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INSTITUTIONAL INSTABILITY AND GROWTH IN ARGENTINA: A LONG-RUN VIEW*

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Abstract

Argentina has slipped from being among the ten richest countries in the world by the eve of World War I to its current position close to developing countries. What did originate Argentina's economic retardation?. In this paper we employ a structural model to investigate the extent to which institutional instability, as captured by "Contract Intensive Money" (Clague, Keefer, Knack and Olson, 1999), conditioned capital accumulation and economic growth in Argentina and, consequently, the country's relative international position. Our results suggest that institutional instability played a major role in Argentina's unique historical experience of economic decline.

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How has Argentina, a country which occupied a position among the ten richest countries in the world in terms of income per capita in the period 1880-1929, slipped to its current place in the ranking, closer to that of Turkey than to Western Europe's?.

Argentina began to lose ground compared with Australia and Canada, countries whose development was also largely due to the exploitation of natural resources and the exports of staple goods, in the late nineteenth century[1]. That is, before the dates (the First World War, the Great Depression and the post-World War II era) with which, up to now, economic historians signaled the beginning of Argentina's retardation[2]. However, it was not until the last quarter of the twentieth century that she fell behind definitively. Why was Argentina not able to catch up with Australia and Canada during the 20th century? What was the origin of Argentina's backwardness? These questions still await a definitive answer.

Investment, as a means of rising capital intensity, is, according to the neo-classical explanation of growth, the way to increase output per person. However, the increase of both human and physical capital depends, ultimately, on the existence of a set of incentives provided by the existing institutions (North, 1990: 134). In this paper we investigate the extent to which institutional instability conditioned capital accumulation and economic growth in Argentina and, consequently, the country's relative position to Australia and Canada.

How to measure the connections between institutions, investment and growth represents a major challenge[3]. Clague, Keefer, Knack and Olson (1999) suggested a way of measuring compliance with contracts and the security of property rights, which they define as "contract intensive money" [henceforth, CIM] and is equal to the percentage of deposits in the money supply (M2). The idea behind this indicator is that the way financial assets are held depends on the definition of property rights. When economic agents think they are operating in a stable context, in which property rights are well defined and guaranteed, it is not risky to keep assets in deposit accounts and, consequently, cash becomes a less attractive option. Consequently the proportion of deposits in the money supply will tend to increase. Increased compliance with contracts will encourage investment and, in consequence, lead to a higher rate of growth. The opposite situation would be caused by a poorly defined institutional framework.

[1] These results are from the study of the relative series of GDP per capita between 1875 and 1990 using the unit root method and structural breaks. Cf. Sanz Villaroya (2005)

[2] Cf. Cortés Conde (1997), Di Tella and Zymelman (1973), Díaz Alejandro (1970), Ferrer (1996), Taylor (1992, 1994, 1998b).

[3] North (1990), p. 107 writes: "We cannot see, feel, touch, or even measure institutions; they are constructs of the human mind". Cf Knack and Keefer (1995) for an attempt to prove this relationship empirically.

In our essay we notice that the CIM measure is closely associated to economic freedom, political stability, and financial development, and we interpret it as an indicator of institutional stability and security of property rights. The association between institutional stability, investment and growth in Argentina over the long run is investigated with a system of structural equations. Our results suggest that the degree of institutional instability played a major role in Argentina's unique historical experience of economic decline.

In the rest of the paper we discuss the origins of Argentina's comparative backwardness against existing interpretations (section 2), examine CIM as our measure of institutional stability (section 3) and trace its development in Argentina over more than a century (section 4). We also estimate the determinants of growth using a structural model which includes CIM (section 5); finally, we carry out a simulation to identify what the effect on Argentina's growth and position relative to Australia and Canada would have been if institutional stability in Argentina had been closer to that of these two countries (section 6).

The relative position of Argentina

Argentina, Australia and Canada are often compared as they are all considered *areas of new settlement*, countries which became exporters of primary goods under British influence and followed similar paths between the end of the nineteenth century and the mid-twentieth century. These large, scarcely populated countries were blessed with supplies of natural resources which gave them a privileged international position despite the fact that they were geographically distant from the centers of economic activity (Gallo, 1983; Duncan and Fogarty, 1984; Platt and Di Tella, 1986).

Graph 1 presents Argentina's performance relative to Australia and Canada, in terms of product per person (expressed as its difference in natural logarithms). We have used purchasing power parity adjusted GDP per capita expressed in 1913 US relative prices for the period 1875-1939, and 1980 US relative prices for the period 1940-2001[4]. The levels of real product per person for 1913 and 1980 are taken from Prados de la Escosura (2000). The volume indices used to project these benchmarks back and forth over for the whole period are taken from Maddison (2003), except for the period 1875-1935 in Argentina, for which we used Roberto Cortés Conde's (1997) reconstruction of GDP.

[4] This procedure attempts to mitigate the index number problem caused by using real product per capita series expressed in relative prices of a distant benchmark year. This is the case with Maddison's (2003) figures in 1990 dollars, which are normally used in this type of comparison. Nevertheless, the use of Maddison's (1995, 2003) data does not significantly affect the results obtained (Sanz-Villarroya, 2005).

Argentina caught up rapidly with Australia and Canada until the end of the century when Argentina's relative position began to stagnate and the decline set in (although occasionally drawing level with Canada until the 1930s). A significant, negative structural break took place in 1974 after which Argentina fell further and further behind (Sanz-Villarroya, 2005).

Why was Argentina not able to maintain its relative position to Australia and Canada? What was the cause of Argentina's progressive decline?, are recurrent questions which historians and economists have been trying to answer for some time.

The origins of Argentina's backwardness have been the object of much attention. The definitive closing of the frontier was, according to Di Tella and Zymelman (1967), the main difference between Argentina and the other areas of new settlement as Argentina did not seek adequate alternatives to compensate for the end of geographical expansion. In Solberg's (1985) opinion, the most important difference was the fact that while in Canada the policy of land distribution led to a situation with a large number of small farmers, in Argentina the result was a small number of landowners each with large areas of land[5]. Duncan and Fogarty (1984) argued that the contrast between the stable, flexible government of Australia and the bad government of Argentina is the key difference. According to Platt and Di Tella (1985) the political tradition and immigration from different regions were the key factors, while Díaz Alejandro (1985) suggested that a restrictive immigration policy, similar to Australia's, would have increased productivity encouraged by the relative scarcity of labor[6].

Taylor (1992) pointed that the relatively high dependency rate and the slow demographic transition in Argentina led to lower savings rates than in Australia and Canada. Much of the capital entering the country would do so as a reaction to such low savings rates (Taylor and Williamson, 1994). Argentina depended on foreign capital, so the First World War and the subsequent 'de-globalization' reduced the capital inflow and had a negative impact on both capital formation and economic growth, giving rise to the beginning of Argentina's historical backwardness. In fact, between 1900 and 1929, Argentina's savings rate was around 10 percent lower than that of Australia and Canada and her dependency rate was 5 percent higher (Taylor, 1992: 922). Taylor estimated that, in the long term, around two thirds of the difference between the savings rates in Argentina and Australia was due to the difference between their relative

[5] However, an open land market existed in Argentina where many more immigrants than generally believed became farmers (Sánchez-Alonso, 2004a). Gallo (1983) argued that lack of capital and agricultural knowledge made advantageous for immigrants to become tenant farmers. Cf. Adelman (1994) for a qualified assessment of Solberg's views.

[6] Cf Timmer and Williamson (1998) on the different migration policies applied in the 'areas of new settlement' and Sánchez-Alonso's (2004b) reply for the situation in Latin America.

dependency rates. If Argentina's dependency rate had been similar to the average of those of Australia and Canada, her savings rate would have doubled (Taylor, 1992: 925).

In the Interwar, the main difference appears to have been the industrialization policy, which, in Argentina, encouraged import substitution in contrast with the export led growth favored by Canada. Taylor (1994, 1998a) observed that, from the thirties onwards, the accumulation of capital was hampered by the relatively high prices of (mostly imported) capital goods, which was the result of an industrial policy of import substitution. Multiple exchange rates, the black market for foreign currencies, the depreciation of the national currency and high customs tariffs were the underlying distorting factors behind the high relative prices of capital goods (Taylor, 1998b; Collins and Williamson, 2001). The resultant lower capital intensity, in turn, would explain the lower rates of labor productivity achieved by Argentina in comparison with Australia and Canada. In short, the institutional framework appears as the ultimate cause of Argentina's historical backwardness (Cortés Conde, 1998).

Measuring Institutional Stability

In an attempt to define the institutional framework and measure its influence, Clague, Keefer, Knack and Olson (1999) proposed an indicator known as 'Contract Intensive Money' (CIM) which represents the money kept in deposits as a proportion of the money supply:

$$CIM = (M2-C)/M2 \qquad (I)$$

where C is currency outside banks and M2 is the money supply including current and term deposits.

The rationale behind this indicator is that when economic agents trust that contracts will be respected and operate in an environment they believe to be safe, they hold a larger proportion of their money as deposits, so the CIM indicator tends to increase (Clague *et al.*, 1999: 188). CIM measures the proportion of transactions that rely on third-party enforcement and, hence, provides an indicator of the security of property rights. If contracts are enforced, a favorable atmosphere for investment is created. In this environment the rate of capital formation will tend to rise, leading to economic growth. It follows that there should be a positive association between CIM, the investment rate and growth.

Is CIM simply another measure of financial development or, as Clague *et al*. (1999) argue, is it really an objective measure of institutional quality?[7]. In order to check their

[7] Cf. Sylla and Rousseau (2003) for the long-run connections between financial development and growth.

hypothesis, Clague *et al*. (1999: 204) use factorial analysis to show that a group of institutional indicators which includes measures of political and civil freedom, degree of definition of property rights and of the frequency of revolutions and coups d'état, has a heavier load in factor 1 (in which CIM doubles its absolute value in factor 2), while financial development variables appear in factor 2. They conclude that CIM is mainly a measure of property rights enforcement.

An exceptional scenario for CIM contemplated by Clague *et al.* (1999) is that of hyperinflation. As high inflation usually leads to increases in interest rates, economic agents would prefer time deposit accounts (including those in foreign currency) which would lead to an increase in CIM. This seems to be the case of Argentina between 1975 and 1990, when inflation went beyond 50 percent annually while real interest rates experienced a sharp increase, leading to a increase of CIM. Under these circumstances, CIM stops being an indicator of institutional stability. Therefore, our analysis is confined to the pre-hyperinflation era.

Another scenario that would weaken CIM as a measure of institutional quality is if it could be seen as a measure of savings, so the higher the interest rate, the larger the proportion of the money supply in deposits. In such case it would not be surprising to find an association between CIM and the rate of investment. We found, however, that CIM is a good predictor of the different components of capital formation that do not necessarily have a high correlation with savings rates and, hence, rejected this scenario for the case of Argentina[8].

Is there a link between the CIM indicator and citizens' degree of confidence in the institutional stability of Argentina over the long run?. Graphs 2 presents the evolution of CIM in Argentina between 1863 and 1974, while Graph 3 offers its behavior relative to Australia and Canada.

We observe, in first place, a mildly rising trend over the late nineteenth century interrupted by cyclical drops, the longest one during the Baring crisis. The Baring crisis evidenced the conflict between a high fiscal deficit, the impossibility of maintaining a constant exchange rate and a poorly regulated banking system (della Paolera and Taylor, 2001). The lack of co-ordination between monetary policy and fiscal policy appear as the factor which, in the

[8] We run regressions for Equation 2 of Table 5 with farm investment, non-farm investment and government investment instead of total investment rates and the results were highly coincidental with positive and statistically significant associations between CIM and each component of total investment. Data for investment components comes from Della Paolera and Taylor (2003), Appendix.

final analysis, caused the crisis and led to the collapse of the banking system[9]. This situation led to a marked decrease in CIM .

The turn of the century signaled the beginning of a period of economic recovery and political stability under conservative, autocratic governments which lasted until the First World War while the expansion of CIM peaked in 1921. In fact, the highest CIM levels in more than century under study are to be found in the Interwar years. It should be taken into account that until the crisis of the 1930s the free trade policy continued virtually unaltered[10]. Moreover, between 1890 and 1929 Argentina was anchored to the *currency board* due to the *Caja de Conversión* whose principal mission was to guarantee the currency's value abroad[11]. Perhaps more important is that the years between 1912, when universal secret ballot was introduced, and 1930, when a coup d'etat took place, Argentina enjoyed a transition to an open democracy in which it had an independent judiciary and a clear separation of powers (Alston and Gallo, 2003).

CIM decreased in the years following 1934, although its values were still high for another decade. This decline occurred at the time the foundations of independent judiciary were eroded as the 1930 coup d'etat was condoned by the Supreme Court and followed by electoral fraud which paved the way for populism[12]. This decline in CIM might be also associated with changes in macroeconomic policy. The public sector implemented a policy of balance budget after the Depression, which required new sources of income and reductions in spending[13]. Service payments on the national debt constituted a large part of public spending. The government created a plan which reduced the interest rate payable and extended the repayment period in order to reduce these payments[14]. The change in trade policy would also play its part[15]. Exchange

[9] According to Della Paolera and Taylor (2001), initially the crisis showed the typical symptoms of a traditional banking crisis, that is an increase in the amount of cash in the hands of the public, an increase in the banks' reserves-deposits ratio and the elimination of some financial institutions, which meant the destruction of deposits. Cf. della Paolera and Taylor (2001). P. 68.

[10] According to O'Conell there were few changes in trade policy, while the rest of the world returned to protectionism. During the 1920s Argentina continued its free trade policy as a producer of staple goods. The main change was the increase in tariffs from 25% to 60% of the official 'aforo' values in 1923. O'Conell (1986), p. 91. Cf. Di Tella (1986), pp. 122-123.

[11] The return to the gold standard took place in 1899 and, despite leaving it again in 1900, 1914 and 1929, the monetary authorities continued to act within its rules (della Paolera and Taylor, 1999).

[12] Cf. Alston and Gallo (2003) for a detailed institutional analysis of the origins of Argentina's economic decline. They emphasize the gap between good economic policies and political short-sightedness of the Conservatives during the 1930s.

[13] According to della Paolera and Taylor (1999), the effects of the fiscal decisions taken could have led to contraction until 1935 and it cannot be said that a New Deal type policy was practised.

[14] Alhadeff (1986), pp. 96, 107 and 110. According to della Paolera and Taylor (1999), this change of monetary policy was vital for Argentina's recovery as it helped to avoid devastating changes in prices, thus totally undermining expectations of deflation and encouraging recovery via increases in spending and investment.

[15] For Di Tella, the 1930 crisis was the watershed between free trade and protection in Argentina, although the main change came after the Second World War. Di Tella (1986), p. 128.

controls were introduced and the peso was significantly devalued more than once after the devaluation of the pound in 1931. Quantitative restrictions were also introduced at this time[16].

Perón's arrival in 1946 and two consecutive terms of office coincide with a fall of CIM to levels similar to those of the last decade of the nineteenth century. The electoral fraud of the 1930's leading to a popular disbelief in the rule of law, has been argued, was at the root of Colonel Perón's landslide in the first experience of universal (male and female) suffrage in Argentina[17]. Early Peronism was a period of macroeconomic shocks during which a strategy of import substitution industrialization was put into practice. Bilateral trade, exchange control and multiple exchange rates were its most important characteristics[18]. There was also an increase in the role of the state which is reflected in the increase in state-owned property, interventionism (including control of rents and prices) and higher levels of public spending, mainly financed by the inflationary tax[19]. The expansive macroeconomic policy, which aimed at the redistribution of wealth and the increase of spending to finance populist policies, led to inflation. The impeachment of the Supreme Court, as it represented an obstacle to populist policies, and the introduction of the 1949 Constitution destroyed the separation of powers and implied that property rights were no longer maintained through the rule of law (Alston and Gallo (2003).

CIM did not start its recovery until the late 1960s and it was in the early 1970s that levels of 1945 were regained. The sixties saw a policy change which included trying to deal with the problems of inflation, public deficit and foreign debt, as well as attempts to open the economy[20]. Perón's third term of office was characterized by an expansive monetary policy, which resulted in an uncontrolled rise in the level of inflation that renders CIM unrepresentative of secure property rights[21].

The evolution of Argentina's CIM relative to Australia's and Canada's stress our findings and point to the turn of the century and to so called 'Golden Age' as the phases in which the gap between Argentina and the two other regions of new settlement was wider (Graph 3).

[16] Alhadeff (1986), p. 104.
[17] Cf. Alston and Gallo (2003)
[18] Rock (1987)
[19] Di Tella and Dornbusch (1989), chapter 4.
[20] There were attempts to create an atmosphere which was favourable to private capital by the adoption of measures to stabilize and liberalize the economy under Frondizi's presidency and following an agreement with the IMF. Exchange rates were unified and many controls, both internal and external, were lifted. Under the Onganía dictatorship (1966-1970), a stabilization plan was introduced based on a strict fiscal policy and salary increases which were limited to the previous year's rate of inflation. Exchange controls were also withdrawn at the same time (Di Tella and Dornbusch, 1989, pp. 109, 202).
[21] Inflation reached 900% between 1975 and 1976. Cf. Di Tella and Dornbusch (1989).

Another way of placing the evolution of CIM into a wider economic context is to compare the relative position of each administration in terms of CIM and of other economic indicators throughout the more than hundreds years considered (Table 1). These economic indicators include a measure of financial development (M2/GDP), an index of macroeconomic and fiscal pressure constructed by Della Paolera, Irigoin, and Bózzoli (2003) (which ranks the relative improvement achieved by successive governments), and, finally, a 'reduced' index of economic freedom (RIEF), since its constraint often distorted economic performance in Argentina's history[22].

Actually, high public spending, import substitution, hyperinflation, and large gaps between the official and the market exchange rates are restrictions to economic liberty that have occasionally featured Argentine economic history. In order to take them into account we have constructed a 'Reduced' Index of Economic Freedom [henceforth RIEF][23]. The components of RIEF are, public consumption (*Gi*) as a proportion of total consumption (*Gi*/(*Gi*+*Ci*)), the 'depreciation in the real value of money' (*inflation rate*/100+*inflation rate*), and the weighted nominal protection (*tariff*), to which we added the difference (in logs) between the official exchange rate and the market rate ('*black market*'). To compute RIEF we have used factorial analysis, based on the principal components method, and the results appear in Table 2. The variables appear in the first component with positive weightings, which indicates that they are inversely related with economic freedom, so we had to multiply the value of each variable by -1 to obtain the components' values in the 'reduced' index. RIEF was calculated as a linear combination of these four variables, with the shares of the values obtained by factorial analysis for each component as a proportion of their total value as their respective weightings[24].

The relative improvement achieved by governments, as captured by CMFPI, offers phases of negative correlation with CIM: in 1863-86 (-0.78), which reflects efforts made by governments to overcome critical situations, and in 1917-45 (-0.23), which suggests the opposite, as governments do not seem to take advantage of the good legacies of previous ones. The positive correlation between the indicator of macroeconomic pressure and CIM in 1946-75 (0.56) would suggest that governments were unable to change inherited situations.

[22] M2/GDP is usually called 'financial depth'. The administration's distribution comes from Della Paolera, Irigoin, and Bózzoli (2003: 49-51).
[23] This index of economic freedom is reduced in the sense that it does not include other quantitative variables (and none of the qualitative variables) that are considered in the Fraser Foundation's Index of Economic Freedom, cf. Gwartney and Lawson (2003) for a definition and justification of the variables included in the Fraser index.
[24] These weightings are: 0.346 for *Gi/(Gi+Ci)*, 0.318 for *Inflation/(100+Inflation)*, 0.198 for *Tariff* and 0.137 for '*black market*'.

CIM and RIEF show a strong positive rank correlation up to 1945 (slightly stronger up to World War I: 0.99 for 1887-1916 and 0.75 for 1917-1945) while exhibit a negative correlation after World War II (-0.28 for 1946-75). Similarly, CIM presents a close association with financial development from the early 1890s to World War II (0.82) that weakens in the early twentieth century (0.40) to intensify between 1946 and 1975 (0.98). In the long run the association is strong and positive (0.73 for 1891-1975, but weaker for 1881-1975). Economic freedom and financial development seem, thus, to be associated to institutional stability, especially prior to World War II (Graphs 4 and 5). The rise of CIM following military intervention in 1966-73 seems consistent with the interpretation of CIM as an indicator of the security of property rights for capital[25].

What does CIM depend on for the historical case of Argentina?. In order to provide an answer we use, once again, principal components analysis, relating CIM to those political and economic variables which could influence its behavior. In addition to the 'reduced' index of economic freedom (RIEF), these include the number of changes of government in a given period of time (*Gobnu*); the time at which a change of government (*Gobmo*) or coup d'état (*Coup*) takes place; an index of 'financial depth' (M2/GDP) (*Depth*); and the nominal interest rate (*Interest*).

The results, presented in Table 3, show, for Factor 1, a strong positive association between CIM and the degree of financial development (*Depth*) and economic freedom (RIEF), and a negative association with political instability (*Gobnu*). In summary, economic freedom and political and economic stability underlie the changes in 'Contract-Intensive Money'. As these factors increase, the security of property rights, especially for capital**,** and institutional quality would improve**.**

CIM and economic growth in Argentina

To what extent did institutional stability influence the economic performance of Argentina in the long term? To answer this question we use a structural growth model based on a system of simultaneous equations designed to avoid problems of endogeneity.

Our starting point is a conventional growth equation in which the rate of variation of real product per head is dependent on GDP per capita in the initial period, on the average rate of change of active population over the time span considered (as an indicator of labor growth), on the average enrolment rate in primary and secondary education, lagged one period (to represent the growth of human capital), on the average rate of investment, lagged one period (as an

[25] Clague et al. (1999: 195-6) find in some instances an association between CIM increases and the arrival to power of strong military dictatorships.

approximate measure of physical capital growth) and, finally, on the average rate of variation of exports as a proportion of GDP (to indicate how openness evolved over each period).

Investment rate, however, is considered as an endogenous variable whose behavior is specified in a second equation depending on real interest rate, on the relative price of capital goods, on the average rate of variation of the dependency rate (that is, the ratio of population above 15 and below 65 years and population ages 15 to 64) and on institutional stability, represented by CIM.

Similarly, the relative price of capital goods is considered to be endogenous and, in a third equation, its evolution is expressed as a function of the initial level of GDP per head, and on the degree of economic freedom, measured by RIEF.

Finally, in a fourth equation, CIM is endogeneized as a function of those variables that load more heavily in Factor 1 of Principal Components Analysis: economic freedom (RIEF), financial development (*Depth*), and the number of changes of government in a given period of time (*Gobnu*).

All variables have been expressed in twenty year moving averages in order to smooth out the series and avoid bias which could result from the annual fluctuations. To estimate the system of equations we have employed three-stage least squares which uses instrumental variables to correct possible problems of endogeneity and double causality. This method also solves the problem of contemporary correlation between the residuals of the equations. The chosen method of estimation combines, therefore, the advantages of two-stage estimation and those of the SUR method. Unfortunately, quantitative evidence is not available for each independent variables throughout the considered period and this fact has conditioned the model's testing (see Sources in the Appendix).

The values of the above variables, their averages and standard deviations are shown in Table 4. The econometric results are presented in Table 5. We can observe that all variables have the expected sign and level of significance. In effect, the initial level of GDP per capita is negative and significant which suggests that the economy's growth potential is inversely related to its starting point. Consequently, an increase of 10 percent in the initial level of output per head would represent in model (3) a 0.3 percent [0.1*(-0.06/(1-0.98))= -0,3] decline in the rate of growth of real per capita GDP. The rate of variation of product per person is positively associated to that of the active population and an increase of one standard deviation would increase output growth by 0.5 percent. Economic growth is also directly and significantly related with investment and schooling rates. An increase of 10 percent in the rate of investment would represent, one

period later, an increase of 1.5 percent in per capita GDP growth; the same increase in rate of primary and secondary enrolment, one period later, would increase the rate of growth by 0.4 percent. Lastly, an increase of standard deviation in the openness rate of variation would provoke a rise of 0.1 percent in the rate of economic growth [0.0053*(0.393/(1-0.98))=0.104].

From the second equation we can conclude that the higher the real interest rate, the relative price of investment goods (in terms of consumer goods) and the dependency rate, the lower the proportion of GDP dedicated to capital formation, while the higher the value of CIM, the higher the investment rate. In other words, if the real interest rate, the relative price of capital goods or the annual variation of the dependency rate decreased by one standard deviation, the rate of investment would rise by 1.1, 3.4, and 0.7 percent, respectively. In turn, an increase of 10 percent in CIM, would rise the rate of investment by 6,4 percent. Thus, institutional stability, as captured by CIM, seems to be a major determinant of capital formation in Argentina. Moreover, such results tend to support the view that attributes the low rate of accumulation to the high dependency rate in the 'age of mass migration' (Taylor, 1992); Taylor and Williamson, 1994) and to the high relative prices of capital goods, after 1930 (Taylor, 1994, 1998). However, the idea that the relative price of capital goods did not have a clear effect on the demand for investment, as the government could influence this via monetary policy and public investment, does not find support in our statistical exercise[26].

In the third equation, the relative price of investment goods is negatively correlated with the 'reduce' index of economic freedom and with the initial level of GDP per head. Thus, an increase of RIEF by one standard deviation represents a reduction of 10.5 percent in the relative price of capital goods. In turn, a 10 percent increase in the initial level of output per head would represent a 0.6 percent decline in the relative price of capital goods. Hence, as the economy grows and liberalizes, the relative price of capital goods will fall.

Finally, in the fourth equation, CIM is inversely correlated with the number of government changes in a given period (*Gobnu*), and positively related with economic freedom and financial development. Thus, the marginal impact of a one standard deviation increase in '*Gobnu*' would reduce CIM by 5.6 percent [1.854*(-0.012/(1-1.922+0.926))= -5.56], while one standard deviation increase in 'financial depth' and in RIEF would rise CIM by 12.3 and 11.9 percent, respectively.

[26] Díaz Alejandro (1965), p. 25.

All in all, the results of the estimated system of equations suggest that in Argentina institutional stability and security of property rights, as measure by CIM, together with lower relative price of capital goods, historically associated to economic freedom, would lead to higher rates of investment and growth.

Concluding Remarks: A Counterfactual Proposition

This paper has analyzed the causes of Argentina's backwardness using a structural model which incorporates institutional stability in the form of the CIM indicator. The results obtained show that in Argentina, institutional instability hindered investment and, in consequence, economic growth.

We also know, from a comparison of CIM levels in Argentina with those of Australia and Canada, that, historically, in Argentina, economic agents have had less confidence in the institutional framework (Graph 3). In fact, the average value for Argentina is 0.67, compared with an average of 0.86 for the other two nations (computed for 1863-1974). This corresponds with a lower rate of investment, 13.5 percent of GDP in Argentina compared with an average of 20 percent for Australia and Canada (computed for 1885-1974).

So, we could wonder what would have happened if property rights had been better defined and enforced in Argentina? Would Argentina have caught up with Australia and Canada in terms of material welfare?

We propose, then, a counterfactual exercise which illustrates CIM's contribution to investment and, indirectly, to growth: What would have been the effects on rate of investment and, indirectly, on per capita GDP growth if a stable proportion, in terms of CIM, had been maintained between Argentina and Australia and Canada. We, then, simulate that Argentina's CIM value relative to Canada in 1882, a 0.622 ratio of, had remained unchanged during the period 1883-1916. We repeat the exercise for the period 1944-71, using the CIM relative to Canada for 1943 (0.776).

The result of this counterfactual exercise indicates that, *ceteris paribus*, a higher value of CIM would have led to a higher rate of investment which, in turn, would have increased Argentina's rate of growth (Table 6). For the period 1883-1916, a higher level of CIM would have increased the investment rate from 10.9 up to 20.2 percent which would have boosted the rate of economic growth from 1.4 to 4.6 percent per year. The simulation for the period 1944-1971 suggests that a higher CIM would have led to an increase in the rate of investment (from

22.1 to 23.5) and, indirectly, to a rise in the growth rate of product per capita from 1.4 to 2.1 percent.

It is clear that a higher level of CIM would have allowed Argentina to partially close the gap, in terms of GDP per capita, which separated it from Australia and Canada (Table 7). In fact, for the period 1883-1916, Argentina would have overcome Australia's product per person instead of representing only 70 percent of it and would have had a significantly higher standard of living than Canada. For the period between 1944 and 1971, the results of the simulation indicate that GDP in Argentina would have been nearly two-thirds of the levels in Australia and Canada, instead of only one-half.

This quantitative exercise leads us to the conclusion that, in an improved institutional framework Argentina would have reduced the gap with Australia and Canada.

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Australia

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Graph 1. Argentina's Relative GDP per Head, 1875-2001 (differences in logs)
(U.S. Relative Prices) [$ 1913, 1875-1939; $ 1980, 1940-2001]

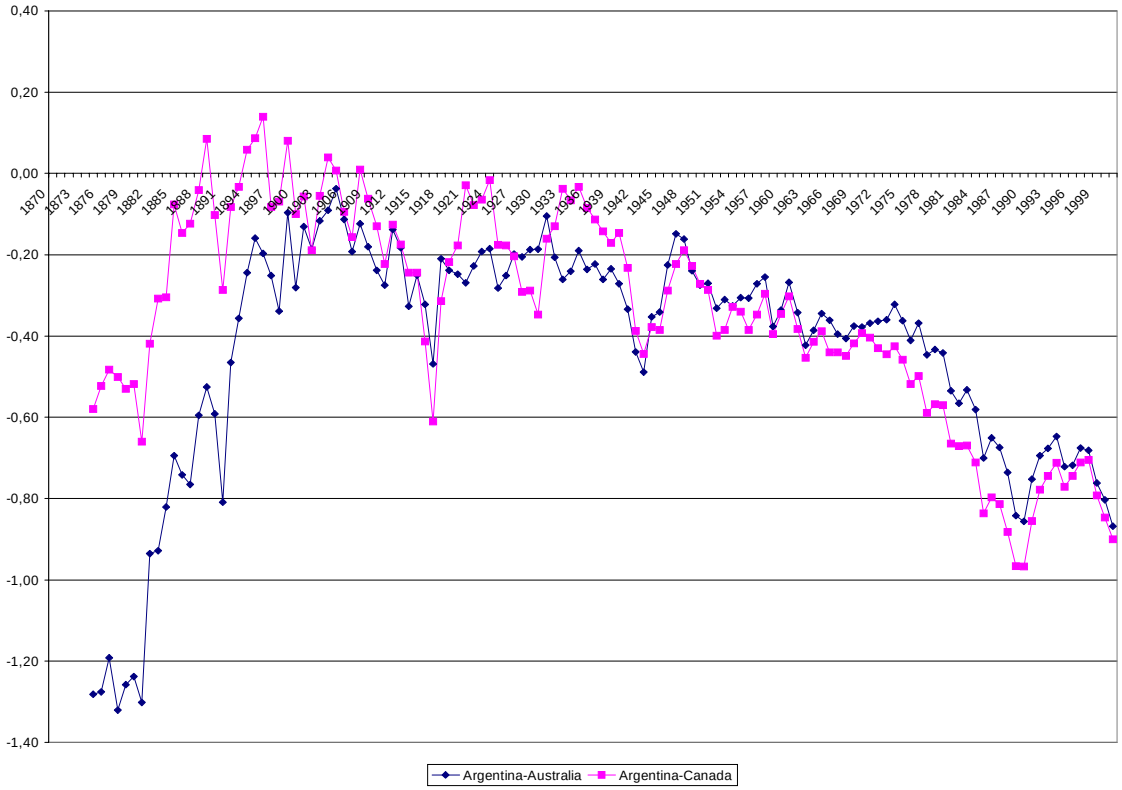


Table 1. CIM, CMFPI, RIEF, and M2/GDP: Comparative Ranking, 1863-1975

Years	*Administration*	**CIM**	**CMFPI**	**RIEF**	**M2/GDP**
1863/68	**Mitre**	22	1		
1869/74	**Sarmiento**	23	6		
1875/80	**Avellaneda**	26	4		
1881/86	**Roca**	15	12		10
1887/90	**Juárez Celman**	24	24	9	1
1891/92	**Pellegrini**	25	10	10	16
1893/98	**Sáenz Peña, L./Uriburu, J.E.**	17	21	7	17
1899/1904	**Roca**	13	2	6	15
1905/10	**Quintana/Figueroa Alcorta**	10	13	5	14
1911/16	**Sáenz Peña, de la Plaza**	8	17	3	13
1917/22	**Yrigoyen**	1	7	1	5
1923/28	**De Alvear**	4	22	2	7
1929/30	**Yrigoyen**	3	25	4	4
1931	**Uriburu**	2	11	8	2
1932/37	**Justo**	5	8	12	8
1938/42	**Ortiz/Castillo**	6	20	13	11
1943/45	**Ramírez/Farrell**	7	18	11	3
1946/51	**Perón**	12	5	14	6
1952/55	**Perón II**	18	9	15	9
1956/57	**Aramburu**	14	14	20	12
1958/61	**Frondizi**	19	19	19	18
1962/63	**Guido**	21	26	16	22
1964/66	**Illia**	20	15	18	23
1967/69	**Onganía**	11	3	17	20
1970/72	**Levingston/Lanusse**	16	23	21	21
1973/75	**Perón III**	9	16	22	19

CMFPI**:** *Combined Classical Macroeconomic and Fiscal Pressure Indices*
RIEF: *'Reduced' Index of Economic Freedom*
M2/GDP: *Financial Depth*

Table 2.

Principal Components Analysis to Construct the 'Reduced' Index of Economic Freedom

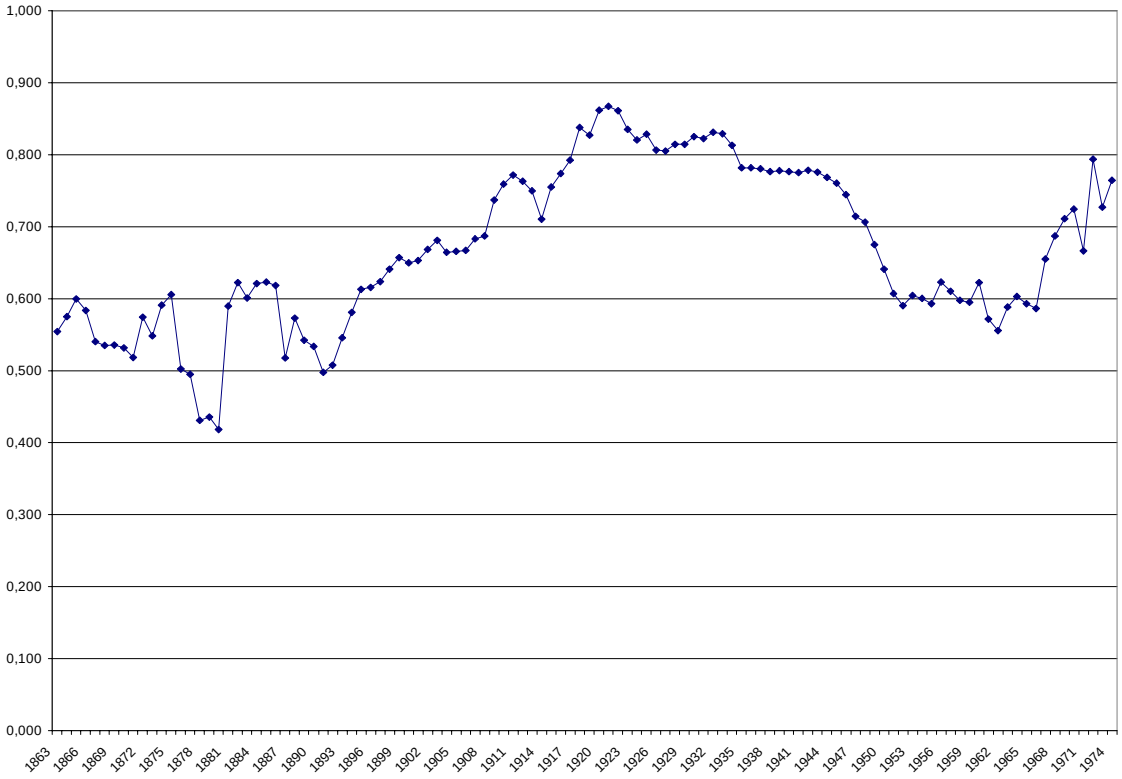
	Public Consumption/Total Consumption	**Real Depreciation of Money**	**Weighted Nominal Protection**	**'Black market'**
Factor 1	0.959	0.883	0.549	0.381
Factor 2	0.040	0.030	-0.694	0.830

Table 3.

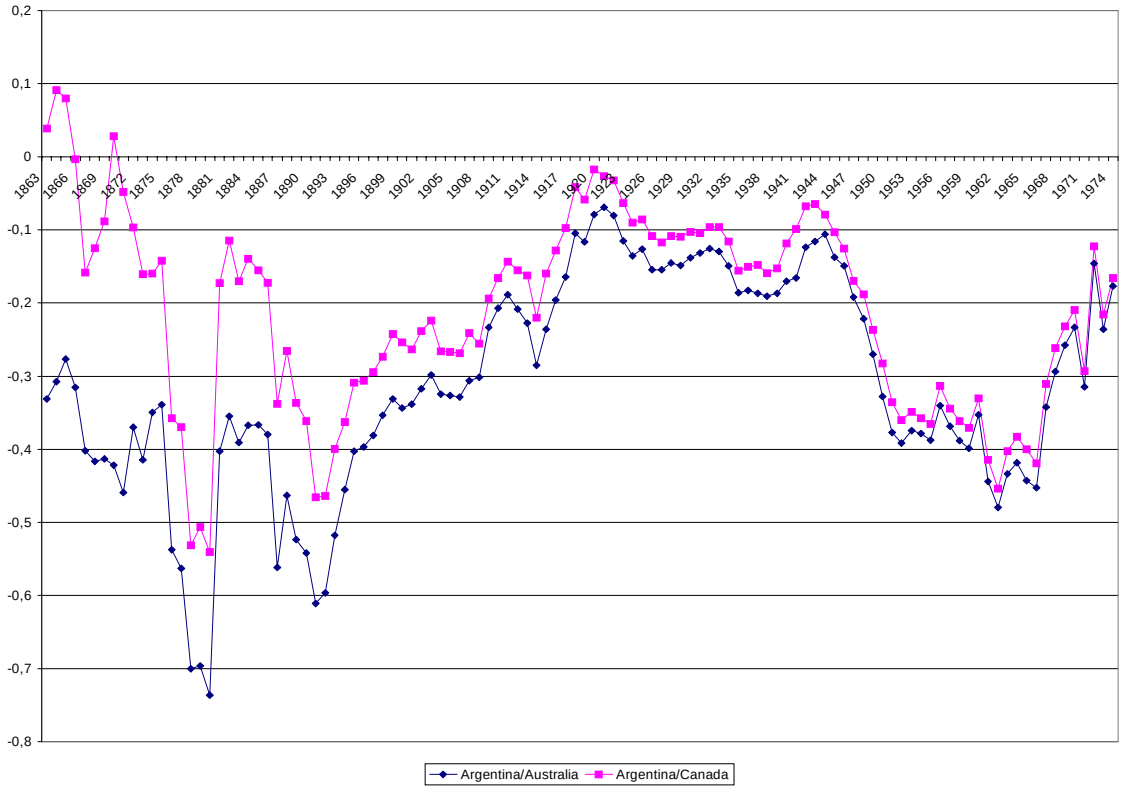
Principal Components Analysis of CIM determinants

	RIEF	**CIM**	**Interest**	**DEPTH**	**GOBNU**	**GOBMO**	**COUP**
Factor 1	0.803	0.662	-0.478	0.785	-0.850	0.432	-0.377
Factor 2	0.311	0.539	0.643	0.157	0.035	0.649	0.296

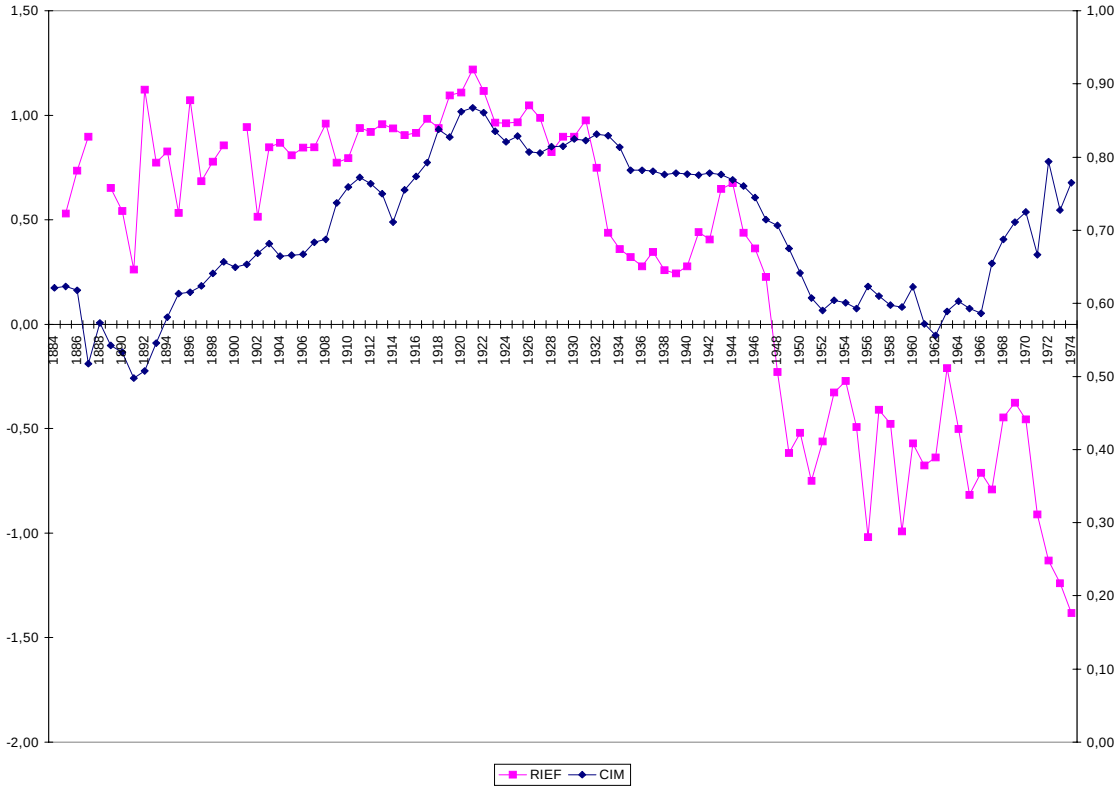
Graph 2: The Evolution of CIM in Argentina, 1863-1974



Graph 3. Argentina's Relative CIM, 1863-1974 (differences in logs)



Graph 4. The Evolution of CIM and RIEF, 1884-1974



Graph 5. The Evolution of CIM and M2/GDP, 1884-1974

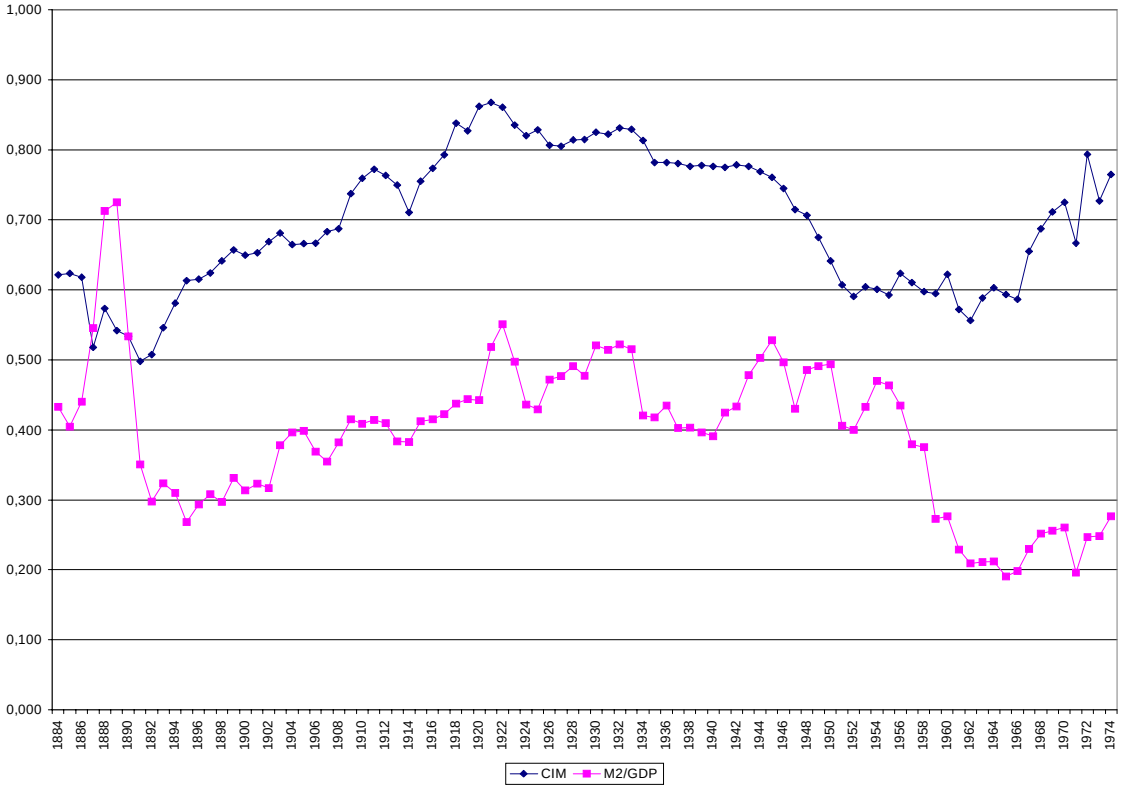


Table 4. Variables in the Model: Average and Standard Deviation

Variables	*Average (Standard Deviation)*
Per Capita GDP Growth	0.016
	(0.013)
Initial GDP per capita (in logs)	1.265
	(0.461)
Active Population Growth	0.011
	(0.004)
Primary and Secondary Enrolment	0.399
	(0.132)
Investment Rate	0.147
	(0.055)
Real Interest Rate	-0.179
	(0.413)
Dependency Rate (Rate of Variation)	0.011
	(0.002)
Relative Price of Capital Goods	-0.054
	(0.095)
CIM	0.723
	(0.073)
RIEF	-0.173
	(0.731)
Openness (Rate of Variation)	-0.004
	(0.005)
Financial Depth	0.388
	(0.084)
Number of Government Changes	5.017
	(1.854)

Table 5. Econometric Model

	(1)	(2)	(3)
Variables	***Coefficient*** *(t stat)*	***Coefficient*** *(t stat)*	***Coefficient*** *(t stat)*
Equation I			
*(*Dependent: *Per capita GDP growth)*			
Initial GDP per capita (in logs)	-0.054 (-12.61)	-0.054 (-12.61)	-0.060 (-13.18)
Active Population Growth	2.193 (4.13)	2.187 (4.11)	2.538 (4.35)
Investment (-1)	0.230 (4.99)	0.234 (5.066)	0.292 (5.97)
Primary and Secondary Enrolment (-1)	0.072 (2.97)	0.071 (2.909)	0.073 (2.31)
Openness (*Rate of Variation*)			0.393 (3.23)
AR(1)	0.951 (21.56)	0.952 (21.72)	0.980 (28.56)
R^2-Adj.	0.906	0.906	0.900
DW	2.015	2.015	1.886
Equation II			
*(*Dependent: *Investment Rate)*			
Constant	-0.296 (-6.11)	-0.123 (-2.448)	-0.137 (-2.64)
Real Interest Rate	-0.023 (-5.57)	-0.019 (-4.98)	-0.019 (-5.06)
Relative Price of Capital Goods	-0.307 (-2.45)	-0.346 (-2.99)	-0.347 (-2.97)
CIM	0.617 (20.85)	0.431 (13.74)	0.448 (14.16)
Dependency Rate (*Rate of Variation)*		-2.262 (-2.07)	-2.227 (-2.02)
AR(1)	1.946 (45.19)	1.926 (39.84)	1.926 (40.45)
AR(2)	-0.953 (-22.59)	-0.933 (-19.67)	-0.933 (-19.98)
R-adj	0.998	0.998	0.998
DW	2.086	1.993	2.001
Equation III			
*(*Dependent: *Relative Price of Capital Goods)*			
Initial GDP per capita (in logs)	-0.006 (-2.03)	-0.006 (-2.12)	-0.007 (-2.13)
RIEF (-1)	-0.075 (-53.80)	-0.071 (51.59)	-0.072 (-51.62)
AR(1)	1.936 (29.84)	1.939 (30.00)	1.938 (29.98)
AR(2)	-0.940 (-14.68)	-0.944 (-14.85)	-0.943 (-14.84)
R-adj	0.998	0.998	0.998
DW	1.865	1.864	1.863
Equation IV			
*(*Dependent: *CIM)*			
Constant	0.705 (2.09)	0.604 (5.17)	0.635 (3.99)
RIEF	0.070 (31.10)	0.057 (24.95)	0.065 (28.43)
Financial Depth	0.567 (32.98)	0.603 (34.55)	0.584 (33.55)
GOBNU(-1)	-0.012 (-10.23)	-0.013 (-10.84)	-0.012 (-10.47)
AR(1)	1.926 (42.52)	1.929 (44.23)	1.922 (42.95)
AR(2)	-0.928 (-19.74)	-0.933 (-20.61)	-0.9256 (-19.91)
R-Adj	0.998	0.999	0.998
DW	1.891	1.847	1.856

Instruments used in regressions

Equation 1: constant, Hodrick-Prescott trend of the dependent variable, GDP per capita, GDP per capita(-1), rate of variation of active population, rate of variation of active population(-1), primary and secondary enrolment, primary and secondary enrolment(-1), CIM, CIM(-1)

Equation 2: constant, Hodrick-Prescott trend of the dependent variable, GDP per capita(-1), 'black market', 'black market'(-1), RIEF, RIEF(-1), rate of variation of active population, rate of variation of active population(-1), relative price of capital goods, relative price of capital goods(-1)

Equation 3: constant, Hodrick-Prescott trend of the dependent variable, 'black market', 'black market'(-1), 'black market'(-2)
Equation 4: constant, Hodrick-Prescott trend of the dependent variable, GDP per capita, GDP per capita(-1), GDP per capita(-2), 'black market', 'black market'(-1)

Table 6. Simulation*: Actual and Counterfactual Values (%)

	Investment Rate	***Per Capita GDP Growth***
	Actual *(Counterfactual)*	Actual (Counterfactual)
1883-1916	**10.9** ***(20.2)***	**1.4** ***(4.6)***
1944-1971	**22.1** ***(23.5)***	**1.4** ***(2.1)***

***** Simulations carried out with Model 3 of Table 5.

Table 7. Argentina's Relative GDP per capita: Actual and Counterfactual Values* (%)

	Australia = 100	***Canada = 100***
	Actual *(Counterfactual)*	Actual *(Counterfactual)*
1883-1916	**70** ***(114)***	**103** ***(148)***
1944-1971	**54** ***(69)***	**48** ***(62)***

***** Simulations carried out with Model 3 of Table 5.