Institutions and Economic Growth of the Argentinian Provinces in the 20th Century

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Abstract

The main goal of this research is to improve our understanding of the determinants of the relative performances of the Argentinean provinces in the changing situation of the end of the 19th century and first half of the 20th century from an institutional standpoint. The contributions of this paper are twofold: first, we present a set of indicators of the relative quality of institutions in the Argentinean provinces in the last decades of the 19th century based on (i) some variables already used for Aráoz (2013) for the construction of an index of institutional quality at national level for Argentina in the period 1862-2013 but adapted to capture their provincial dimension (for instance Federal Interventions), and (ii) new variables based electoral rules. The second contribution of the paper is the analysis of the determinants of the economic growth of the provinces assessing the relative importance of the institutional factors against other possible factors like education and measures of economic inequality.

Key words: Argentina, Institutions, regional development

JEL Codes: N0; R0

I would like to thank comments and discussions on the topic with Esteban Nicolini, who additionally gave me the impetus to start and to hold this research, especially when it becomes very hard.

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Las garantías individuales proclamadas con tanta gloria, conquistadas con tanta sangre, se convertirán en palabras vanas, en mentiras relumbrosas, si no se hacen efectivas por medio de las garantías públicas. La primera de éstas es el gobierno, el poder ejecutivo revestido de la fuerza capaz de hacer efectivas el orden constitucional y la paz, sin las cuales son imposibles la libertad, las instituciones, la riqueza, el progreso. Juan Bautista Alberdi, Bases y puntos de partida para la organización política de la República Argentina, Capítulo XXV

1. Introduction

Levels of economic development vary widely across countries and several authors have argued that these large differences have their roots in the countries’ history, particularly in their institutional environments\(^2\). However, there is a wide array of definitions of the term “institutions”. Douglass North (1991), maybe the author most cited to define them, says that “institutions are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)”. Certainly, that is the concept that will be used in this paper.

The relation between institutions and economic growth has been extensively studied in the thirty last years; however the literature on this topic still remains confronted. From an empirical perspective, numerous studies have found a strong correlation between measures of institutions and economic development, and something of them sustain that institutions are the fundamental causes of growth\(^3\), however they have still not answered in a conclusive way the direction of causality (if any) and if it’s one-way. That is one of the reasons because this hypothesis was been widely criticized: maybe good institutions are consequence and not cause from a good performance. Przeworski (2004, p.184-185) sustains: “Institutions are not a deeper cause than the supply of factors or technology: institutions, to reiterate, may determine the supply of factors and their use, but these factors, in turn, affect growth and future wealth, which affect the evolution of institution. […] Institutions and development are mutually endogenous and the most we can hope for is to identify their reciprocal impacts”

With regard to the general approach used by studying the relation between institutions and economic performance, we can distinguish two alternatives\(^4\). One of them —maybe the most used in historical studies— explores the institutional determinants in historical, geographical and climatic factors that conditioned the types of settlements and institutions in several countries. In that field of research we found as benchmark the papers by Acemoglu et al. (2001) and Engerman and Sokoloff (1997, 2000). Although each focuses on different aspects, both share a common feature: they search the origins of

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\(^{2}\) See Acemoglu, Johnson, and Robinson (2005) and Nunn (2009) for reviews of this literature.

\(^{3}\) See, for example, Acemoglu and Robinson (2006) and Rodrick (2007, p. 154), who sustain: the question before policymakers, therefore, is no longer, “Do institutions matter?” but, “Which institutions matter and how does one acquire them?”

\(^{4}\) Probably, that is an oversimplification but serves to illustrate the point.
the differences between the level of development of countries in their historical roots. The analysis of Engerman and Sokoloff (1997, 2002), however, is primarily qualitative while the one by Acemoglu et al. presents econometric estimations of the causal effect of current domestic institutions on per capita income, using early European mortality rates as an instrument for institutions.

According to Acemoglu et al. and Engerman et al., to known and to explain the followed path in a group of countries we must to look back into history.

Another line of research studying the relationship between institutions and economic performance is based on the elaboration of institutional indicators which are used to study their correlation with levels of per capita income. The indicators of Governace by Kaufamnn et al. (2009) are maybe the best known, although they are far from unique. Broadly speaking, this kind of indicators distinguishes between those that measure formal rules and indicators from de ones that measure the practical application (or outcomes) of these rules. Some of these indicators rely on experts’ views and opinion surveys. In all cases, the timeline is relatively short and they are only available for the period starting in the second half of the twentieth century. Somehow, these kinds of indicators are useful under the assumption that institutions are not static, they change over time and, possibly, they get better as the society grows richer. From this point of view, the striving to study institutions evolution becomes important.

In this context, one of the goals of this paper is to develop a conceptualization and measure of institutions for Argentinean provinces, and use it to analyzing the possible relation between them and economic growth for the Argentinean Provinces in the last decades of the 19th century and early 20th century. This effort is valuable in itself, and it also constitutes an indispensable foundation necessary to move forward causal inference.

Till now, we know that in the first half of the 20th century Argentina’s economic performances experienced dramatic changes. Until a period of impressive economic growth between 1880 and 1914 the country’s levels of income per capital were very high. However, after the WWI and the economic recession of the 30s, the evolution of the main indicators of economic activity changed: the growth rate of GDP was less impressive, in particular in relative terms, and the levels of income per capita fall behind many other developed countries. Some researchers have suggested that weak institutions and the economic policies associated were crucial to understand this evolution. According to Cortés Conde (1998; pp. 7-9) “...para analizar el problema de la Argentina no debemos preguntarnos si la economía fue exitosa, sino

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5 Engerman and Sokoloff (2000) sustain: “...ascribing differences in development to differences in institutions raises the challenge of explaining where the differences in institutions come from” and this is the point where the works of both authors differs: Acemoglu et al (2001) developed a research agenda that sought to better understand the historical origins of current institutions and their importance for long-term economic development focuses on settler colonizers. Engerman and Sokoloff (1997, 2002) examined the importance of factor endowments and colonial rule for the subsequent economic development of colonies within the Americas.

6 In Acemoglu et al (2001), the authors have estimated a simple two-stage least squares (2SLS) regression with log GDP per capita today (in their case, in 1995) as the dependent variable, and a measure of economic institutions, proxied by protection against the risk of expropriation, as the key explanatory variable. This variable was treated as endogenous and instrumented with the logarithm of potential settler mortality.

7 In Kaufmann (2009) we can find a recompilation of this kind of indicators with the reference to the source.

This hypothesis has been explored empirically by Araoz (2013), Sanz Villarroya (2009) and Prados de la Escosura and Sanz Villaroya (2009). These authors construct institutional indicators for Argentina and then use them to evaluate the relationship between institutions and economic performance in that country. In all the cases, the authors found some support to the hypothesis that institutions have played some role in the Argentina’s performance. In section 2 we further develop this point.

From a regional perspective, we didn’t know very much. In part, because until very recently there was not any consistent measure of the economic situation of the provinces for any year before 1953, neither any acceptable way to measure institutions. Even though this last issue remains without solve, there had been some progress with regard to the first one. In Aráoz and Nicolini (2015) and Aráoz and Nicolini (2016) the GDPs of the Argentinean provinces in 1914 and 1895 were estimated showing that (i) Some of the provinces with high GDP were not located in the central area of the country (where the comparative advantages for agro-pastoral production are predominant) but in the periphery where population density was lower and land and livestock per capita were higher; (ii) The relative position of the provinces in 1895 and 1914 was quite similar to the relative position in the 1950s even though the economic structure of the country had changed substantially; (iii) The inequality between provinces, in terms of income per capita, is significant and persistent10; (iv) There was not absolute convergence across provinces in the first half of the 20th century but, curiously, there was absolute convergence in income per capita among the Argentine provinces between 1895 and 1914.

The persistence of inequality between regions within the same country, calls for descriptive and explanatory efforts to understand why this happened. Following to Sanz Villarroya (2009), Prados de la Escosura and Sanz Villaroya (2009) and Aráoz (2013), for the Argentina performance, I try to explore the hypothesis that provincial institutions may have played a role to explain the variability of economic outcomes across provinces. In that context, the main goal of this research is to improve our understanding of the determinants of the relative performance of the Argentinean provinces in the changing situation of the end of the 19th century and first half of the 20th century focusing on institutions. The main limitation of this approach is that we do not have any measure of institutions that allows us to explore this hypothesis.

The paper is organized as follows. Section 2 discusses the theoretical background; section 3 discusses previous results regarding the performance of Argentinean provinces between 1895 and 1953 and presents a proposal to measure institutions. Section 4 presents the results and section 5 concludes.

2. Theoretical Background.

Douglass North (1991, p. 97, italics supplied) defines institutions as “the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, regulations, laws of the market).”

9 “…to analyze the Argentina’s problem, we do not ask if its economy was successful, but if it has the suitable institutions to do it” (own translation).

10 To illustrate this, let’s think about the gap between the richest and the poorest province. While in the early twenty century the richest province (Santa Cruz) was 4.7 times richer than the poorest (Misiones), in the XXI century the gap was around 13 times, because according “unpublished” data from Ministerio de la Producción and INDEC, in 2014 the richest province was Ciudad de Buenos Aires, with a per capita GDP by $10.653; the poorest was Salta, with $3.426.(constant pesos from 1993)
property rights). According with North, institutions are formal constraints, informal or unwritten rules and enforcement mechanisms. While this sounds simple to understand, this may not be as straightforward to measuring as it may seem. In Douglass North words “We cannot see, feel, touch or even measure institutions; they are constructs of the human mind”\textsuperscript{11}.

Despite this, many papers have been highlighted the importance of institutions, but is not clear that the positive correlations between good institutions and better performance may imply that the first are causes (and not consequences) of the second one. Maybe one of the most important contributions from Acemoglu, Johnson y Robinson (2001, 2002) was that they recognize the two-way nature of this relationship at a theoretical level and uses an instrumental variable as identification strategy. Since then, an important number of studies have attempted to extend Acemoglu et al.’s line of research, providing evidence for the importance of historic institutions for current economic development. From sub-national perspective, we can see, for example, Banerjee and Iyer (2005) for Colonial India, Dell (2010) for Perú, Tabellini (2007) for Europe, or Acemoglu and Dell (2010) and Bruhn and Gallego (2012) for the Americas.

In fact, the question about how to measure institutions constitutes, even today, one of the bigger challenges for researchers who call attention to the role of institutions as the ultimate determinants of economic performance, and is the epicentre of the criticism from those that sustain that institutions are not deeper cause than other issues, as human capital. Glaeser et al. (2004), for example, observes that many empirical studies that purporting to show the crucial relevance of institutions are based on indicators that hardly measure institutions, basically because they don’t reflect constraints on government but political outcomes. However, these authors point out that the results of their paper do not show that “institutions do not matter”. “That proposition is flatly contradicted by a great deal of available empirical evidence, including our own. Rather, our results suggest that the current measurement strategies have conceptual flaws, and that researchers would do better focusing on actual laws, rules, and compliance procedures that could be manipulated by a policy maker to assess what works” (Glaeser et al, 2004; p. 298).

Beyond these critics, the role of institutions has become one popular research area in development economics, and the evidence largely comes from cross-section econometric studies. This is one of the main limitations of this approach that Chang (2011) highlights, because ignore the influence of economic development of institutional changes that, he argues, can potentially be caught with a time series analysis.

In this line of research, we can find the papers by Aráoz (2013), Sanz Villarroya (2009) and Prados de la Escosura and Sanz Villarroya (2009) for the Argentina case. These authors have constructed institutional indicators which have enabled us some progress in understanding the relationship between institutions and economic performance in that country in the long run.

The multidimensional indicator of institutional quality by Aráoz (2013) —ICI, Índice de Calidad Institucional—is constructed through the principal component analysis and covering the period 1862-2008. The ICI uses a set of variables that aim to measure the institution as formally specified in the legislation (de jure) and as factually implemented (de facto). Some of these variables are: changes in the National Constitution and the provincial Constitutions, declarations of State of Siege, Federal Interventions, Freedom of Press, Central Bank Independence. According to Aráoz (2013), periods of high institutional quality in Argentina coincided with the times of most expansion and growth; while

the poor institutional quality seemingly was reflected in lower growth rates and compromises the ability to Argentina to follow the countries with better performance.

In the other hand, Sanz Villarroya (2009) focuses exclusively on that she calls “the macroeconomic dimension of the institutional framework”, using a series of variables which reflect the nature of the policies implemented. These authors construct a “Reduced Index of Economic Freedom” (abbreviated as RIEF), based on the index created and published by the Fraser Institute since 1996, and including the relative weight of public consumption compared with total consumption, the real rate of depreciation of the currency, the level of nominal protection, and the difference between the official and the market rates of exchange.

Curiously, the ICI by Aráoz and the RIEF by Sanz Villarroya, although they were constructed in a very different way, seem to provide evidence for a similar trend. In fact, both of them show their highest values at the end of the nineteenth century. After this, although the figures remain high, there is a gradual falling trend, which in both cases becomes more pronounced in the 1930s.

With regard to Prados de la Escosura and Sanz Villarroya (2009), they elaborated an institutional indicator called “Contract Intensive Money” (CIM) based on Clague, Keefer, Knack and Olson (1999) which is equal to the percentage of deposits in the money supply. The idea behind this indicator is that the way financial assets are held depends on the definition of property rights: when they are well defined and guaranteed, it is not risky to keep assets in deposit accounts and, consequently, cash becomes a less attractive option. Therefore the proportion of deposits in the money supply will tend to increase.

Clearly, the CIM indicator and the RIEF are not the obvious alternative to attempts replicate a provincial indicator of institutions, because the variables used to come from the statistical national system and there are not available at the sub-national level. However, we can use some of the variables by the ICI, tailoring their definition in order to capture the provincial dimension. We will back on this issue in section 3 of this paper.

So, in Argentina, the relationship between institutions and economic performance has mostly been explored at the national level, but the sub-national level is still in its infancy. That is curious because at the sub-national level, even though regions within a country are subject to many common policies and regulations set by the national government, also set their own rules. What is more, the way in which the national rules are applied at the sub-national level, sometimes is different across regions, suggesting that institutions could be different.

Perhaps one exception (as far as what I know) is the PhD dissertation by Carlos Gervasoni (2011), which provides an entire theory of sub-national democracy in Argentina, by acquiring a detailed operationalization of the concept of sub-national democracy for the 24 provinces of Argentina between its re-democratization in 1983 and 2007. For this purpose, this author constructs objective measure of democracy (based on electoral and institutional indicators) and subjective ones, derived from a Survey of Experts on Provincial Politics. According to the definition of institutions that was outlined above,

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12 The objective index “Subnational Democracy” includes three indicators of (electoral) contestation —Executive Contestation, Legislative Contestation, and Succession Control— and two indicators of power concentration in the incumbent —Legislature Control and Term Limits. The subjective strategy was implemented through a survey of experts on provincial politics (SEPP), which yielded 19 indices (i.e. Fair Elections, Critical Journal, Punish Journal, Pluralistic Media, Free Protest, Legislative Control, Judicial Control, Police Repression, etc.) of 91 different aspects of sub-national regimes.
the objective approach is in principle more suitable than the subjective one, principally because perceptions-based indices are often consequences or outcomes, instead rules or constraints.

3. Previous Results: *Convergence, divergence and something else?*

In previous research (Aráoz and Nicolini, 2015) we have suggested that the relative position of the economic affluence of the 24 provinces in 1914 was almost the same than the one in 1953 even though the pace of economic growth, the sectoral composition of the economy and the set of dominant economic policies changed dramatically between those dates. In addition, we didn’t find signs of convergence among those provinces between 1914 and 1953. In fact, if anything, divergence seems to be the rule.\(^{13}\)

Afterwards, in Aráoz and Nicolini (2016) we have presented an estimation of the provincial GDP for the Argentina provinces in 1895, and we have founded that some characteristics of the regional distribution of per capita income observable in 1914 were already settled in 1895: the relative levels of income per capita were relatively stable between 1895 and 1914, Buenos Aires and Capital Federal have already become the main economic centre of the country (but that process accelerated until the WWI), and the poorest provinces at the end of the nineteenth century were the same until the middle of the twentieth century. Graph 1 shows three pictures of the per capita income for Argentinean Provinces, grouped into three categories according their per capita GDP level. We can see that at the end of nineteenth century, the letters have been already distributed. At least, in levels of per capita GDP refers.

One important finding in Aráoz and Nicolini (2016) is that there was absolute convergence in income per capita among the Argentine provinces between 1895 and 1914. This result contrasts dramatically with the pattern observed for Argentina in the period after 1914. See table 1.

At this point, it is necessary to clarify that, at the end of the nineteen century and until the middle of the twentieth century Argentina was made up by fourteen provinces, nine national territories and the city of Buenos Aires.\(^{14}\) Unlike provinces, the national territories were not autonomous, their authorities were designated by the national executive power and they didn’t have a Constitution neither their own set of political rules. That issue is not trivial, because as explained below, we have built the institutional indicator based on those formal rules.

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\(^{13}\) To compare the level and growth of economic activity across the provinces in Argentina we have used data from the Producto Bruto Geográfico (PBG). They were provided by Aráoz and Nicolini (2015) for the year 1914, Aráoz and Nicolini (2016) for the year 1895 and Elías (1996) for the year 1953. The main difference between the notion of GDP and PBG is the unit of observation for measuring the economic activity. When GDP is estimated for countries and a firm has productive units in more than one country, differentiation between “National” product and “Domestic” product is used and the respective flows are incorporated in the balance of payments. When GDP is estimated for a geographic unit smaller than a country (for instance a province), the added value is directly assigned to the productive unit according its geographic location. In this article we will use the English acronym GDP following notation in Rosés, Martínez Galarraga and Tirado (2010) for Spanish regions and Crafts (2005) for regional GDP in Britain and Aráoz and Nicolini (2015, 2016) for Argentinean provinces in 1895 and 1914.

\(^{14}\) The provinces were: Buenos Aires, Santa Fe, Entre Ríos, Corrientes, Córdoba, San Luis, Santiago del Estero, Mendoza, San Juan, La Rioja, Catamarca, Tucumán, Salta and Jujuy. The national territories in 1895 were: Misiones, Chaco, Formosa, La Pampa, Neuquén, Río Negro, Chubut, Santa Cruz and Tierra del Fuego. In 1900 was created the national territory called Los Andes, and this is the tenth national territory which it referred in the text. See map in the appendix.
**Graph 1: Per capita GDP levels in the fourteen Argentinian Provinces.**
*Years: 1895, 1914 and 1953*

(a) 1895  
(b) 1914  
(c) 1953

*Source: Table A1 in appendix.*

<table>
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<tbody>
<tr>
<td>Log initial GDP per capita</td>
<td>-0.3722***</td>
<td>-0.0511</td>
<td>0.1013</td>
<td>0.2568</td>
</tr>
<tr>
<td></td>
<td>(0.034)</td>
<td>(0.1633)</td>
<td>(0.0833)</td>
<td>(0.1540)</td>
</tr>
<tr>
<td>R²</td>
<td>0.5001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R² adj</td>
<td>0.4774</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob. &gt; F</td>
<td>0.0206</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N° Obs.</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>25</td>
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</table>

Results: Convergence No convergence No convergence No convergence

Notes: The table shows OLS regressions for the cross-section of provinces. The specifications include a constant, but we do not report the estimates in the table. Standard errors in parentheses Standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1


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15 The standard econometric approach to test convergence entails to estimate the parameter \( \hat{\beta} \) in an equation like:

\[
\text{Per capita GDP Growth}_{i,t} = a + \beta \ln(\text{Per capita GDP}_{i,t-1}) + c;
\]

where \( \text{per capita GDP Growth} \) is the average growth rate of per capita GDP in the province \( i \) between \( t_1 \) (the last period) and \( t_0 \) (the initial moment); and \( \ln(\text{Per capita GDP}_{i,t}) \) is the natural logarithm of per capita GDP in province \( i \) in the initial moment \( t_0 \). If \( \hat{\beta} < 0 \) and statistically significant, provinces with the highest level of per capita GDP at the beginning of the period will grow slowly, and we have found evidence for the convergence hypothesis.
The convergence results above are based on the analysis of these 24 areas, but, as I mentioned in the preceding paragraph, it seems to be useful to concentrate our attention only on the fourteen provinces. Graph 2, panel (a), shows the log of income per capita in 1895, in the horizontal axis, plotted against the log of income per capita in 1914 (from Aráoz and Nicolini, 2015), in the vertical axis; panel (b) shows the log of income per capita in 1914 plotted against the log of income per capita in 1953 (from Elías, 1996); and panel (c) shows the log of income per capita in 1895 (from Aráoz and Nicolini, 2016) plotted against the log of income per capita in 1953. The location of a dot corresponding to a province above the regression indicates that the growth rate of that province is above what its initial level would have been suggested. Buenos Aires, Córdoba, Jujuy and San Luis are above the regression line in panel (a) and (c), even though they start from very different levels in 1895: San Luis is the third poorest while Buenos Aires is second in the top. However, only Buenos Aires remains above the regression line in panel (b). Besides, the positive association between the incomes per capita in the three samples suggests a high persistence in that variable.

Graph 2: Logs of income per capita, only 14 Argentine Provinces

Regarding the analysis of convergence, when the national territories were removed from the analysis the results are somewhat different, particularly in the period after 1914. According table 2, even though absolute convergence is present between 1895 and 1914, and between 1895 and 1953, in the period 1914-1953 the results suggest no convergence. In fact, the results from the F test and the negative $R^2$
adjust imply that there is no evidence from a lineal regression between those variables. However, we must remember that these results are based only in 14 observations\textsuperscript{16}.

**Table 2: Analysis of absolute convergence in the 14 Argentine provinces**

<table>
<thead>
<tr>
<th>Dependent Variable: Per capita GDP Growth</th>
<th>Dependent Variable: Per capita GDP Growth</th>
<th>Dependent Variable: Per capita GDP Growth</th>
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<tbody>
<tr>
<td>1895-1914</td>
<td>1895-1953</td>
<td>1914-1953</td>
</tr>
<tr>
<td>Log initial GDP per capita</td>
<td>-0.005***</td>
<td>-0.004***</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.0006)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.6188</td>
<td>0.7652</td>
</tr>
<tr>
<td>$R^2$ adj</td>
<td>0.5870</td>
<td>0.7456</td>
</tr>
<tr>
<td>Probit.$&gt;F$</td>
<td>0.0008</td>
<td>0.0000</td>
</tr>
<tr>
<td>N\textsuperscript{o} Obs.</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Results</th>
<th>Convergence</th>
<th>Convergence</th>
<th>No significant</th>
</tr>
</thead>
</table>

Notes: The table shows OLS regressions for the cross-section of provinces. The specifications include a constant but, we do not report the estimates in the table. Standard errors in parentheses; * statistically significant at 10%; ** statistically significant at 5%; *** statistically significant at 1%

Source: Own estimates based on data from Aráoz and Nicolini (2015) and Aráoz and Nicolini (2016)

As was noted by Aráoz and Nicolini (2016), given that one of the main differences between the economic situation of Argentina before and after the WWI and the recession of the 1930's is the level of government intervention, the finding of convergence at the end of the 19th century opens the question about the relationship between government intervention, distortions of relative prices and convergence in the historical experience of Argentina in the last one hundred years. In that context, the analysis about the role played by institutions becomes more significant.

**Do Institutions matter?**

In order to study the incidence of institutions on economic performance, we need a measure of institutions for the provinces, according to the definition sketched in section 2. For this purpose, we have proposed a very preliminary indicator based on the combination of three variables: Term Limits, Democracy and Federal Interventions. In this preliminary stage, all these variables are measured only at three points of time: 1895, 1914 and 1953.

The data for the construction of the index were collected through several sources, principally the Provincial Constitutions, currently in force at each date. See the appendix for further details.

Voigt (2013, p.2) presents a proposal on how to measure institutions empirically, which can be summarized in four points: (1) measures of institutions should refer to specific institutions, (2) objective measures are generally preferable over subjective measures, (3) one should always aim at measuring the institution as formally specified in legislation (de jure) and as factually implemented (de facto), and finally (4) the ability to measure institutions does not imply the ability to create and modify institutions at will. In order to construct the institutional indicator for the Argentinean provinces, we have tried to follow (1) to (3) suggestions.

The principle followed to construct each variable was the same: in first term, suitability criteria have been established about what is considered a good institutional performance; then, provinces were assigned a score between 0 and 10 according to their answer, 10 for the case of the answer that we

\textsuperscript{16} That is a potential problem because when the number of data points is small, it may be difficult to detect assumption violations, such as non-normality. Besides, a linear regression on a small number of data points may not have sufficient power to detect when an estimator is statistically significant and, consequently, produces a non-significant P value.
considered the closer to the rules and 0 for the most distant. For the cases in which the possible answer was ranged in the middle of these extremes, we assigned intermediate scores according to the number of possible answers. For example, if a codification of a variable admitted three answers the possible scores were 0, 5 and 10; if there were 5 possible answers, the scores were 0, 2.5, 5, 7.5 and 10.

Following to Gervasoni (2011), **Term Limits** assumes that in less democratic districts governors will succeed in reforming provincial constitutions to scrap term limits. Hence, this variable is coded 10 if the constitution prohibits the immediate reelection of the governor, 6.66 if it permits only one immediate reelection, 3.33 if it allows two consecutive reelections and 0 if it does not limit reelections.

The variable **Democracy** was estimated trying to capture political stability, assuming that a political system is temporarily consistent if a society does not have incentives to change the political system. Thus, political stability is understood as changes in ownership of the Executive Power, National and Provincial, occurred within constitutional rules. We distinguish Subnational Democracy and National Democracy, and were coded as follows:

*Subnational Democracy*: 10 points if the governor completes its constitutional term (or if he died in the exercise of their duties, but was succeeded constitutionally), 6.66 if the governor gives up and is constitutionally success, 3.33 if the governor is deposed and constitutionally replaced by a federal interventor, and 0 if the governor is overthrown.

*National Democracy*: 10 points if the president completes its constitutional term (or if he died in the exercise of their duties but was succeeded constitutionally), 5 if the president gives up and is constitutionally success, 0 if the president is overthrown.

The variable **Federal Interventions** (FI) was taken from Aráoz (2013). From a national perspective, this constitutional tool involves a temporary and a significant increase of the presidential discretion, and many times was used violating the constitutional rules. From a provincial perspective, a federal intervention may be a symptom about the limitations of the provincial political power to ensure governance (perhaps by inability to manage conflicts of interest or failure of cooperation at the local level). In accordance with, Subnational FI was coded as follows:

*Subnational IF*: it is coded 0 when the IF was caused by an uprising against the Nation; 3.33 when the cause was an internal disturbance, caused by conflicts between powers; 6.66 when the cause was an internal disturbance caused by conflicts between political parties; 10 when there was no intervention.

The construction of these variables is only the very first step in the building of an institutional indicator for the Argentina provinces and certainly, they will not be the only. Perhaps at this stage their only purpose is to check whether the hypothesis of the importance of sub-national institutional quality is worth a closer look.

The next step was constructed and index based upon the three variables described above. I have opted for the simplest alternative, which is add all the scores, assuming equal weight to all the alternative answers, and that the different components of the index are perfect substitutes. Table A.2 in appendix shows the results.

Regarding the question “Do institutions matters?”, the (optimistic) answer provided by a very preliminary analysis could be a yes. When we regress the log of the income per capita in 1895 with the institutional indicator, their does appear to be linked in some way. Table 3 shows three models of OLS regressions at provincial level in which the dependent variable is the log of per capita GDP in 1895, 1914 and 1953, respectively. As a principal explanatory variable, we use our Institutions measure.
According to the model specification, the coefficient of R² varies between 30% and 76%. The parameter of Institutions is always positive and significant (most of the time) and it explains the 43% of the actual variability of the log of per capita GDP in 1895 when there is included alone, the 30% of the variability of the log of per capita GDP in 1914 and the 43% of the actual variability of the log of per capita GDP in 1953. These results would be suggesting that there is a systematic relation among these variables.

**Table 3: Institutions, literacy, inequality and per capita income, 14 Argentine provinces.**

<table>
<thead>
<tr>
<th></th>
<th>Dependent Variable:</th>
<th>Dependent Variable:</th>
<th>Dependent Variable:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per capita GDP 1895</td>
<td>Per capita GDP 1914</td>
<td>Per capita GDP 1953</td>
</tr>
<tr>
<td>Institutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1985)</td>
<td>0.086**</td>
<td>0.044**</td>
<td>0.034**</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.018)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Literacy</td>
<td>0.0192***</td>
<td>0.020***</td>
<td>0.013***</td>
</tr>
<tr>
<td>(1985)</td>
<td>(0.060)</td>
<td>(0.006)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Inequality</td>
<td>0.05</td>
<td>-0.033</td>
<td>0.035</td>
</tr>
<tr>
<td>(1895)</td>
<td>(4.6321)</td>
<td>(0.035)</td>
<td>(0.037)</td>
</tr>
</tbody>
</table>

R²: 0.4329 0.7050 0.7470
R² adj: 0.3857 0.6513 0.6711
Prob.>F: 0.01 0.0012 0.0026
N° Obs: 14 14 14

Notes: The table shows OLS regressions for the cross-section of provinces. The specifications include a constant, but we do not report the estimates in the table. Standard errors in parentheses; * Statistically significant at 10%; ** Statistically significant at 5%; *** Statistically significant at 1%

Source: Own estimates based on data from Aráoz and Nicolini (2015) and Aráoz and Nicolini (2016)

The coefficient of Literacy is also significant and positive in the models in which it is included, showing that an increment in the literacy rate of one percentage point will have an increment in the per capita GDP around 2%. The coefficient of Inequality is positive in specification 1 and 3 but negative in model 2, still is not significant in the three cases.

The results about conditionally convergence are also encouraging. Table 4 presents the standard OLS growth regressions using the indicator of institutions. The depended variable is the growth of per capita GDP between 1895-1914; 1895-1953 and 1914-1953. Following Barro (1991), the independent variables are initial per capita GDP, initial education (measured by the literacy rate) and an indicator from initial inequality. The results confirm the observation of convergence in the periods 1895-1914 and 1895-1953, as well the influence of institutions and literacy, though the latter is only evident in the

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17 The Second Census of the República Argentina, collected on May 1895, provides information about literacy in vol. II, table XIII. Literacy is constructed as a ratio between the number of people older than 6 years who know how to read or write and the total people older than 6 years in each province.

18 “Inequality” is an index constructed by Martinez and Nicolini (forthcoming) that combining the two measures of inequality: “GiniLand”, which is a Gini index constructed from data of agricultural land and their different extensions in 1914, and “PropShare” which is the proportion of proprietor of real estate in the total population adult in 1895. Because the data used to construct GiniLand is from the census of 1914, Martinez and Nicolini (forthcoming) assumes that inequality in the period 1895-1914 was relatively constant.

19 We cannot ignore the problem of possible endogeneity between institutions and growth that we have mentioned at the beginning of this paper. That problem occurs when an explanatory variable is correlated with the error term in a regression, in which case, the estimate of the regression coefficient in an Ordinary Least Squares (OLS) regression is biased; however if the correlation is not contemporaneous, then the coefficient estimate may still be consistent. So, may be the convergence results are less affected by endogeneity if institutions are measured at the beginning of the period.
period 1895-1914. In addition, table 4 do not shows evidence from a relationship between economic growth over the three periods and inequality.

**Table 4: Analysis of conditionally β convergence in the 14 Argentine provinces**

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per capita GDP Growth 1895-1914</td>
<td>Per capita GDP Growth 1895-1953</td>
<td>Per capita GDP Growth 1914-1953</td>
</tr>
<tr>
<td>Log initial GDP per capita</td>
<td>-0.04*** (-0.009)</td>
<td>-0.06*** (-0.011)</td>
<td>-0.06*** (-0.01)</td>
</tr>
<tr>
<td>Institutions 1895</td>
<td>0.001 (0.009)</td>
<td>0.001* (0.007)</td>
<td>0.004 (0.007)</td>
</tr>
<tr>
<td>Literacy 1895</td>
<td>0.0008** (0.003)</td>
<td>0.0007* (0.0008)</td>
<td>0.0004 (0.0008)</td>
</tr>
<tr>
<td>Inequality 1895</td>
<td>-0.1912 (0.1920)</td>
<td>-0.06 (0.0003)</td>
<td>-0.02 (0.0003)</td>
</tr>
<tr>
<td>R²</td>
<td>0.6503</td>
<td>0.5134</td>
<td>0.5202</td>
</tr>
<tr>
<td>R² adj</td>
<td>0.7573</td>
<td>0.5122</td>
<td>0.5202</td>
</tr>
<tr>
<td>Prob.&gt;F</td>
<td>0.0004</td>
<td>0.063</td>
<td>0.1376</td>
</tr>
<tr>
<td>N° Obs.</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

Notes: The table shows OLS regressions for the cross-section of provinces. The specifications include a constant, but we do not report the estimates in the table. Standard errors in parentheses; * Statistically significant at 10%; ** Statistically significant at 5%; *** Statistically significant at 1%

The analysis of convergence for the period 1914-1953, as in table 2, is not significant: the p-value of F-statistic varies between 0.53 and 0.15, according the specification model. The R² value of 0.1078 in the model in which only the variable “institutions” is included as control means that the model explains scarcely 10.78% of the variability in the response. However, in this case the negative R² adjusted can be interpreted as being zero.

Finally, we have tested the hypothesis of conditional convergence using Federal Interventions, instead of the institutional indicator. The results are presented in table 5.

**Table 5: Analysis of conditionally β convergence in the 14 Argentine provinces**

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per capita GDP Growth 1895-1914</td>
<td>Per capita GDP Growth 1895-1953</td>
<td>Per capita GDP Growth 1914-1953</td>
</tr>
<tr>
<td>Log initial GDP per capita</td>
<td>-0.042*** (0.0072)</td>
<td>-0.0546*** (0.0080)</td>
<td>-0.0496*** (0.0061)</td>
</tr>
<tr>
<td>Federal interventions (1895)</td>
<td>0.0049** (0.0018)</td>
<td>0.0045** (0.0016)</td>
<td>0.0048*** (0.0015)</td>
</tr>
<tr>
<td>Literacy (1895)</td>
<td>0.0006** (0.0002)</td>
<td>0.0005 (0.0002)</td>
<td>0.0005 (0.0002)</td>
</tr>
<tr>
<td>Inequality (1895)</td>
<td>-0.2499 (0.1563)</td>
<td>-0.2499 (0.1563)</td>
<td>-0.2499 (0.1563)</td>
</tr>
<tr>
<td>R²</td>
<td>0.7573</td>
<td>0.8453</td>
<td>0.8795</td>
</tr>
<tr>
<td>R² adj</td>
<td>0.7131</td>
<td>0.7968</td>
<td>0.8260</td>
</tr>
<tr>
<td>Prob.&gt;F</td>
<td>0.0004</td>
<td>0.0002</td>
<td>0.0004</td>
</tr>
<tr>
<td>N° Obs.</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Results</td>
<td>Convergence</td>
<td>Convergence</td>
<td>Convergence</td>
</tr>
</tbody>
</table>

Notes: The table shows OLS regressions for the cross-section of provinces. The specifications include a constant, but we do not report the estimates in the table. Standard errors in parentheses; * Statistically significant at 10%; ** Statistically significant at 5%; *** Statistically significant at 1%

Source: Own estimation
We can see that the convergence results for the period 1895-1914 and 1895-1953 remains, although the significance of the institutional variable is increasing. In fact, the estimated parameter is significant in the three specifications for the period 1895-1914, and it is even more remarkable that the $R^2$ also becomes higher.

4. Conclusions, caveats and further research

The estimates of provincial GDPs per capita in 1895 and 1914 (Aráoz and Nicolini, 2015, 2016) show a surprising persistence in the relative positions of the provincial average income during the end of the 19th century and the first half of the 20th century. In this context, the main goal of this paper was to improve our understanding of the determinants of the relative performances of the Argentinean provinces; mostly we have explored the institutional hypothesis.

One of the contributions of this paper is to present a new indicator of the relative quality of institutions in the Argentinean provinces in the last decade of the 19th century, which has a potential to assess institutions for Argentina at provincial level. The institutional indicator was constructed following the definition by North (1991) and the proposal by Voigt (2013) regarding the way in which institutions were measured, and although still is in the preliminary stages, it seems to be promising.

The second contribution of this paper arises upon the econometric analysis of the determinants of the economic growth of the provinces, assessing the relative importance of the institutional factors against other possible factors like education and economic inequality. This analysis has been consistent with previous results about convergence in the Argentinean provinces, but mostly shows that, in fact, institutions matters.

In this very preliminary instance, an optimistic view of the results showed, suggests that institutions could be had played some important role to explain the relative performance of the Argentinean provinces. Indeed, when institutions are added to the convergence analysis, the results are significant. An analysis of the economic meaning of these results is necessary and is leading the agenda for the further research.

Many improvements can be suggested in the selection of the indicators that can be compiled to measure institutions, as well as in the process of combining them. Given the crucial role that institutions play in our hypothesis and results, one of the priorities in our research is to strength its measure.

In this preliminary version of the paper, we explore three possible dimensions of institutions. However, we believe that more and deeper effort is necessary to advance forward in. Therefore, the next step in our research is to explore new indicators related to franchise to vote and electoral participation, provincial fiscal imbalances and judicial independence. Of course, the list is not exhaustive and is still open to revision.

Once defined the institutional indicator, we will construct a time-series to capture what Chang (2011) called the “complexities that characterize the domain of institutions”. This is not a minor detail because if the institutional quality measure across Argentine provinces replicate the wide variability showed for Argentina’s institutional indicators (as the RIEF by Sanz, the CIM by Prados and Sanz, and the ICI by Aráoz), focusing our analysis in only one point of the time might be risky.

Once defined, will be constructing a time-series of the institutional indicator that enable us to capture that Chang (2011) called the “complexities that characterize the domain of institutions”. That is not a
minor detail because if the institutional quality by province replicate the wide variability showed for Argentina’s institutional indicators (as the RIEF by Sanz, the CIM by Prados and Sanz, and the ICI by Aráoz), therefore focussing our analysis in one point of the time it is at the least risky.

Despite all that has been said, we have still a long way to go. In this paper, we have taken a small step forward, but constitutes only a first approach to how measure provincial institutions and it will be necessary a greater effort to improve it. The good news is that, apparently, there is light at the end of the tunnel.
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________________________ (2005), Institutions as the Fundamental Cause of Long-Run Growth (pp. 385–472), in Philippe Aghion and Stephen Durlauf (Eds.), Handbook of Economic Growth (Amsterdam: Elsevier).


Dell, Melissa (2010), The Persistent Effects of Peru’s Mining Mita. Econometrica, Vol. 78, No. 6, pp. 1863–1903


Martínez, A. y Nicolini, E. (forthcoming): ”The long memory of poverty: the (Historical) Unsatisfied Basic Needs approach and the geographic patterns of poverty rates in Argentina in the last 100 years”


## Appendix

### Table A1: Provincial aggregate and per capita GDP. Years 1895, 1914 and 1953

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Aggregate GDP 1895</th>
<th>Aggregate GDP 1914</th>
<th>Aggregate GDP 1953</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current 1895 $</td>
<td>GDP Per Capita</td>
<td>Constant 1914 $</td>
</tr>
<tr>
<td>Capital</td>
<td>455,546,527</td>
<td>686,21</td>
<td>1,083,949,091</td>
</tr>
<tr>
<td>Buenos Aires</td>
<td>510,257,466</td>
<td>553,92</td>
<td>1,216,676,876</td>
</tr>
<tr>
<td>Santa Fe</td>
<td>304,498,922</td>
<td>766,64</td>
<td>532,209,298</td>
</tr>
<tr>
<td>Entre Ríos</td>
<td>139,489,875</td>
<td>477,67</td>
<td>178,049,434</td>
</tr>
<tr>
<td>Corrientes</td>
<td>63,161,618</td>
<td>263,59</td>
<td>111,844,857</td>
</tr>
<tr>
<td>Córdoba</td>
<td>121,582,810</td>
<td>346,17</td>
<td>360,575,324</td>
</tr>
<tr>
<td>San Luis</td>
<td>16,864,828</td>
<td>207,06</td>
<td>56,479,653</td>
</tr>
<tr>
<td>Santiago del Estero</td>
<td>31,722,679</td>
<td>196,42</td>
<td>59,736,414</td>
</tr>
<tr>
<td>Mendoza</td>
<td>55,386,963</td>
<td>476,91</td>
<td>122,905,621</td>
</tr>
<tr>
<td>San Juan</td>
<td>42,876,442</td>
<td>508,91</td>
<td>40,468,725</td>
</tr>
<tr>
<td>La Rioja</td>
<td>14,407,602</td>
<td>207,3</td>
<td>31,040,546</td>
</tr>
<tr>
<td>Catamarca</td>
<td>16,161,800</td>
<td>179,25</td>
<td>24,056,452</td>
</tr>
<tr>
<td>Tucumán</td>
<td>119,731,059</td>
<td>554,97</td>
<td>125,199,469</td>
</tr>
<tr>
<td>Salta</td>
<td>32,150,164</td>
<td>272,42</td>
<td>47,632,564</td>
</tr>
<tr>
<td>Jujuy</td>
<td>14,947,128</td>
<td>300,67</td>
<td>35,949,115</td>
</tr>
<tr>
<td>Misiones</td>
<td>9,679,188</td>
<td>291,87</td>
<td>12,736,330</td>
</tr>
<tr>
<td>Formosa</td>
<td>2,655,662</td>
<td>549,94</td>
<td>9,417,396</td>
</tr>
<tr>
<td>Chaco</td>
<td>4,985,447</td>
<td>478,36</td>
<td>19,465,143</td>
</tr>
<tr>
<td>La Pampa</td>
<td>15,466,177</td>
<td>596,83</td>
<td>62,896,895</td>
</tr>
<tr>
<td>Neuquén</td>
<td>2,684,550</td>
<td>184,92</td>
<td>10,986,423</td>
</tr>
<tr>
<td>Río Negro</td>
<td>4,211,003</td>
<td>455,69</td>
<td>20,832,816</td>
</tr>
<tr>
<td>Chubut</td>
<td>1,618,963</td>
<td>431,95</td>
<td>11,947,159</td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>1,343,276</td>
<td>1,269,64</td>
<td>11,041,224</td>
</tr>
<tr>
<td>Tierra del Fuego</td>
<td>569,851</td>
<td>1,194,66</td>
<td>2,541,785</td>
</tr>
</tbody>
</table>

**Source:** Aráoz and Nicolini (2015, 2016); Elias (1996)
### Table A.2: Institutional Indicator, by province

<table>
<thead>
<tr>
<th>Province</th>
<th>1895</th>
<th></th>
<th></th>
<th>1914</th>
<th></th>
<th></th>
<th>1953</th>
<th></th>
<th></th>
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</thead>
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<tr>
<td></td>
<td>INST.</td>
<td>Term Limits</td>
<td>Dem.</td>
<td>FI</td>
<td>INST.</td>
<td>Term Limits</td>
<td>Dem.</td>
<td>FI</td>
<td>INST.</td>
</tr>
<tr>
<td>Buenos Aires</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>27.5</td>
<td>10</td>
<td>7.5</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Santa Fe</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>22.5</td>
</tr>
<tr>
<td>Entre Rios</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Corrientes</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Córdoba</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>San Luis</td>
<td>20</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Santiago del E.</td>
<td>15.83</td>
<td>10</td>
<td>2.5</td>
<td>3.33</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Mendoza</td>
<td>27.5</td>
<td>10</td>
<td>7.5</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>San Juan</td>
<td>25</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>La Rioja</td>
<td>21.66</td>
<td>10</td>
<td>5</td>
<td>6.66</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Catamarca</td>
<td>22.5</td>
<td>10</td>
<td>2.5</td>
<td>10</td>
<td>30</td>
<td>10</td>
<td>10</td>
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<td>20</td>
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<td>Tucumán</td>
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<td>10</td>
<td>2.5</td>
<td>10</td>
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</tr>
<tr>
<td>Salta</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>22.5</td>
<td>10</td>
<td>2.5</td>
<td>10</td>
<td>30</td>
</tr>
</tbody>
</table>

Source: see text

### Table A.3: Term Limitis, according the alternative Constitutions, by province and year

<table>
<thead>
<tr>
<th>Province</th>
<th>Year 1895</th>
<th></th>
<th></th>
<th>Year 1914</th>
<th></th>
<th></th>
<th>Year 1953</th>
<th></th>
<th></th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buenos Aires</td>
<td>1</td>
<td>119</td>
<td>1889</td>
<td>1</td>
<td>119</td>
<td>1889</td>
<td>1</td>
<td>93</td>
<td>1949</td>
<td>2</td>
</tr>
<tr>
<td>Santa Fé</td>
<td>1</td>
<td>35</td>
<td>1890</td>
<td>1</td>
<td>s/d</td>
<td>1907</td>
<td>1</td>
<td>s/d</td>
<td>1949</td>
<td>1</td>
</tr>
<tr>
<td>Entre Rios</td>
<td>1</td>
<td>117</td>
<td>1883</td>
<td>1</td>
<td>147</td>
<td>1903</td>
<td>1</td>
<td>120</td>
<td>1933</td>
<td>2</td>
</tr>
<tr>
<td>Corrientes</td>
<td>1</td>
<td>128</td>
<td>1889</td>
<td>1</td>
<td>102</td>
<td>1913</td>
<td>1</td>
<td>88</td>
<td>1949</td>
<td>2</td>
</tr>
<tr>
<td>Córdoba</td>
<td>1</td>
<td>s/d</td>
<td>1883</td>
<td>1</td>
<td>s/d</td>
<td>1912</td>
<td>1</td>
<td>s/d</td>
<td>1949</td>
<td>2</td>
</tr>
<tr>
<td>San Luis</td>
<td>1</td>
<td>37</td>
<td>1855</td>
<td>1</td>
<td>s/d</td>
<td>1906</td>
<td>1</td>
<td>s/d</td>
<td>1949</td>
<td>2</td>
</tr>
<tr>
<td>Santiago del Estero</td>
<td>1</td>
<td>120</td>
<td>1884</td>
<td>1</td>
<td>63</td>
<td>1911</td>
<td>1</td>
<td>74</td>
<td>1939</td>
<td>2</td>
</tr>
<tr>
<td>Mendoza</td>
<td>1</td>
<td>s/d</td>
<td>1895</td>
<td>1</td>
<td>s/d</td>
<td>1910</td>
<td>1</td>
<td>s/d</td>
<td>1949</td>
<td>0</td>
</tr>
<tr>
<td>San Juan</td>
<td>1</td>
<td>88</td>
<td>1879</td>
<td>1</td>
<td>88</td>
<td>1912</td>
<td>1</td>
<td>71</td>
<td>1949</td>
<td>3</td>
</tr>
<tr>
<td>La Rioja</td>
<td>1</td>
<td>71</td>
<td>1865</td>
<td>1</td>
<td>s/d</td>
<td>1909</td>
<td>1</td>
<td>s/d</td>
<td>1949</td>
<td>2</td>
</tr>
<tr>
<td>Catamarca</td>
<td>1</td>
<td>129</td>
<td>1895</td>
<td>1</td>
<td>129</td>
<td>1895</td>
<td>1</td>
<td>s/d</td>
<td>1949</td>
<td>4</td>
</tr>
<tr>
<td>Tucumán</td>
<td>1</td>
<td>109</td>
<td>1884</td>
<td>1</td>
<td>84</td>
<td>1907</td>
<td>1</td>
<td>85</td>
<td>1949</td>
<td>2</td>
</tr>
<tr>
<td>Salta</td>
<td>1</td>
<td>112</td>
<td>1888</td>
<td>1</td>
<td>113</td>
<td>1906</td>
<td>1</td>
<td>118</td>
<td>1949</td>
<td>3</td>
</tr>
<tr>
<td>Jujuy</td>
<td>1</td>
<td>s/d</td>
<td>1893</td>
<td>1</td>
<td>s/d</td>
<td>1910</td>
<td>1</td>
<td>s/d</td>
<td>1949</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: s/d implies that we did not hold to the constitutional text yet. In those cases the score was assigned on the basis of secondary sources, for example for Santa Fe: Comisión Redactora de la Historia de las Instituciones de la Provincia de Santa Fe (1979), Historia de las instituciones de la Provincia de Santa Fe. Vol 2 Descripción: Documentos: Tratados, convenciones y constituciones; and Macor, Darío. (2004). Dinámica política y tradición constitucional: la reforma de 1949 en la provincia de Santa Fe. Quinto
The constitution prohibits the immediate re-election of the governor, vice-governor, the succession between them, or that of a relative.

The constitution allows for immediate re-election.

The constitution allows two consecutive re-elections.

The constitution allows for consecutive re-elections indefinitely.

Source: own elaboration on basis the alternative provincial constitutions.

Table A.4: Buenos Aires and Tucumán Governors

Note: table A4 shows a detail of governors of the provinces of Buenos Aires and Tucuman who governed between 1890 and 1921. The table is provided just as an example; provinces and governors remaining are excluded, but there are available upon request.

<table>
<thead>
<tr>
<th>Periodo</th>
<th>Buenos Aires</th>
<th>Tucumán</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gobernador</td>
<td>Mandato</td>
</tr>
<tr>
<td>1890-1893</td>
<td>Julio A. Costa</td>
<td>Derrocado</td>
</tr>
<tr>
<td>1894-1898</td>
<td>Guillermo Udaondo</td>
<td>Concluye</td>
</tr>
<tr>
<td>1898-1902</td>
<td>Bernardo de Irigoyen</td>
<td>Concluye</td>
</tr>
<tr>
<td>1902-1906</td>
<td>Marcelino Ugarte</td>
<td>Concluye</td>
</tr>
<tr>
<td>1906-1910</td>
<td>Ignacio Darío Irigoyen</td>
<td>Concluye</td>
</tr>
<tr>
<td>1910-1912</td>
<td>José Inocencio Arias</td>
<td>Fallece</td>
</tr>
<tr>
<td>1912-1913</td>
<td>Ezequiel de la Serna</td>
<td>Fallece</td>
</tr>
<tr>
<td>1913</td>
<td>Eduardo Arana</td>
<td>Provisional</td>
</tr>
<tr>
<td>1913</td>
<td>Juan Manuel Ortiz de Rosas</td>
<td>Fallece</td>
</tr>
<tr>
<td>1913-1914</td>
<td>Luis García</td>
<td>Concluye</td>
</tr>
<tr>
<td>1914-1917</td>
<td>Marcelino Ugarte</td>
<td>Depuesto por una IF</td>
</tr>
<tr>
<td>1918-1921</td>
<td>José Camilo Crotto</td>
<td>Renuncia por desacuerdos con el presidente</td>
</tr>
</tbody>
</table>

Source: Own elaboration on the basis to Archivo Histórico de la Provincia de Tucumán.
Table A.5 Federal Interventions, by province and date

Table A5 shows the totality of Federal Interventions decreed between 1880 and 1916. The table is provided just as an example about the information on the basis of which the indicator “federal interventions” was constructed. Because of space limitations, years remaining are excluded, but there are available upon request.

<table>
<thead>
<tr>
<th>Fecha</th>
<th>Presidente</th>
<th>Provincia Intervenida</th>
<th>Mecanismo</th>
<th>Motivo</th>
</tr>
</thead>
<tbody>
<tr>
<td>17/06/1880</td>
<td>Avellaneda</td>
<td>Bs. As.</td>
<td>Decreto</td>
<td>El desacuerdo por la elección de Roca como presidente hace que la provincia de Bs. As. Se levante en armas contra la Nación</td>
</tr>
<tr>
<td>3/07/1880</td>
<td>Avellaneda</td>
<td>Corrientes</td>
<td>Decreto</td>
<td>La prov. De Corrientes se solidariza con Bs As en un claro enfrentamiento con el Gob. Nacional.</td>
</tr>
<tr>
<td>30/06/1883</td>
<td>Roca</td>
<td>Santiago</td>
<td>Ley</td>
<td>La coexistencia de dos legislaturas paralelas, en las que ambas se declaraban legítimas y la remoción del gobernador a través de un juicio político hacen que el gob nacional intervenga para normalizar la legislatura y convocar a elecciones para el ejecutivo.</td>
</tr>
<tr>
<td>5/09/1884</td>
<td>Roca</td>
<td>Catamarca</td>
<td>Ley</td>
<td>También en este caso el objetivo fue normalizar a la legislatura, pues luego de controvertidas elecciones se habían instalado dos legislaturas</td>
</tr>
<tr>
<td>1/07/1887</td>
<td>Juarez Celman</td>
<td>Tucuman</td>
<td>Ley</td>
<td>Un grupo armado había derrocado a los poderes provinciales. La intervención se realiza a pedido del gobernador apresado. El interventor restablece el Poder Judicial y convoca a elecciones para senadores, diputados y electores a gobernador.</td>
</tr>
<tr>
<td>08/01/1889</td>
<td>Pellegrini (vice)</td>
<td>Mendoza</td>
<td>Decreto</td>
<td>Una sedición armada fuerza al gobernador a renunciar, por lo que solicita la IF</td>
</tr>
<tr>
<td>28/06/1891</td>
<td>Pellegrini</td>
<td>Catamarca</td>
<td>Ley</td>
<td>Una sedición armada derroca al gobernador, por lo que solicita la IF</td>
</tr>
<tr>
<td>27/11/1891</td>
<td>Pellegrini</td>
<td>Catamarca</td>
<td>Decreto</td>
<td>Parte de los senadores (que representaban mayoría) y de la CSJ son destituidos, por lo que solicitan la IF</td>
</tr>
<tr>
<td>Fecha</td>
<td>Presidente</td>
<td>Provincia Intervenida</td>
<td>Mecanismo</td>
<td>Motivo</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------</td>
<td>-----------------------</td>
<td>-----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>21/01/1892</td>
<td>Pellegrini</td>
<td>Mendoza</td>
<td>Decreto</td>
<td>Inicialmente la IF había sido solicitada por la legislatura. Diferencias entre el gobernador y la legislatura provincial hacen que coexistan tres gobernadores simultáneamente. Luego, un grupo armado ataca a los legisladores, produciéndose la muerte del secretario de la cámara de diputados.</td>
</tr>
<tr>
<td>25/10/1892</td>
<td>Luis Saenz Peña</td>
<td>Santiago</td>
<td>Ley</td>
<td>Un grupo sedicioso detiene y obliga al gobernador y a los legisladores a aceptar dicha renuncia y presentar las propias. El interventor considera que las autoridades depuestas no habían sido constituidas de acuerdo al mandato constitucional, motivo por el cual no debían ser repuestas en sus funciones y debía proceder a una nueva elección.</td>
</tr>
<tr>
<td>9/01/1893</td>
<td>Luis Saenz Peña</td>
<td>Corrientes</td>
<td>Decreto</td>
<td>Se produce un enfrentamiento armado entre dos grupos, uno bajo el mando del gobernador y otro de fuerzas opositoras.</td>
</tr>
<tr>
<td>10/08/1893</td>
<td>Luis Saenz Peña</td>
<td>Bs. As.</td>
<td>Ley</td>
<td>Las 4 intervenciones tienen su origen en un agravamiento del conflicto político con la UCR que reclamaba elecciones limpias con amplia participación popular. El radicalismo llama a una revolución cívico militar y triunfa en Bs. As, S. Fe y S. Luis. Estas dos últimas solicitan la IF, mientras que BA decide resistir con fuerzas propias. Mientras el Congreso debatía, el radicalismo triunfa en todas las provincias involucradas.</td>
</tr>
<tr>
<td>11/08/1893</td>
<td>Luis Saenz Peña</td>
<td>Catamarca</td>
<td>Ley</td>
<td></td>
</tr>
<tr>
<td>15/08/1893</td>
<td>Luis Saenz Peña</td>
<td>Santa Fe y San Luis</td>
<td>Ley</td>
<td></td>
</tr>
<tr>
<td>22/08/1893</td>
<td>Luis Saenz Peña</td>
<td>Corrientes</td>
<td>Ley</td>
<td></td>
</tr>
<tr>
<td>16/12/1893</td>
<td>Luis Saenz Peña</td>
<td>Tucuman</td>
<td>Ley</td>
<td>También en Tucumán estalló la revolución promovida por la UCR, por lo que fuerzas militares nacionales se movilizaron para acallarla. La IF se dispuso a efectos de normalizar la situación mediante la elección de un Colegio Electoral para elegir gobernador. En esas elecciones la UCR se abstuvo.</td>
</tr>
<tr>
<td>16/07/1895</td>
<td>Uriburu</td>
<td>Santiago</td>
<td>Ley</td>
<td>El gobernador y la legislatura, derrocados por una revolución, solicitan la IF</td>
</tr>
<tr>
<td>31/07/1895</td>
<td>Uriburu</td>
<td>La Rioja</td>
<td>Ley</td>
<td>Una división en el Partido Autonomista hace que coexistan dos elecciones y dos legislaturas simultáneamente, por lo que se decide la IF</td>
</tr>
<tr>
<td>Fecha</td>
<td>Presidente</td>
<td>Provincia Intervenida</td>
<td>Mecanismo</td>
<td>Motivo</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
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<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>02/11/1896</td>
<td>Uriburu</td>
<td>San Luis</td>
<td>Ley</td>
<td>La IF se dicta a pedido de la Legislatura, para garantizar el funcionamiento de las instituciones en San Luis, luego de que el gobernador suspendiera al Superior Tribunal de Justicia.</td>
</tr>
<tr>
<td>3/05/1897</td>
<td>Uriburu</td>
<td>San Luis</td>
<td>Decreto</td>
<td>Durante la intervención se llamó a elecciones y se impuso el candidato del PAN. Sin embargo unos meses después la legislatura expulsó a los legisladores oficialistas y suspendió al gobernador, quién quiso resistir mediante la fuerza. Se decreta entonces la IF. Sin embargo, la legislatura desconoció las atribuciones del interventor y la intervención cesó sin haberse dado solución al conflicto.</td>
</tr>
<tr>
<td>27/05/1898</td>
<td>Uriburu</td>
<td>La Rioja</td>
<td>Ley</td>
<td>El gobernador fue derrocado por un movimiento revolucionario promovido por los radicales y disidentes, por lo que pide la IF.</td>
</tr>
<tr>
<td>06/09/1898</td>
<td>Uriburu</td>
<td>Santiago</td>
<td>Ley</td>
<td>Un diputado nacional acusado de conspirar contra las autoridades de la provincia es asesinado por un policía durante un allanamiento. La Cámara de Diputados de la Nación envía una comisión investigadora y producido el informe de ésta ordenó la IF.</td>
</tr>
<tr>
<td>28/04/1899</td>
<td>Roca</td>
<td>Bs. As.</td>
<td>Decreto</td>
<td>Pese a que la Junta Electoral detectara fraudes en las elecciones legislativas, la cámara de diputados de la provincia, compuesta por mayoría opositora, declaró válidas las elecciones. El gobernador desconoce este pronunciamiento y fuerza policiales ocupan la legislatura. Los legisladores solicitan al gobierno nacional la IF.</td>
</tr>
<tr>
<td>10/10/1899</td>
<td>Roca</td>
<td>Catamarca</td>
<td>Ley</td>
<td>Una revolución local intentó derrocar al gobernador. Después de violentos combates se pudo restablecer el orden. No obstante, el Congreso decidió intervenir. El interventor declaró la caducidad de todos los poderes públicos y designó jueces, funcionarios y empleados. Posteriormente convocó a elecciones de las que sólo participó el partido opositor.</td>
</tr>
<tr>
<td>20/03/1900</td>
<td>Roca</td>
<td>Entre Rios</td>
<td>Decreto</td>
<td>Se desata un movimiento sedicioso y el gobernador solicita auxilio federal</td>
</tr>
<tr>
<td>16/02/1903</td>
<td>Roca</td>
<td>Bs. As.</td>
<td>Decreto</td>
<td>El gobernador propició una reforma constitucional que dividió a la Cámara de Diputados de la provincia en dos grupos bien diferenciados. Se generaron conflictos, destituciones, etc, y los diputados de la mayoría solicitaron la IF.</td>
</tr>
<tr>
<td>17/06/1904</td>
<td>Roca</td>
<td>San Luis</td>
<td>Ley</td>
<td>Un movimiento revolucionario derrocó y encarceló al gobernador. Varios diputados y el Tribunal Superior de Justicia requirieron al Congreso la IF.</td>
</tr>
<tr>
<td>Fecha</td>
<td>Presidente</td>
<td>Provincia Intervenida</td>
<td>Mecanismo</td>
<td>Motivo</td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
<td>-----------------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>27/09/1905</td>
<td>Quintana</td>
<td>Tucumán</td>
<td>Ley</td>
<td>Realizadas las elecciones de renovación parcial de la legislatura, surgieron dos legislaturas y dos colegios electorales. El gobernador reconoció a los oficialistas y los opositores solicitaron la IF</td>
</tr>
<tr>
<td>07/02/1907</td>
<td>Figueroa</td>
<td>San Juan</td>
<td>Decreto</td>
<td>Una sublevación obligó al gobernador a rendirse. Este último solicitó la IF</td>
</tr>
<tr>
<td>03/09/1907</td>
<td>Alcorta</td>
<td>San Luis</td>
<td>Ley</td>
<td>El gobernador que había resultado electo por una coalición integrada por republicanos, nacionalistas y autonomistas, prescinde de los dos primeros antes de asumir, lo que originó un motín que impidió la asunción del mandatario. En conocimiento de ello, el PE nacional impulsó ante el Congreso la IF</td>
</tr>
<tr>
<td>10/10/1907</td>
<td>Figueroa</td>
<td>Corrientes</td>
<td>Decreto</td>
<td>Una división en la legislatura da origen a que el vicegobernador sea enjuiciado y suspendido. En su respaldo, fuerza opositoras invaden Corrientes y estallan motines. El PE decide intervenir para evitar la lucha armada enviando un mediador, pero como éste fracasa, se decide intervenir la provincia</td>
</tr>
<tr>
<td>04/03/1909</td>
<td>Figueroa</td>
<td>San Luis</td>
<td>Decreto</td>
<td>Conflictos entre la legislatura (de mayoría opositora) y el gobernador, hacen que los legisladores soliciten la IF. Demandaban que se les habían recortado fueros, ser sometidos a vigilancia policial y dificultadas para acceder a la legislatura</td>
</tr>
<tr>
<td>14/04/1909</td>
<td>Figueroa</td>
<td>Corrientes</td>
<td>Decreto</td>
<td>Conflictos entre el gobernador y fuerzas opositoras dan lugar a que, luego de realizarse elecciones de renovación parcial de la legislatura, hubieran resultados dobles. La mayoría opositora solicitaron la IF aduciendo falta de garantías para poder sesionar.</td>
</tr>
<tr>
<td>19/08/1909</td>
<td>Figueroa</td>
<td>Córdoba</td>
<td>Ley</td>
<td>Al realizarse elecciones de renovación legislativa, la cámara de diputados aprueba las elecciones realizadas e incorpora a los electos, mientras que el Senado, con mayoría opositora, desconoce lo actuado por la Cámara de Diputados y se niega a constituir la Legislatura. Al decretarse la IF, el interventor anula las elecciones y llama a unas nuevas, ocasionando la renuncia del gobernador</td>
</tr>
<tr>
<td>Fecha</td>
<td>Presidente</td>
<td>Provincia Intervenida</td>
<td>Mecanismo</td>
<td>Motivo</td>
</tr>
<tr>
<td>------------</td>
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<td>-----------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10/06/1910</td>
<td>Figueroa Alcorta</td>
<td>La Rioja</td>
<td>Ley</td>
<td>Conflictos entre el oficialismo y una coalición que habían formado para las elecciones de gobernador, ocasionan la coexistencia de dos colegios electorales que eligen gobernador y legislatura. Una de esas legislaturas suspendió al gobernador y designó a uno interino. El gobernador desconoce lo resuelto y organiza nuevas elecciones para Colegio Electoral. El Congreso interviene disponiendo la IF</td>
</tr>
<tr>
<td>15/04/1911</td>
<td>Roque Saenz Peña</td>
<td>Santa Fe</td>
<td>Decreto</td>
<td>La legislatura había enjuiciado al gobernador, quién desconoció la validez de la sanción y clausuró el local de sesiones. El PE toma intervención rápidamente y dispone la IF</td>
</tr>
<tr>
<td>21/04/1913</td>
<td>Roque Saenz Peña</td>
<td>Jujuy</td>
<td>Decreto</td>
<td>El gobernador convocó a la Legislatura para que se procediese a elecciones de senadores, sin embargo los legisladores de la mayoría no concurrieron porque no coincidían con los candidatos auspiciados por el oficialismo. La legislatura, en minoría, suspendió a los ausentes y solicitó la IF</td>
</tr>
<tr>
<td>30/09/1915</td>
<td>Victorino de la Plaza</td>
<td>Catamarca</td>
<td>Ley</td>
<td>La mayoría oficialista de la legislatura desestimó a la minoría opositora para facilitar la elección de un senador nacional afín al partido gobernante. Los legisladores destituidos y el vicegobernador solicitaron la IF</td>
</tr>
<tr>
<td>22/03/1916</td>
<td>Victorino de la Plaza</td>
<td>Corrientes</td>
<td>Decreto</td>
<td>La legislatura suspende al gobernador argumentando que se había excedido en una licencia sin autorización previa. Este desconoce lo actuado por la legislatura y solicita la IF. El PE decide enviar la IF a fin de normalizar la situación para garantizar las futuras elecciones presidenciales y legislativas. Además, posteriormente el interventor decide que la suspensión del gobernador no había sido válida, por lo que retorna a sus funciones</td>
</tr>
<tr>
<td>21/09/1916</td>
<td>Victorino de la Plaza</td>
<td>Entre Ríos</td>
<td>Ley</td>
<td>La legislatura estaba dividida en paridad y ello obstaculizaba que pudieran formar quórum para reunir la Asamblea que designaría representantes en el Senado Nacional, por ello solicitaron la IF</td>
</tr>
</tbody>
</table>