to the recipient country. It is often recommended that the net migration

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18 See Olson (2000) for an insightful analysis of the economic consequences of democracies and autocracies.

19 For an interesting albeit dramatic account of how the German Democratic Republic used, as state policy, emigration of the most talented individuals during communism to get rid of active opposition and discontent, debilitating the country and contributing to its unexpectedly rapid demise after the end of the communist regime in 1990, see Hirschman (1995).

20 See Pellegrino and Martínez (2001); also Hansen *et al.* (2002) for a discussion of emigration of scientists and professionals in the Latin American context. See Gokhberg and Nekipelova (2002) for an analysis of emigration in the Russian context in the 1990s.

variable be normalized by population size (i.e., rate of migration per 1,000 people or so). The variable YPCGAP (t) in period t denotes the ratio of the recipient country's real GDP per capita to that of the sending country (an alternative specification often used in the literature is to work with the ratio of the recipient country real wage relative to the real wage in the sending country, see Hatton and Williamson 1998). Here, we work with the GDP per capita variable as there is better availability of statistical information on GDP per capita than real wages for the sample period of this study and also since the migrants are not only labour, but also human capital and entrepreneurs whose income is not necessarily derived from real wages. The coefficient of the YPCGAP variable is expected to be positive as an increase in the ratio of GDP per capita in the destination country relative to the home country is expected to increase the flows of immigrants. The lagged net migration flow, M(t-1), is intended to capture persistence effects, or path dependence, in the process of international migration.[21] Path-dependence is often associated with the relatives or friends effects already discussed in section 3. The coefficient of this variable is expected to have a positive sign. The variable ECONCYCLE is an index of the economic cycle in the receiving country (this also could be extended to include economic cycles in the sending economies); capturing the short-term prospects for employment and income in the host countries for the migrants; the coefficient of this variable, measured as deviation of current from trend GDP, is expected to be positive. The variable POLREGIME is an index of authoritarianism or democracy in the recipient country. The sign of this variable's coefficient is expected to be negative when measured as an authoritarian regime. In other words, people are less inclined to migrate when there is an authoritarian regime in the host country. Similarly, nationals in non-democratic regimes may consider leaving for a given set of economic fundamentals.

4.1 Empirical results

The model of equation (1) is estimated for Argentina by ordinary least squares correcting for serial-correlation and testing for co-integration. In all the specifications the dependent variable is the rate of net migration (immigrants minus emigrants per 1,000 people, see Box in the annex for details on the construction of the different variables). The model is estimated for three periods:

i) The period 1900-29 when large net flows of immigration came to Argentina, mainly from Europe;

ii) The period 1929-60 when there was a net slowdown in immigration flows;

iii) The period 1960-99 during which emigration from Europe is replaced by immigration from neighbouring countries. This is also a period of emigration of professionals, scientists, intellectuals from Argentina, reflecting the country's economic decline, political instability and authoritarian regimes.

For the sake of completeness, we estimate the model for the entire century (1900-99). In all specifications the dependent variable is the rate of net migration (immigrants minus

[21] Another alternative is to use the stock of foreign migrants from previous years to capture network and persistence effects.

emigrants) per 1,000 people. The results of the estimations are reported in Tables R1-R4.

4.2 Estimates for the 1900-29 period

The regressions for this period (reported in Table R1) show a strong significance for the coefficient of the (log) of the ratio between the per capita income of Argentina and the per capita income of sending European countries (the largest weights in the average income per capita of Europe are given to those of Italy and Spain, see Box). Lagged migration, reflecting persistence and path dependence (e.g. driven by the relatives and friends effects) is significant in the specification of column [2] in Table R1. A variable of cyclical output fluctuations in Argentina (log of ratio of current GDP over trend GDP, the latter estimated by the Hodrick-Prescott filter) appears as insignificant in the regression. The variable reflecting authoritarian political regime was not included, since this was a period of continuous democratic regimes until 1930. The quality of the explanatory power of the regression, R-squared is 0.76, a reasonably good fit.

4.3 Estimates for the 1929-60 period

The regressions of Table R2 show that both lagged migration and the log of the ratio of per capita income of Argentina with respect to the per capita income of Europe is statistically significant in explaining the rate of net migration to Argentina in this period. The index of cyclical output fluctuations in Argentina appears with a contrary sign to the one expected *a priori*. Interestingly, the variable denoting political regimes constructed as a dummy variable, with the value 1 for authoritarian regimes and 0 for democracy, appears with the expected sign, i.e., negative. This supports the hypothesis that authoritarian regimes that curtailed civil liberties (and probably property rights) tended to deter immigration to Argentina over the sample period.[22] The variable is also statistically significant at 10 per cent significance levels in the sample period of this regression (1929-60).

4.4 Estimates for the period 1960-99

As mentioned earlier, during the last 40 years, the main origins of international migration to Argentina shifted from Europe to neighbour countries, chiefly Bolivia, Paraguay and Chile (with some immigration also from Uruguay and Brazil.[23] To reflect this change in the main source countries, we replace the relative income variable of Argentina's GDP per capita with respect to Europe by the ratio of the log of Argentina's GDP per capita to the average GDP per capita of Bolivia, Paraguay and Chile. The estimated coefficient for this variable, shown in Table R3, is in general statistical significant and has the expected (positive) sign. Lagged migration (one and two years) is significant, although with the opposite sign. A bit surprisingly is the result that the index of political regime appears as insignificant and with the wrong sign in the period

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22 There were several episodes of authoritarian regimes in the 1930s, 1940s and 1950s (see Table 3) along with 'semi-democratic regimes' (i.e., the two Peron governments ruling from the mid-1940s to the mid-1950s).

23 See Solberg (1978) and Tables 6 and 7.

1960-99 when there were several military dictatorships in the 1960s and 1970s (although not after 1983) that could be expected to deter immigration. This surprising result may be due to two factors:

i) Missing data on emigration during the military regimes in the later part of the 1970s. As mentioned before, statistics on immigration and emigration flows were suspended for several years during 1976-81 when the country was ruled by military juntas, which apparently were not very keen to show Argentina's emigration statistics;

ii) When combined to the fact of missing data for the military periods, the share of the 40-year sub-sample, which corresponds to the authoritarian regimes, is not sufficiently large to influence the entire period.

4.5 The whole twentieth century estimates for 1900-99

The final set of regressions covering the full sample period (1900-99) is reported in Table R4. To abstract from year-to-year fluctuations in migration flows, all the variables used in the regressions are three-years averages. Interestingly, the ratio of Argentina's GDP per capita to that of Europe (the main source of migration until the late 1950s) appears as statistically significant in the whole period.[24] Lagged net migration is insignificant and the index of political regimes (authoritarianism) appears with a negative sign (the expected sign) and statistically significant for the full sample period, highlighting the importance of political regimes in immigration/emigration decisions.

5 Concluding remarks

The paper has investigated the main patterns and determinants of international migration to Argentina in the twentieth century by looking at the main economic determinants of international migration as well as the influence of political regimes (democracy and authoritarianism) on migration flows.

Argentina is an interesting case of a country that was one of the leading economies in the world in the late nineteenth century and the early twentieth century, thus attracting massive flows of people and capital from Europe. The rate of international migration was among the highest in the world in the early decades of the twentieth century. However, this situation started to change in the 1930s, as Argentina was hit by world recession and in response to the worsening external scenario, the country adopted inward-looking import substitution policies which were in effect until the 1970s. From the 1930s to the early 1980s, Argentina lived through alternative periods of authoritarian regimes and democratic governments.

Consequently, due to the cumulative effects of a lagging growth and modest development performance noticeable since the 1930s, Argentina ceased to be the magnet it one had been for immigrants from Italy, Spain and other European countries.

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24 We tried the ratio of GDP per capita of Argentina to the average of GDP per capita of Bolivia, Chile since 1950 in the regression, but it was statistically insignificant.

By the late 1950s, European migration to Argentina virtually stopped, and immigrants came mainly from neighbouring Bolivia, Paraguay and Chile. At the same time, from the latter part of the 1950s through to the early 1980s, a considerable outflow of Argentineans left for other Latin American countries (Venezuela and Mexico) and the US, Canada as well as Europe. Argentina's modest and unstable growth rates as well as the recurrent political crises during which democratic government were often ousted by military coups that installed regimes curtailing civil rights, encouraged the emigration of (often well-educated) Argentineans. Emigration included professionals, technicians and scientists, a fact that gave rise to concern about brain drain. Needless to say, Argentina's internal circumstances also discouraged European immigration to the country.

Our econometric estimates of net migration equations to Argentina find a positive, significant effect of the gap between the per capita income of Argentina (recipient country) and those of the sending countries (chiefly European nations until the mid-1950s), followed by neighbouring countries for the regressions covering the sub-periods 1900-29, 1929-60, and 1960-99.

The econometric estimates also show statistically significant adverse influence of authoritarian regimes on international migration flows to Argentina, confirming the importance of political regimes in the decision to migrate. To summarize, the paper finds that the two most important variables for explaining net international migration to and from Argentina in the twentieth century are the income per capita differential of Argentina versus the per capita income of the source economies, and the frequency of its authoritarian regimes.

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Annex

Box: Construction of variables

Rate of net migration

Immigration minus emigration per 1,000 people.

Argentina's GDP per capita

Argentina's GDP in million international 1990 Geary-Khamis dollars/Argentina's population in thousands at mid-year.

Europe's GDP per capita

GDP per capita is measured in millions of international 1990 Geary-Khamis dollars/population in thousands at mid-year.

(i) Europe's GDP per capita (1900-29, 1900-99) = 1/3 [1/6 of GDP per capita for Austria, + for Belgium, + for France + for Germany + for Switzerland + for UK] + 1/3 of GDP per capita for Spain + 1/3 of GDP per capita for Italy].

Changes in weights reflect decline in importance of Italy and Spain as sources of immigration to Argentina.

(ii) Europe's GDP per capita (1929-60, 1960-99) = 1/8 [GDP per capita for Austria, + for Belgium + for France + for Germany + for Switzerland + for the UK + for Spain + for Italy].

GDP per capita for Argentina's neighbouring countries

GDP per capita is measured in millions of 1995 dollars/population in thousands at mid-year.

GDP per capita (1950-2000) of Argentina's neighbouring countries = 1/3 [Bolivia's GDP per capita + Chile's GDP per capita + Paraguay's GDP per capita].

Cyclical output index

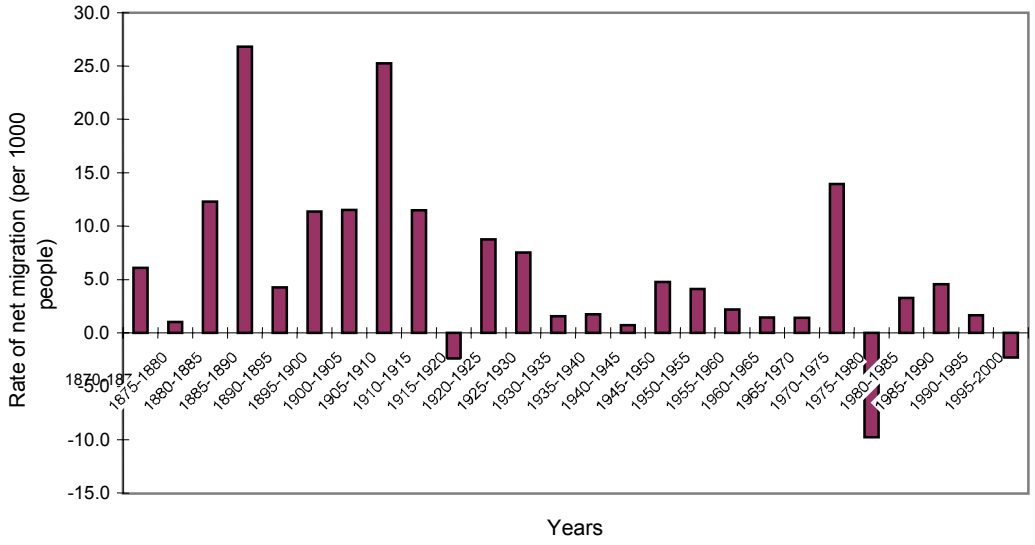
Ratio of Argentina's GDP in million international 1990 Geary-Khamis dollars divided by GDP trend for Argentina in million international 1990 Geary-Khamis dollars.

GDP trend for Argentina was constructed using the Hodrick-Prescott filter.

Index of political regime

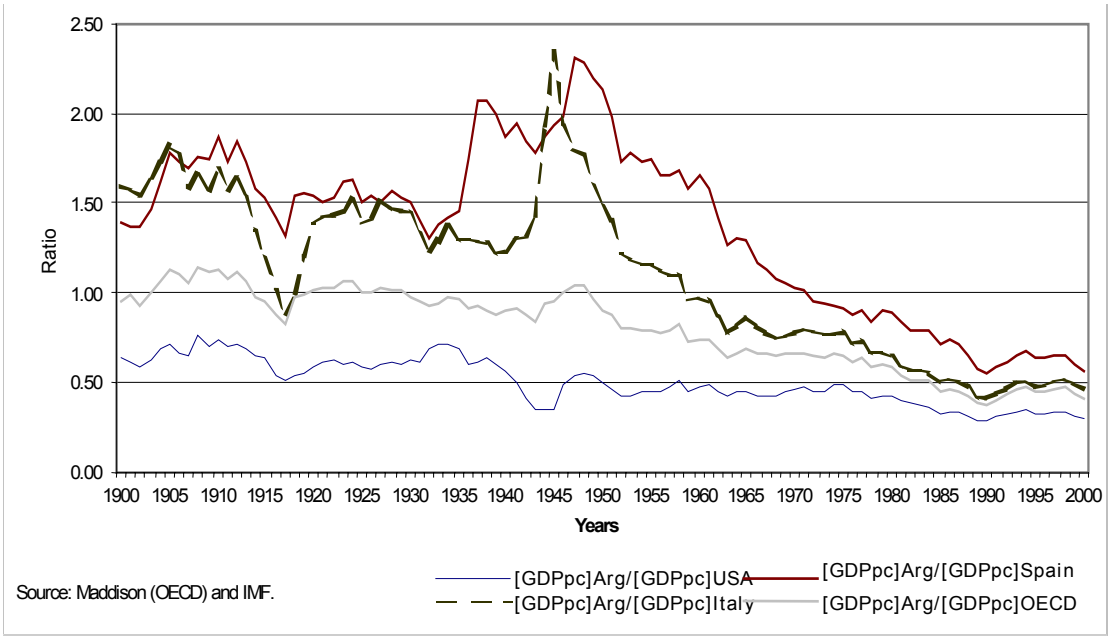
Dummy variable with the value 1 for authoritarian regime and 0 for democracy.

Figure 1
Rate of net migration (per 1,000 people)



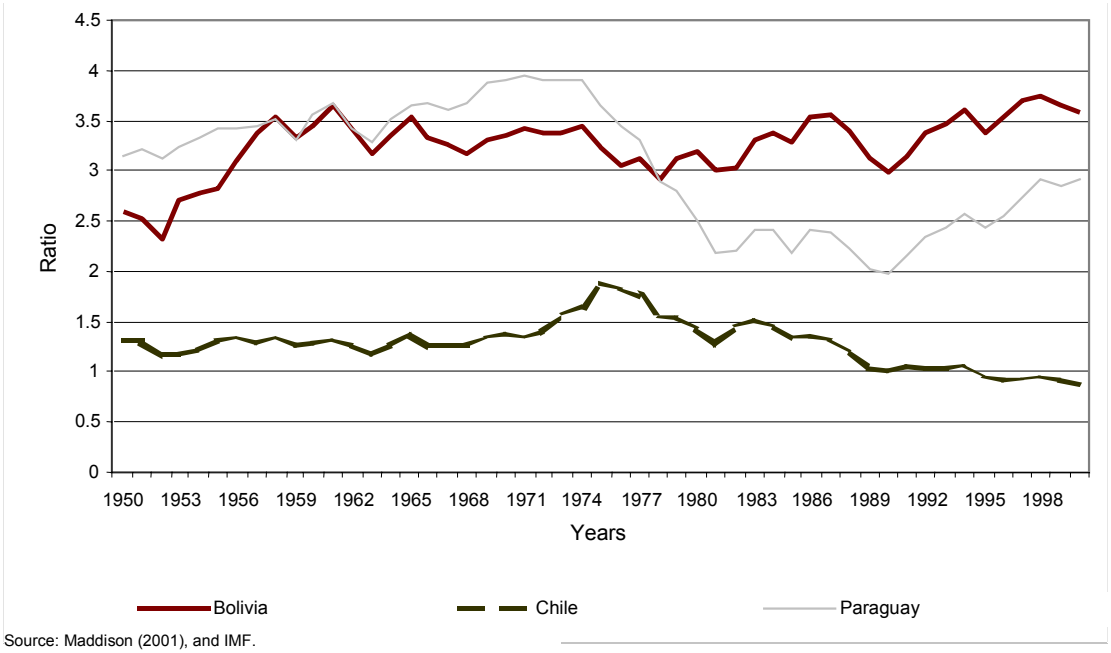
Source: GOA (1970) and CELADE.

Figure 2
Ratio of Argentina's GDP per capita versus the GDP per capita for USA, Spain, Italy and OECD



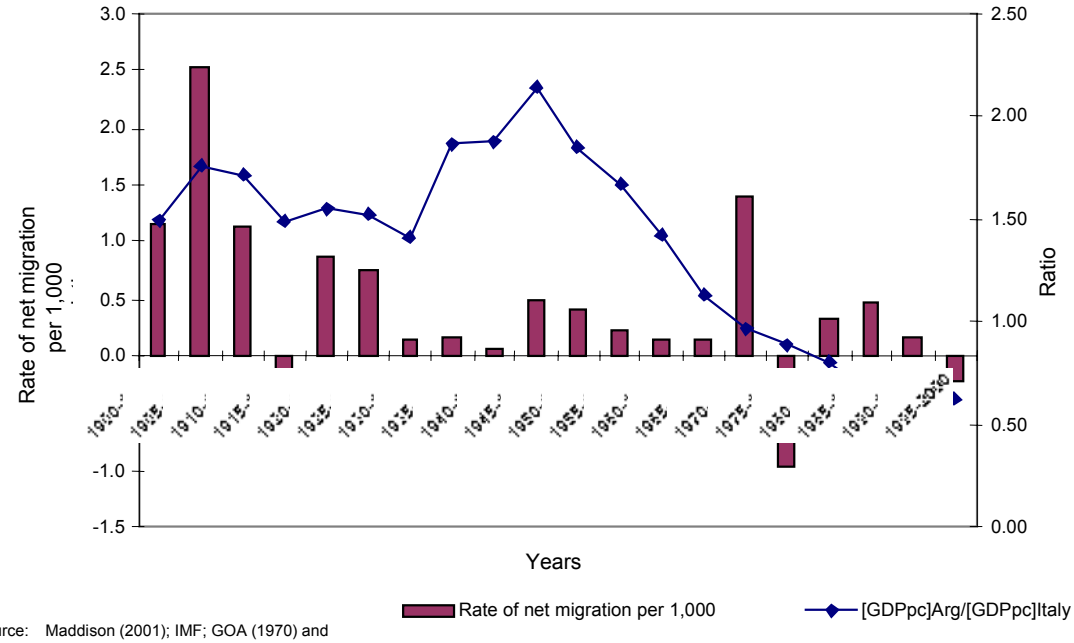
Source: Maddison (OECD) and IMF.

Figure 3
Ratio of Argentina's GDP per capita versus the GDP per capita of neighbouring countries



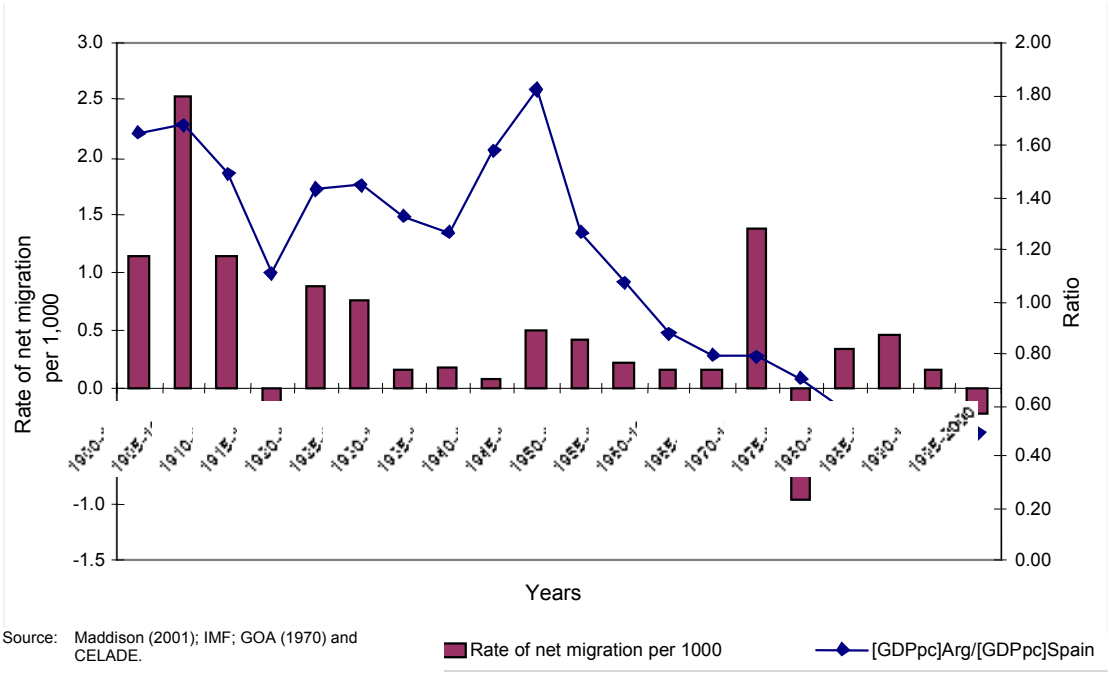
Source: Maddison (2001), and IMF.

Figure 4
Ratio of Argentina's GDP per capita to Italy's GDP per capita, and net migration



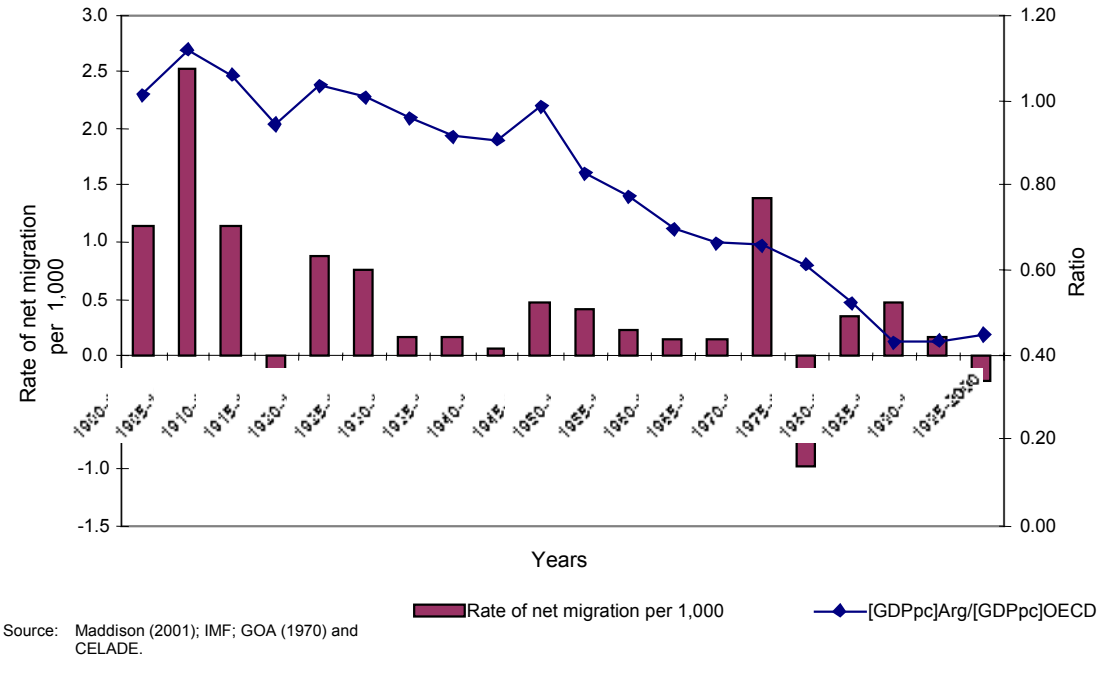
Source: Maddison (2001); IMF; GOA (1970) and CELADE.

Figure 5
Ratio of Argentina's GDP per capita to Spain's GDP per capita, and net migration



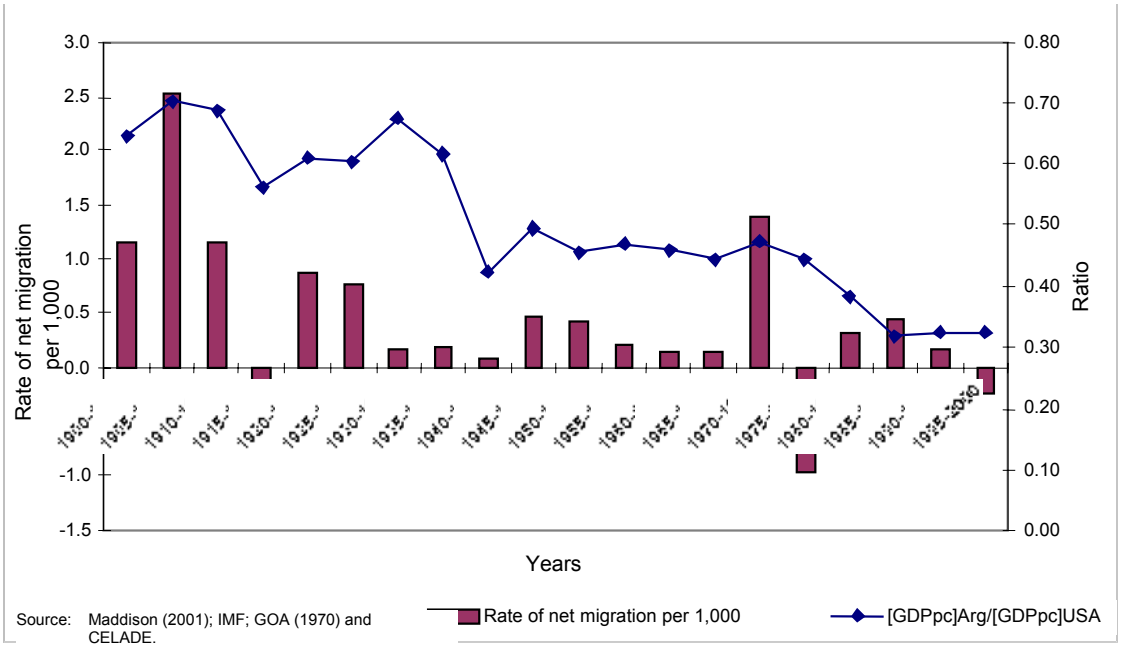
Source: Maddison (2001); IMF; GOA (1970) and CELADE.

Figure 6
Ratio of Argentina's GDP per capita to OECD's GDP per capita, and net migration



Source: Maddison (2001); IMF; GOA (1970) and CELADE.

Figure 7
Ratio of Argentina's GDP per capita to USA's GDP per capita, and net migration



Source: Maddison (2001); IMF; GOA (1970) and CELADE.

Table 1
Argentina: Economic periods and international migration, 1870-2000

Period	Net migration [a] Annual average ('000)	Net migration [a] Rate [b] (per 1,000 people)	Total population (annual avg) ('000)	GDP growth in Argentina (annual avg)	Argentina's GDP per capita: Argentina (index 1990=100)	Ratio to GDP per capita: USA	Spain	Italy	OECD	Bolivia	Chile	Paraguay
						in 1990 Geary-Khamis dollars				in constant 1995 dollars		
Global integration and rapid growth (*belle époque*)												
1870-1900	33,962.0	11.5	3,037.8	6.2 [c]	35.4 [c]	0.58	1.17	1.28	0.78	na	na	na
1900-14	103,786.7	17.0	6,183.6	4.3	52.0	0.68	1.65	1.62	1.06	na	na	na
1870-1914	56,957.9	15.1	4,049.6	5.9 [c]	41.6 [c]	0.61	1.33	1.38	0.87	na	na	na
Early inter-war years												
1914-29	40,436.5	4.4	9,479.9	3.8	55.7	0.59	1.53	1.32	0.99	na	na	na
Import substitution development strategy												
1930-40	21,945.0	1.7	13,053.9	1.5	60.1	0.64	1.66	1.30	0.93	na	na	na
1940-50	47,752.1	3.1	15,490.5	3.7	70.9	0.47	2.01	1.65	0.94	na	na	na
1950-60	60,158.2	3.2	18,891.8	2.9	79.6	0.46	1.76	1.17	0.80	2.96	1.27	3.34
1960-70	32,969.3	1.5	22,277.1	4.7	95.4	0.45	1.27	0.83	0.68	3.37	1.29	3.63
1970-75	57,986.1	2.8	26,030.9	4.2	119.7	0.47	0.97	0.78	0.66	3.37	1.53	3.88
1930-75	41,268.5	2.3	18,280.7	3.3	81.4	0.50	1.58	1.19	0.82	3.19 [d]	1.33 [d]	3.56 [d]
Early economic liberalization												
1975-90	-1,387.5	-0.05	29,244.75	0.1	115.6	0.38	0.78	0.58	0.52	3.21	1.43	2.57
Intensive economic reform and liberalization												
1990-2000	-2,155.3	-0.1	34.732.1	3.6	122.2	0.32	0.62	0.48	0.44	3.47	0.97	2.53
1975-2000	-1,683.0	-0.05	31,439.5	1.6	119.0	0.36	0.72	0.55	0.49	3.33	1.25	2.57
1870-2000 average	9,865.0	6.4	18,503.3	3.9 [c]	44.5 [c]	0.50	1.37	1.11	0.80	3.26 [d]	1.28 [d]	3.05 [d]

Source: Solimano (2002b).

Notes: na means not available; [a] net migration = immigration minus emigration; [b] net migration average/population of middle year of period; [c] since 1875; [d] since 1950.

Table 2
Argentina: net migration, 1870-2000
(five-year averages)

Years	[1] Net migration (immigration minus emigration)	[2] Population in thousands	[1] / [2] Rate of net migration per thousand people
1870-75	12,302	2,015	6.1
1875-80	2,363	2,282	1.0
1880-85	31,970	2,602	12.3
1885-90	86,358	3,223	26.8
1890-95	16,002	3,757	4.3
1895-1900	48,968	4,316	11.3
1900-05	59,482	5,167	11.5
1905-10	157,350	6,236	25.2
1910-15	85,946	7,486	11.5
1915-20	-20,161	8,454	-2.4
1920-25	84,029	9,573	8.8
1925-30	83,952	11,124	7.5
1930-35	19,785	12,494	1.6
1935-40	23,698	13,612	1.7
1940-45	10,532	14,768	0.7
1945-50	77,483	16,197	4.8
1950-55	74,203	18,027	4.1
1955-60	42,585	19,762	2.2
1960-65	31,433	21,441	1.5
1965-70	32,737	23,114	1.4
1970-75	347,916	24,994	13.9
1975-80	-264,753	27,071	-9.8
1980-85	96,406	29,241	3.3
1985-90	143,372	31,441	4.6
1990-95	56,371	33,572	1.7
1995-2000	-82,235	35,868	-2.3

Source: GOA (1970); ECLAC; Ferenczi and Willcox (1929) and Maddison (2001).

Table 3
Argentina presidents and political regimes, 1874-2002

President	Period	Political regime
Nicolás Avellaneda	1874-80	Democratic
Julio Argentino Roca	1880-86	Democratic
Juarez Celman	1886-90	Democratic
Carlos Pellegrini	1890-92	Democratic
Luis Saenz Peña	1892-95	Democratic
Jose Evaristo Uriburu	1895-98	Democratic
Julio Argentino Roca	1898-1904	Democratic
Manuel Quintana	1904-06	Democratic
Figueroa Alcorta	1906-10	Democratic
Roque Saenz Peña	1910-14	Democratic
Victorino de la Plaza	1914-16	Democratic
Hipólito Irigoyen	1916-22	Democratic
Marcelo T. de Alvear	1922-28	Democratic
Hipólito Irigoyen	1928-30	Democratic
Jose E. Uriburu	1930-32	Authoritarian
Agustin P. Justo	1932-38	Democratic
Roberto M. Ortiz	1938-40	Democratic
Ramón S. Castillo	1940-43	Democratic
Pedro P. Ramirez	1943-44	Authoritarian
Edelmiro Farrel	1944-46	Authoritarian
Juan D. Perón	1946-51	Democratic [a]
Juan D. Perón	1951-55	Democratic [a]
Eduardo Lonardi	1955-55	Authoritarian
Pedro E. Aramburu	1955-58	Authoritarian
Arturo Frondizi	1958-62	Democratic
Jose M. Guido	1962-63	Democratic
Arturo H. Illia	1963-66	Democratic
Juan C. Onganía	1966-70	Authoritarian
Roberto Levingston	1970-71	Authoritarian
Alejandro Lanusse	1971-73	Authoritarian
Héctor J. Cámpora	1973-73	Democratic
Raúl A. Lastri	1973-73	Democratic
Juan D. Perón	1973-74	Democratic
María E. Martinez	1974-76	Democratic
Jorge R. Videla	1976-81	Authoritarian
Roberto E. Viola	1981-81	Authoritarian
Leopoldo F. Galtieri	1981-82	Authoritarian
Reynaldo B. Bignone	1982-83	Authoritarian
Raúl R. Alfonsín	1983-89	Democratic
Carlos S. Menem	1989-95	Democratic
Carlos S. Menem	1995-99	Democratic
Fernando de la Rua	1999-2001	Democratic
Adolfo Rodriguez Saa	2001-02	Democratic
Eduardo Duhalde	2002	Democratic

Note: [a] Partial, with restrictions.

Source: Available at www.historiadelpais.com.ar .

Table 4
Main economic indicators for Argentina, 1950-2000

Years	Population (average, millions of people)	Rate of growth of GDP (annual average %)	Real GDP per capita [a] (annual average)	Rate of growth of GDP per capita (annual average %)	Average real wage index, 1995=100 (annual average)	Inflation, consumer prices (annual average %)
1950-55	18.0	2.5	5,045.4	0.5	101.8	20.2
1955-60	19.8	3.4	5,484.6	1.7	100.4	37.2
1960-65	21.5	4.6	5,883.0	3.1	99.9	24.0
1965-70	23.1	4.7	6,749.0	3.4	112.6	21.2
1970-75	25.0	3.9	7,918.0	2.4	125.6	62.4
1975-80	27.1	1.3	8,227.8	-0.2	113.0	206.4
1980-85	29.2	-1.6	7,606.1	-3.2	123.2	335.5
1985-90	31.4	-0.9	7,097.7	-2.5	114.5	1,105.1
1990-95	33.7	4.2	7,702.6	2.9	100.5	421.5
1995-2000	35.9	3.2	8,704.3	1.9	100.0	0.5
1950-60	18.9	2.6	5,261.6	0.8	100.8	30.2
1960-70	22.3	4.4	6,303.8	2.9	105.9	22.0
1970-80	26.1	2.9	8,058.3	1.4	117.6	130.0
1980-90	30.3	-0.7	7,384.1	-2.3	117.4	724.6
1990-2000	34.8	4.6	8,243.8	3.3	100.2	229.9

Note: [a] in 1990 Geary-Khamis dollars.

Source: IMF (March 2002); Maddison (2001), and ECLAC database.

Table 5
Emigration of Argentinean professionals to the United States, 1950-70

Period	Medical doctors	Engineers	Scientists	Technicians	Total
1950-51	10	13	na	25	48
1951-52	19	13	2	46	80
1952-53	19	34	11	60	124
1953-54	26	37	13	86	162
1954-55	20	51	11	100	182
1955-56	37	71	17	171	296
1956-57	89	135	34	232	490
1957-58	103	146	37	342	628
1958-59	70	53	17	273	413
1959-60	97	78	14	229	418
1960-61	74	77	25	267	443
1961-62	94	59	12	239	404
1962-63	116	96	36	391	639
1963-64	151	121	43	597	912
1964-65	140	88	27	496	751
1965-66	115	59	25	356	555
1966-67	126	90	31	238	485
1967-68	95	93	40	316	544
1968-69	42	42	6	221	311
1969-70	32	25	9	129	195

Source: Oteíza (1979).

Table 6
Origins of immigration to Argentina, 1945-64
(Five-year totals in thousands of persons)

Origins	1945-49	1950-54	1955-59	1960-64
Italy and Spain	256.3	276.1	73.9	3.9
Neighbouring countries:				
Paraguay	16.1	41.1	104.2	87.1
Bolivia	1.0	6.6	31.9	62.6
Chile	8.3	23.5	9.6	39.0
Brazil	4.7	9.5	1.4	6.7
Uruguay	-33.8	9.0	19.3	6.0
Subtotal	-3.7	89.7	166.4	201.4
Other countries	76.3	52.8	10.1	13.0
Total	329.0	418.4	250.4	218.3

Source: *Migration Facts and Factors* (1970: 2).

Table 7
Immigration population from neighbouring countries residing in Argentina, 1969 (a

	Population	
Immigrants originating from:	Total	%
Paraguay	600,000	38.0
Bolivia	450,000	28.5
Chile	350,000	22.2
Brazil	80,000	5.1
Uruguay	100,000	6.3
Total	1,580,000	100.0

Note: (a These statistics are the estimates of a joint mission sent to Argentina in 1969 by the International Catholic Migration Commission and Caritas Internationalis.

Source: *Migration Facts and Factors* (1970: 1).

Table R1
Argentina: dependent variable: rate of net migration (per 1,000 people), 1900-29

	[1]	[2]	[3]
Constant	3.89	-14.86	-16.81
	[2.46]	[-3.96]	[-2.97]
Lagged net migration (-1)	0.63	0.20	0.20
	(6.20]	[1.74]	[1.43]
Log Argentina's GDP per capita over Europe's GDP per capita (a		79.96	86.68
		[5.08]	[4.02]
Log cyclical output index in Argentina (b			-11.16
			[-0.46]
R-squared	0.40	0.76	0.76
h of (D-W)	0.62	1.10	1.71
No. of obs	30	30	30

Notes: Rate of net migration = immigration minus emigration per 1,000 people;
Method of estimation: OLS;
Values in parentheses correspond to t-statistics;
(a, (b See Box in the Annex for the definition of these variables.

Table R2
Argentina: dependent variable: rate of net migration (per 1,000 people), 1929-60

	[1]	[2]	[3]	[4]
Constant	0.55	0.07	0.64	0.90
	[1.33]	[0.16]	[1.83]	[2.43]
Lagged net migration (-1)	0.74	0.73	0.65	0.63
	[6.91]	[7.50]	[8.31]	[8.23]
Log Argentina's GDP per capita over Europe's GDP per capita (a		5.58	2.74	2.97
		[2.69]	[1.59]	[1.77]
Log cyclical output index in Argentina (b			22.86	21.32
			[4.51]	[4.27]
Index of political regime (c				0.75
				[-1.70]
R-squared	0.61	0.69	0.82	0.83
h of (D-W)	2.91	2.48	1.32	1.18
No. of obs	32	32	32	32

Notes: Rate of net migration = immigration minus emigration per 1,000 people;
Method of estimation: OLS;
Values in parentheses correspond to t-statistics;
(a, (b and (c See Box in the Annex for the definitions of these variables.

Table R3
Argentina: dependent variable: rate of net migration (per 1,000 people), 1960-99

	[1]	[2]	[3]	[4]	[5]	[6]
Constant	-20.51	-21.15	-25.31	-40.52	-58.85	56.08
	[-3.20]	[-3.44]	[-3.50]	[-4.98]	[-1.50]	[-1.36]
Log Argentina's GDP per capita over GDP per capita of Argentina's neighbouring countries [a	9.19	9.60	11.51	18.24	25.24	24.07
	[3.13]	[3.41]	[3.51]	[5.01]	[1.67]	[1.52]
Log cyclical output index in Argentina [b		27.46	27.51	34.12	41.68	41.27
		[1.81]	[1.85]	[2.36]	[1.92]	[1.85]
Lagged net migration (-1)			-0.27	-0.34	-0.34	-0.34
			[-1.38]	[-1.83]	[-1.80]	[-1.76]
Lagged net migration (-2)				-0.54	-0.49	0.50
				[-2.79]	[-2.23]	[-2.20]
Log Argentina's GDP per capita over Europe's GDP per capita [c					6.49	-5.78
					[-0.47]	[-0.41]
Index of political regime [d						0.60
						[0.38]
R-squared	0.29	0.37	0.43	0.64	0.64	0.64
(D-W)	2.51	2.71	1.57 [e	(-1) [f	(0.87) [f	0.40 [f
No. of obs	32	32	30	28	28	28

Notes: Rate of net migration = immigration minus emigration per 1,000 people;
Method of estimation: OLS;
Values in parentheses correspond to t-statistics;
[a, [b, [c and [d See Box in the Annex for the definitions of these variables;
[e h of Durbin-Watsin;
[f t-statistics of lagged resid(-1) education with respect to your original education +resid(1).

Table R4
Argentina: dependent variable: rate of net migration (per 1,000 people), 1900-99 (3-year averages)

	[1]	[2]	[3]	[4]
Constant	3.76	5.55	6.41	6.27
	[3.30]	[7.33]	[8.11]	[5.52]
Log Argentina's GDP per capita over Europe's GDP per capita [a	9.53	10.46	10.67	10.36
	[3.20]	[5.63]	[6.18]	[4.68]
Log cyclical output index in Argentina [b		55.43	54.24	53.48
		[6.81]	[7.18]	[5.67]
Index of political regime [c			-3.55	-3.39
			[-2.37]	[-2.00]
Lagged net migration (-1)				0.02
				[0.18
R-squared	0.26	0.72	0.77	0.76
(D-W)	0.92	1.64	1.99	0.16 [d
No. of obs	31	31	31	30

Notes: Rate of net migration = immigration minus emigration per 1,000 people;
Method of estimation: OLS;
Values in parentheses correspond to t-statistics;
[a, [b, and [c See Box in the Annex for the definitions of these variables;
[d h of Durbin-Watsin.