



Long-Term Economic Effects of Populist Legal Reforms: Evidence from Argentina

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Abstract

In this paper, we examine the consequences of populist government for long-term economic growth and development. To this end, we estimate the long-term growth impact of the Juan Péron's political rule in Argentina, which led to a comprehensive overhaul of the institutional framework laid by the Argentine founding fathers in the 1853 Constitution. Our hypothesis is that the progressive substitution of a growth-enhancing institutional framework by exclusionary growth-distorting frameworks explains Argentina's economic decline from one of the world's richest countries on the eve of World War I to an underdeveloped nation in the present day. We emphasize the erosion of the rule of law and restraint of economic freedom during Perón's first government (1943–1955) as two fundamental coadjutant causes of Argentina's decline. The populist legal reforms of Perón had long-lasting adverse economic effects. By comparing Argentina's pre-Perón growth trajectory with a donor pool of 58 countries for the period 1860–2015, we estimate the counterfactual scenario without Perón's reforms. A variety of synthetic control estimates uncover substantial negative effects of the weakening of the rule of law and the populist reforms that began in 1940s on the trajectory of economic growth and development. The populist overhaul negated the economic growth advantages inherent in the 1853 Alberdian constitution. Without the short-sighted populist Peron episodes, Argentina would be a rich country down to the present day with per capita income comparable to southern European countries. We also perform a series of randomization inferences and a battery of placebo analyses, which confirm our results.

Keywords Institutions · Economic growth · Economic development · Populism · Latin America · Argentina · Economic history

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Introduction

In global terms, Argentina was a wealthy nation on the eve of World War 1 but sank to become an underdeveloped nation—a situation extant up to the present day. It is difficult to explain Argentina's economic downfall. Rich in natural resources and recipient of large numbers of European immigrants, Argentina's failure to fully develop and achieve sustainable economic growth and political stability puzzles economists and development scholars. A probable apocryphal quote attributed to Nobel laureate Simon Kuznets states that "in the world there are four sorts of countries: developed, underdeveloped, Japan and Argentina". The former is a success story against all odds, the latter a failure against all predictions (Campos et al. 2022). During the twentieth century, Argentina's economic growth decelerated, while poverty and political and financial instability increased. The recent COVID-19 global pandemic negatively impacted the country's economy at a higher rate than those of other countries in the region (in the second half of 2020, 42% of the Argentinean population was below the poverty line while, before the pandemic outbreak, this figure was 35.5%). Inflation has also been endemic in Argentina. The annual inflation rate in 2021, as measured by the official statistics agency (INDEC), was 50.9%.

Rich with one of the best educational systems in Latin America (Mariscal and Sokoloff 2000), Argentina's failure to fully develop and achieve sustainable economic growth and political stability seems puzzling to most economists, development scholars and legal scientists. Argentina had not participated in any significant war until the war with the United Kingdom in 1982 and did not suffer serious cataclysms or natural disasters. The most economically impactful events had been political and internal. During the twentieth century, many Latin American countries experienced coups, military dictatorships, and populist leaders. However, no other populist leader would have the long-lasting effects that Perón had on Argentina. We take the ascent of Perón and Peronism in Argentina as a salient event. We do not find Argentina's economic decay either paradoxical or puzzling but a mere consequence of continuous institutional degradation. In our analytical framework, Argentina's unfortunate transition to underdevelopment can be explained, *inter alia*, by looking at institutional and legal reforms that eroded the rule of law, increased state intervention in the economy, constrained the economic freedom of entrepreneurs through a variety of means such as state-mandated modification of the contractual relationship, and weakened property rights enforcement.

To break up with the path dependency of its Spanish colonial past, after a long period of violence and instability that followed its independence (1810 to 1852), Argentina finally adopted a constitution modeled after the USA in 1853. The 1853 Argentinean Constitution, the brainchild of Juan Bautista Alberdi, incorporated inclusive institutions such as the rule of law, checks and balances, and economic freedom. The Alberdian constitutional blueprint may be considered a critical institutional factor for Argentina's golden years, owing particularly to two distinctive layers of institutions embedded therein, namely, the rule of law and economic freedom.



From 1880 to 1910, Argentinean economic growth seemed unstoppable and developed as rival to the USA. However, a series of cultural and institutional changes have gradually weakened the original Alberdian blueprint for growth including the severe break beginning in 1930 when the first coup d'état took place. The ascendancy and political rule of Juan Péron and his Peronist movement further accelerated the downward trend. Since 1943, the Argentinean decline has also been unstoppable. Argentina may thus be the only developing country whose past was more prosperous than its present through an unfortunate detour from riches to rags.

Importantly, we do not claim to be original in stating that the abandonment of the rule of law is one of the factors behind the long-term decline. The pivotal importance of the disregard of the rule of law in Argentina's economic decline has been emphasized by Gallo and Alston (2008) whilst Campos and Karanasos (2008) underline the importance of political instability in causing Argentina's decline. The main innovation of our study is to provide a counterfactual estimate of Argentina's long-term trajectory of growth and development had Péron never come to power.

In this paper, we estimate the counterfactual scenario in response to two major institutional changes in Argentina's post-independence history, namely, the 1853 Constitution and the Peronist takeover that began in full force in 1946. Estimating an appropriate counterfactual scenario allows us to better understand the prospective long-term effects of the liberal constitution, as opposed to the actual populist government, on the trajectory of Argentina's economic growth and development. Whilst the 1853 Constitution established important institutions such as the rule of law, economic freedom and political stability, the Peronist takeover implemented a large-scale populist redistribution that took place through social and labor legislation, widespread state interference in the economy, and highly protectionist trade policies alongside inward-looking industrialization policies. To this end, we employ the synthetic control methodology to build a demonstrative long-running counterfactual. Our results highlight a stark contrast in the long-term effect of the Peronist takeover. Whilst the 1853 Constitution appears to have triggered a large-scale acceleration of Argentina's economic growth beyond its counterfactual trajectory, the Peronist takeover has eliminated the entire realm of economic growth advantages of the Alberdian constitution and triggered a pervasive and permanent growth breakdown. Our estimates invariably suggest that, down to the present day, Argentina's per capita GDP is about one third lower than its implied counterfactual in the hypothetical absence of the Peronist takeover. Subsequent unstable government administrations and endemic political instability after the ousting of Péron from power seem to have only widened the economic gap between Argentina and the rest of the world.

Our identification strategy establishes a building block showing that Argentina's pre-Péron economic growth had been entirely comparable with the Western Offshoots and its European peers. Our analysis is also able to show that populist government proves to be costly in the long-term perspective as it may undermine the sources of comparative advantages through distortionary economic policies that entail high productivity losses in the long run. The intriguing case of Argentina under Peronist government provides an exemplary case of *en masse* redistribution of income from the source of Argentina's comparative advantage to rent-seeking coalitions. Coupled with legal reforms that undermine the low-cost enforcement of



contracts and the security of property rights, such an expansive nexus between deep and abrupt changes perhaps may be the key institutional trigger of the economic growth slowdown where the implications appear to be clearly permanent.

Our paper contributes to the scholarly debate on the economic decline of Argentina (Díaz-Alejandro 1970; Taylor 1992, 1994; Della Paolera and Taylor 1999; Spiller and Tommasi 2003; Prados de la Escosura and Sanz-Villarroya 2009; Alston and Gallo 2010; Campos et al. 2012, 2016; Spruk 2019) by seeking and empirically estimating the counterfactual scenario in order to examine the long-term economic effects of persistent populist government. It should be noted that our study is not the first one to explore the long-term effects of Peronism on Argentinean economy (Ertola Navajas 2020) but it provides several additions to the existing body of knowledge. First, our analysis explicitly incorporates the missing counterfactual analysis into the discussion of the economic decline using a rigorous comparative data-driven investigation where parallel trend assumption is seldom necessary. Second, we expand the time span of the analysis and compare Argentina with a donor pool of 58 countries for the period 1860–2015. And third, compared to earlier studies, we construct an expansive set of time-varying and time-invariant covariates used to synthetically match Argentina with the rest of the world which allows us to address a sizeable portion of the omitted variable bias that cannot be address solely through the comparison based on past outcomes and few auxiliary covariates. Moreover, we highlight the importance of the comprehensive and gradual legal reforms and their impact on long-term development. Under populist government, such reforms are oftentimes radical, take place without consensus-based institutionalized policymaking, invoke numerous distortions, and are based on short-term opportunistic behavior, that undermine both institutional quality and productivity growth.

The rest of the paper is organized as follows: “[Historical Background](#)” provides an overview of the historical context; “[Identification Strategy](#)” section presents the identification strategy; “[Data](#)” section discusses the data and sample; and “[Results](#)” section provides our results and robustness checks. “[Conclusion](#)” section concludes.

Historical Background

Alberdian Constitutional Design

Why do some societies achieve sustainable economic growth while others do not? Different theories have been proposed to answer this vexing question, accentuating distinct factors, such as geography (Diamond 1999), natural resources (Gylfason and Zoega 2006) or international trade (Frankel and Romer 1999). However, institutions matter more than any other factor (Rodrik et al. 2004). Following Douglass North, we understand institutions to be “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)” (North 1991). Furthermore, institutional differences produce diverse economic consequences (North 1989; Posner 1993, 1998; Hodgson 2006; Cooter 2014; Faundez 2016).



Recent scholarship has distinguished between extractive and inclusive institutions (Acemoglu et al. 2005; Acemoglu and Robinson 2012). While inclusive institutions promote open economies, a more equitable distribution of wealth and democratic forms of capitalism, extractive institutions lead to closed economies, the concentration of wealth in the hands of a few, and despotic forms of crony capitalism.

Path dependency provided some historical constraints, although not unsurmountable ones. Like most other Latin American countries, Argentina inherited predominantly extractive institutions from Spain. However, the Founding Fathers of the Argentinean nation and the progressive elites that followed managed to replace exclusive institutions with inclusive ones. An essential institution to cement socio-economic development is the law and the legal system. In the Weberian sense, laws are constraints to individual behavior whose deviation is met by state coercion (Weber and Tribe 2019). That some laws are more conducive than others to economic growth or sustainable development is the hobbyhorse of new institutional economists and law and economics scholars alike (Cooter and Schäfer 2012; Cooter and Ulen 1988; Litan et al. 2011; North 1990; Posner 1972; Schäfer and Raja 2006).

Moreover, since legal systems are hierarchical, getting the constitution right, as the highest law of the land, is of fundamental importance. Buchanan and Tullock broadly defined a constitution as “a set of rules that is agreed upon in advance and within which subsequent action will be conducted” (Buchanan et al. 1962). We will call that part of the constitution that deals with institutions that affect the nation’s economy the “economic constitution” which includes the conditions necessary to acquire tangible and intangible assets (property law and intellectual property law) as well as the rules established to facilitate the voluntarily exchange of them (contract law). In the real world of positive transaction costs, the initial allocation of entitlements matters (Coase 1960). Such allocation is a political decision whose highest expression is to be found in the constitutional text. The initial choice of rules made by the constituent assembly, or amendments to it in the case of constitutional reform, is unique in the sense that is unconstrained by other rules (Voigt 2020). The effect of the economic constitution are long lasting, transcending generations (Cooter 2002). Thus, the fundamental importance of constitutional design for the economic progress of a country.

After a long period of violence and instability that followed its independence from Spain in the tumultuous period between the years 1810 and 1853, Argentina finally adopted a constitution modeled after that of the USA. The early Argentinean constitution was the brainchild of Juan Bautista Alberdi. He expressed his political views on the constitutional model in his book *Bases y puntos de partida para la organización política de la República Argentina* [Bases and points of departure for the political organization of the Argentine Republic] (Alberdi 1852) which was followed almost verbatim by the drafters of the Argentinean constitution of 1853. Later on, Alberdi complemented his work on the foundations of the Argentinean nation with *Sistema económico y rentístico de la Confederación argentina según su constitución de 1853* [Economic and fiscal system of the Argentine Confederation according to its constitution of 1853] (Alberdi 1854) which presented an economic treaty to guide the nation’s economic policy (Lojo 2009).



The rule of law is a fundamental to economic growth. Societies that adhere to the rule of law grow economically more than those that do not (Scully 1998) since it provides legal certainty, an essential public good to promote risk taking and investments. The rule of law has a protean nature. However, essential elements include limiting governmental discretion (legality principle), formal equality of all citizens before the law; respect for fundamental rights (including property rights and economic freedoms); an impartial and independent judiciary, etc. (Tamanaha 2004, 2012; Tamanaha and John 2007).

The economic constitution of *Bases* was inspired in the ideas of classical liberalism, particularly the works of Ricardo, Say and Smith. Therefore, the role of the entrepreneur, property rights, legal certainty and economic freedoms were crucial. The constitutional template included in *Bases* was reproduced almost verbatim by the drafters of the 1853 Argentinean Constitution. Later on, Alberdi wrote *Sistema Económico y Rentístico de la Confederación Argentina* (Alberdi 1854), an economic treatise providing guidelines to implement and complement the Constitution.

As such, economic freedom is a leitmotiv of the Alberdian constitutional design. However, the state is not absent from the Alberdian model, whose role is to provide essential public goods such as justice, education, infrastructure, and even to encourage European immigration (thus, the Alberdian dictum “gobernar es poblar”, in English, “to rule is to populate”). Alberdi also stated clearly that wealth creation is not a task for the state, but it must be left to the entrepreneur while the State must create the conditions for individual entrepreneurs to create wealth, without replacing or impairing them. Economic freedom requires personal choice, voluntary exchanges, freedom to compete and protection of persons and property (Gwartney and Lawson 2003), all elements present in the Alberdian constitutional design. Moreover, higher levels of economic freedom have been linked to greater levels of economic growth (De Haan and Sturm 2000). By providing the conditions for entrepreneurial activity, the Alberdian constitutional model was, at least in part, responsible for the Argentinean economic miracle of late 19th and early 20th centuries. Our evidence suggests that when the Alberdian constitutional design was dismantled, a reversion to the conditions that led to Argentina’s early success began inexorably.

Peronist Overhaul of Alberdian Constitutional Design

The first significant deviation from the Alberdian constitutional model predates Perón. However, the reform of formal and informal institutions initiated by Perón, given their significance and long-lasting effects, represent a critical juncture in Argentinean history. The coup d’état of 1930 was the first serious fracture of the rule of law and constitutional order enshrined in the 1853 Constitution. A *de facto* military junta deposed a democratically elected president. To add insult to injury, the Argentinean Supreme Court validated the military takeover, a decision that may have forever affected its legitimacy (Miller 1997). The 1930s demise of constitutional checks and balances heralds the beginning of Argentinean economic decay and set the stage for the advent of Perón and populism (Alston and Gallo 2008, 2010). Moreover, political instability negatively affected Argentina’s growth (Campos and



Karanasos 2008). However, our thesis suggests that Perón and later Peronist leaders' continuous erosion of the rule of law and dismantling of the Alberdian economic constitution accelerated the reversal of Argentinean growth.

Populist leaders abounded in twentieth-century Latin American countries (Weyland 2013; Houle and Kenny 2018). However, no populist regime had the extent, characteristics, and persistent effects of Argentinean Peronism. It seems logical, therefore, to begin with by examining Perón's ascent to power. Juan Domingo Perón and his legacy, known as Peronism or Justicialism, includes a political party, a social movement, and a self-proclaimed doctrine, which left indelible marks on formal and informal Argentinean institutions. Perón was involved in the military coup of 1943 becoming first Minister of War, then Secretary of the Department of Labour and Social Welfare, then finally Vice-President. The labor reforms Perón championed as Secretary of the Department of Labour and Social Welfare gave him the popular support he needed to run for president. Perón was elected president in 1946 (first term, 1946–1952), re-elected in 1952 (second term, 1952–1955), ousted by a coup and exiled in 1955. He returned to Argentina and became president again in 1973 until he died in 1974. Furthermore, after Perón's demise, most Argentinean presidents, governors and members of Congress have been affiliated directly or indirectly with Peronism or Justicialism.

Populism has been defined as “a thin-centered ideology that considers society to be ultimately separated into two homogeneous and antagonistic camps, “the pure people” versus “the corrupt elite,” (Lacey 2019), and which argues that politics should be an expression of the *volonté générale* (general will) of the people” (Mudde and Kaltwasser 2013). Perón was the epitome of the Latin American populist leader: a charismatic, messianic interpreter of the metaphysical concept of the Argentinian nation (not of individual citizens), he sponsored the cult of his first wife (Evita) and himself, he felt unconstrained by the rule of law which he replaced by his own man-made rule, as he opposed in Manichean fashion “the people” versus the “elites”, “peronistas” versus “antiperonistas.” According to some, Perón revamped nineteenth century *caudillismo* (chieftainship), a paternalistic and antiliberal movement still appealing to the mindset of most Argentinians (Lewis 1992). However, perhaps it is more accurate to refer to Perón as the founding father of delegative democracy, a term created by an Argentinean political scientist to refer to democratically elected rulers, some of them even re-elected by popular vote, who feel authorized to govern as they see fit, without interference from the legal system, legislature, judiciary, oversight bodies or the press, that they usually try to gag (O'Donnell 1994).

To pursue their political agenda, populist regimes invariably erode the rule of law and reduce economic freedom (Rode and Revuelta 2015; Stankov 2018; Guriev and Papaioannou 2022). In the long run, populism hurts its supporters the most (Acemoglu et al. 2013). Populism “emphasizes growth and income distribution and deemphasizes the risks of inflation and deficit finance”, which invariably ends in economic collapse (Dornbusch and Edwards 1991). The abundance of populist regimes may explain Latin America's high levels of poverty, corruption, and subpar economic growth (Dornbusch and Edwards 1990; Edwards 2010). The rule of law, the principle of legality and the legal system were obstacles to Perón's political project. In addition, Perón's economic program removed many of the inclusive institutions



of the 1853 Constitution. The state, not the entrepreneur, was now the engine of economic growth. An entrepreneurial-led and export-oriented market was replaced by populist interventionist policies in which the state became the central actor (Díaz-Alejandro 1970). The economy was subordinated to Perón's political project. In 1946 Perón was instrumental to the nationalization of the Central Bank. Many other private companies were nationalized too.

Furthermore, Perón promoted a strong protectionist policy, to insulate local industries from foreign competition that was never completely abandoned afterwards. Some authors suggest the existence of a correlation between Argentina's GDP per capita decrease and the decline of the country's participation in foreign trade, a policy initiated in the 1930s but deepened during Perón first two terms (Lagos 2021). Perón's reforms attempted to create a new legal order in Argentina, which was instrumental to support his political project (Palacio 2018). It is considered that Perón's most enduring legal legacy was labor law reform. However, socialists and conservatives had been active in this area since the early twentieth century (Palacio 2013).

Constitutional review in Argentina is diffuse and the Supreme Court is the final arbiter. As a counter-power, the Court can curb the excesses of the Executive and Legislative branches. Consequently, it becomes a prime target of populist leaders. From 1943 to 1947, Perón's reforms suffered several setbacks at the hands of the Supreme Court. As soon as Perón amassed sufficient political capital and alliances, the offensive began. In 1947 a Peronist Congress impeached and removed, with bogus claims, four of the five Justices sitting at the Supreme Court. The remaining justice requested early retirement. Then, Perón proceeded to appoint docile Justices (Tanzi 2005) that never opposed Perón's reforms (Abásolo 2002).

In 1949 Perón had the votes to summon a constituent assembly that quickly approved a new Peronist Constitution, inspired by the principles of Social Constitutionalism. Albeit short-lived, the Peronist Constitution represented a radical departure from the Alberdian model. The checks and balances were removed, and control of the economy was put in the hands of the state. Article 39 stated capital must serve the national economy and social welfare. Article 40 stated wealth must be used to promote the well-being of the Argentine people, according to the principles of Social Justice.

Perón also reformed agrarian laws, interfering with property rights and contractual freedom. Rural leases were extended by law, freezing payments and suspended evictions. The Rural Society of Argentina (*Sociedad Rural Argentina*) objected to the reform saying state intervention in private contractual relations had a double negative effect: it increased legal uncertainty and incentivized immoral behavior since there were no effective sanctions against the party in breach. Foreign trade was also put under the control of the state. Before becoming president, Perón convinced de facto president Farrell to pass Executive Order no. 15.350, which created the Institute for Promotion and Exchange (*Instituto para la Promoción del Intercambio, IAPI*). The IAPI had the monopoly of foreign trade and determined the price of commodities to be paid to Argentinean farmers. The Argentinean agricultural export market was not liberalized until 1991. However it remains subject to high export duties (*retenciones*).



All things considered, the Peronist governments gradually crippled the effectiveness of private law (Cooter and Schäfer 2012), depriving entrepreneurs of incentives to take risk and invest. During Perón's government, Alberdi's economic constitution was replaced by an corporatist organization where the state took the center stage (Cortés Conde et al. 2021). Perón's anti-market attitude and distrust for the entrepreneurs, tight grip of the state over the economy, weak enforcement of property rights and paternalistic rules limiting economic freedom have remained in force. In the 2021 Index of Economic Freedom, Argentina ranked 148th of a sample of 178 countries (Miller et al. 2021).

Identification Strategy

Setup

Our goal is to examine the contribution of the 1853 Alberdi's constitution and Peronist social and labour legislation from 1940s to the long-term economic growth consistently. The backbone of our identification strategy rests on estimating the missing counterfactual scenario linked to the 1853 Constitution and Péron's rule. The quest behind our strategy is to estimate the trajectory of Argentina's economic growth in the hypothetical absence of both institutional shocks to gauge their long-term effects. Compared to the more traditional difference-in-differences setup, our interest lies in the trajectory of growth in the entire post-treatment period rather than average treatment effect itself, which implies that parallel trend assumption underlying difference-in-differences framework, ought to not necessarily hold to estimate consistent long-term effects. To estimate the counterfactual scenario, we adopt the synthetic control estimator originally proposed by Abadie and Gardeazabal (2003), Abadie et al. (2010, 2015) and further extended by Billmeier and Nannicini (2013), Cavallo et al. (2013), Xu (2017), Ben-Michael et al. (2021) and Kaul et al. (2021) amongst several others, which has been used extensively in the impact evaluation literature.

Our setup and notation is straightforward. In particular, we observe the economic growth trajectories of $(J + 1) \in N$ countries in the time period indexed by $t = 1, 2, \dots T$. The particular institutional shock under consideration takes places at time $T_0 \in (1, T)$ and affects only Argentina as $J - 1$ -th country from period $T_0 + 1$ until T without interruption. Let $Y_{j,t}^N$ be the potential economic growth trajectory that would be realized in Argentina as the treated country in the hypothetical absence of the shock. By the same analogy, let $Y_{j,t}^I$ represent the actual economic growth trajectory of Argentina in the presence of both institutional shocks. Using the analogy from treatment effects literature, our key parameter of interest is the treatment effect of 1853 Constitution and Peronist policies which can be written as:

$$\lambda_{j,t} = Y_{j,t}^I - Y_{j,t}^N$$

Furthermore, let's assume that each institutional shock under consideration is described as a binary variable D that can take the value of 1 if the shock is realized and



0 otherwise. Since Argentina is a single-treated unit in our setup implying that $j = 1$, the observed economic trajectory in the presence of the shock is given by:

$$Y_{j,t} = Y_{j,t}^N + \hat{\lambda}_{j,t} D_{j,t} \tag{1}$$

$$D_{j,t} = \begin{cases} 1 & \text{if } j = 1 \text{ and } t > T_0 \\ 0 & \text{otherwise} \end{cases} \tag{2}$$

where we estimate the full vector of post-treatment effects which can be denoted as $\{\lambda_{1,T_0+1}, \dots, \lambda_{1,T}\}$. Notice that the respective vector captures the influence of each shock on the trajectory of long-term economic growth. By default, $Y_{j,t}^I$ is observable for the period $t > T_0$ whereas $Y_{1,t}^N$ is not and therefore has to be estimated to elicit the projection of the counterfactual scenario. Suppose that $Y_j = [Y_{j,1} \dots Y_{j,T_0}]$ captures pre-shock vector of observed economic growth trajectories for country $j \in \{1, \dots, J + 1\}$ in the pre-intervention period whilst suppose that \mathbf{X}_j is a $(K \times 1)$ simple vector of covariates of \mathbf{Y}_j . These two vectors allow us to build a simple $\mathbf{X}_0 = [X_2 \dots X_{J+1}]$ matrix that is invertible across $(K \times J)$ dimension and contains the covariates for the countries not affected by the specific shocks at time T_0 . For two shocks under consideration, our goal is to construct two artificial control groups for Argentina that is inasmuch as possible similar to the observed economic growth trajectory. Hence, by reweighing the growth trajectories of the countries from the respective donor pool in pre- T_0 period, $Y_{1,t}^N$ can be estimated for each year in the pre-shock and post-shock period denoted as $t \in \{1, \dots, T\}$. Under these conditions, $Y_{1,t}^N$ as a reweighted combination of attributes of countries from the control group can be written as follows:

$$\hat{Y}_{1,t}^N = \sum_{j=2}^{J+1} \hat{w}_j Y_{j,t}$$

where $\hat{\mathbf{W}} = [w_2, \dots, w_{J+1}]' \in \mathbb{R}$ denotes the vector of weights used to build two distinctive synthetic control groups for Argentina. Abadie et al. (2010) show that to estimate the counterfactual scenario, $\hat{\mathbf{W}}$ can be estimated through the solution to the following nested minimization problem:

$$\hat{\mathbf{W}}(\mathbf{V}) = \arg \min_{\mathbf{W} \in \mathcal{W}} (\mathbf{X}_1 - \mathbf{X}_0 \mathbf{W})' \mathbf{V} (\mathbf{X}_1 - \mathbf{X}_0 \mathbf{W})$$

where the vector of weights is restricted to be non-negative and additive which implies that $w_j \geq 0$ for each $j \in \{2, \dots, J + 1\}$ and $\sum_{j=2}^{J+1} w_j = 1$. In particular, positive weights are computed if the covariate and pre- T_0 values of the j -th donor country fall within the convey hull of Argentina's characteristics where \mathbf{V} represents a diagonal positive semi-definite matrix of $(K \times K)$ where the sum of the main diagonal elements equals one. The vector of weights \mathbf{W} denotes the importance of respective covariates in predicting Y . These two invertible matrices ensure that the designated synthetic control group is as similar as possible to Argentina in the pre-intervention period. Hence, an obvious question pertains to the choice of \mathbf{V} where a variety of



solutions has been proposed (Nannicini and Billmeier 2011; Cavallo et al. 2013; Bohn et al. 2014). Following Abadie et al. (2015), Klößner et al. (2018), Firpo and Possebom (2018) and Ferman et al. (2020) among several others, we choose \mathbf{V} through a two-stage procedure. First, by taking the full pre- T_0 period, $\hat{\mathbf{W}}(\mathbf{V}) = \arg \min_{\mathbf{W} \in \mathcal{W}} (\mathbf{X}_1 - \mathbf{X}_0 \mathbf{W})' \mathbf{V} (\mathbf{X}_1 - \mathbf{X}_0 \mathbf{W})$ is minimized in the initial training period through the Vanderbei (1999) constrained quadratic optimization routine. The routine is based on a simple algorithm that uses the interior point method to solved the constrained quadratic programming problem. It is implemented vis-à-vis C++ plugin where we adopt a common standard on the tuning parameters, which implies 5% constraint for the violation tolerance, the maximum number of iterations is 1000, and the clipping bound for the variables is set to 10. And second, the choice of $\hat{\mathbf{W}}(\mathbf{V})$ is cross-validated to minimize the out-of-sample prediction error through the solution to the nested sub-period minimization problem:

$$\hat{\mathbf{V}} = \arg \min_{\mathbf{V} \in \mathcal{V}} (\mathbf{Y}_1 - \mathbf{Y}_0 \mathbf{W}(\mathbf{V}))' (\mathbf{Y}_1 - \mathbf{Y}_0 \mathbf{W}(\mathbf{V}))$$

where \mathbf{V} is the diagonal positive semi-definite invertible matrix of $K \times K$ dimension with $\text{tr}(\mathbf{V}) = 1$. Under this approach, the matrix \mathbf{Y}_1 is projected on \mathbf{X}_1 by imposing $v_k = \frac{|\beta_k|}{\sum_{k=1}^K |\beta_k|}$ which denotes the k-th diagonal element of \mathbf{V} and β_k is the k-th coefficient of the projection of \mathbf{Y}_1 on \mathbf{X}_1 . Henceforth, the gap in economic growth trajectory between Argentina and its synthetic version for the period $t \in \{T_0 + 1, \dots, T\}$ in response to the shock that takes place at T_0 can be written as:

$$\hat{\lambda}_{1,t} = Y_{1,t} - \hat{Y}_{1,t}^N.$$

Testing Hypothesis

The obvious question arising from the estimate of $\hat{\lambda}_{1,t > T_0}$ concerns the statistical significance of the effects behind the 1853 Constitution and Peronist social and labor legislation from 1940s. Since our analysis is non-parametric, statistical significance cannot be inferred using conventional parametric test statistics. Instead, we examine whether or not the estimated effects of $\hat{\lambda}_{1,t}$ are statistically significant by relying on the treatment permutation procedure originally proposed by Abadie et al. (2010) and further extended by Hahn and Shi (2017) among several others. Our treatment permutation strategy is both simple and straightforward. The underlying institutional shock is falsely assigned to the entire set of countries in the donor pool that never underwent the respective shock. Once the respective shock is assigned to the other countries, the synthetic control estimator is iteratively applied to each country in the donor pool, except Argentina and the full distribution of placebo effects is built. The general thrust of such placebo analysis is simple. If the estimated long-term growth gap in response to the respective institutional shock is similar to the gaps in the placebo distribution, the sheer notion of the significant long-term effect would be both questionable and highly contested. On the contrary, if the estimated gap for Argentina is both unusually large and not detectable elsewhere in the donor pool,



then our analysis may indeed provide some evidence of the significant effect of both institutional shocks which then becomes somewhat more credible.

The placebo analysis can be described as follows. For each $j \in \{2, \dots, J + 1\}$ and $t \in \{1, \dots, T\}$, a full vector of post-treatment effects denoted as $\hat{\lambda}_j = \{\hat{\lambda}_{T_0+1}, \dots, \hat{\lambda}_T\}$ is estimated. In the next step, the distribution of the placebo vector obtained through the permutation of the treatment to the unaffected countries is compared with the empirical distribution of $\hat{\lambda}_1 = \{\hat{\lambda}_{1,T_0+1}, \dots, \hat{\lambda}_{1,T}\}$ for Argentina. The null hypothesis behind the long-term effect of both institutional shocks is rejected if the estimated set of gaps for Argentina are unusually large and the proportion of countries with the same post-treatment effect magnitude and sign is less than in the range between 10 and 15%, respectively.

One non-trivial caveat behind our approach is that in comparison with the empirical placebo distribution of $|\hat{\lambda}_{j,t}|$, distribution of $|\hat{\lambda}_{1,t}|$ can be abnormally large in some post-intervention years but not in others which implies that the decision to reject the null hypothesis of zero effect is difficult per se. To overcome such intrinsic ambiguity, we compare the root mean square prediction errors of Argentina with the placebo errors in the donor pool before and after the institutional shock. The notion behind this concrete comparison is that if the effect of both shocks is specific to Argentina and can be only hardly perceivable elsewhere, the ratio of Argentina's RMSE and that of the empirical placebo distribution after the intervention should be exceptionally small. The ratio of prediction errors is computed as follows:

$$RMSE_j = \left(\frac{\sum_{t=T_0+1}^T (Y_{j,t} - \hat{Y}_{j,t}^N)^2}{T - T_0} \right) \div \left(\frac{\sum_{t=1}^{T_0} (Y_{j,t} - \hat{Y}_{j,t}^N)^2}{T - T_0} \right)$$

where $RMSE_j$ represents the ratio of mean square prediction errors. By making use of the respective ratio, we compute the p value (Galiani and Quistorff 2017) as an imperfect but rough guide whether or not to reject the null hypothesis:

$$p = \frac{\sum_{j=1}^{J+1} 1 \cdot [RMSE_j \geq RMSE_1]}{J + 1}$$

where $1[\cdot]$ is a simple binary dichotomous function, $RMSE_j$ is the root mean square prediction error ratio of j -th country from the donor pool and $RMSE_1$ is the counterpart for Argentina. Invariably, the computed p value may not be interpreted as in a standard parametric framework but as a proportion of countries in the donor pool that have the estimated effect of both institutional shocks at least as large as that of Argentina. If the underlying proportion is high, the null hypothesis of zero long-term effect cannot be rejected. Conversely, if the proportion is low and within some specified significance threshold such as 0.15, the null hypothesis can be more easily rejected. This, if the p value is sufficiently low, the notion that the long-term growth effect was obtained at random would not seem plausibly and may be refuted. Firpo and Possebom (2018) further provide sufficient conditions that guarantee the validity of the inference alongside the size and power of the permutation test.



Data

Our sample consists of 58 countries¹ for the period 1820–2015 given the availability of the data for a relatively large number of countries from early nineteenth century onwards to focus on the long-term perspective of our analysis. The dependent variable is the GDP per capita denoted in Geary–Khamis international dollars at 2005 constant prices (Bolt and Van Zanden 2014), and captures the long-run growth trends both across and within countries. For Argentina, the GDP data stretches back to 1850 and is based on the earlier reconstruction of its historical GDP per capita (Bértola and Ocampo 2012). Post-1850 data is linked with the benchmark levels in earlier years (Prados de la Escosura and Sanz-Villarroya 2009). For the missing years between the benchmark levels, the GDP per capita series is converted into annual data to overcome the compression of long historical periods (Austin 2008) using a simple trend-based interpolation.

An important part of the variation in the long-term economic growth is driven by the set of auxiliary covariates whose importance for economic growth and development has been recognized and established earlier in the literature. For instance, the importance of physical geography and factor endowments for long-run development has been confirmed empirically by several scholars, including Engerman and Sokoloff (1997), Bloom et al. (1998), Gallup et al. (1999), Sokoloff and Engerman (2000), Sachs and Malaney (2002) and Dell et al. (2012) among many others. On the other hand, the importance of legal system and historical experience with the colonization has been confirmed empirically by Acemoglu et al. (2001, 2002), La Porta et al. (2008), Feyrer and Sacerdote (2009), Bruhn and Gallego (2012) amongst several others. In the absence of the auxiliary covariates that capture the importance of previously recognized confounders of long-run development, it might be impossible to obtain a plausible characterization of the long-term growth trajectory that keeps the omitted variable bias to the bare minimum.

Our first set of auxiliary covariates thus captures the importance of time-invariant physical geographic characteristics that are otherwise considered a component of unobserved heterogeneity. Nine distinctive covariates from Nunn and Puga (2012) are included into the set of confounders: (a) geographic latitude and longitude, (b) terrain ruggedness, (c) soil quality, (d) fraction of land area covered by desert, (e) fraction of land area in the tropical zone, (f) percentage of land area within 100 kilometers of the coast, (g) an indicator variable of whether the territory is landlocked, and (h) size of the land area.

The second set of auxiliary covariates designated the institutional quality and structure. More specifically, six distinctive covariates are included to capture varying degrees of institutional quality and structure. These include an indicator variable of

¹ Algeria, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Burma, Canada, Chile, China, Colombia, Cuba, Czechia, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Iran, Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Lebanon, Malaysia, Mexico, Morocco, Nepal, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Syria, Thailand, Tunisia, Turkey, United Kingdom, United States, Uruguay, Venezuela, Vietnam.



whether the country is a federation (Persson and Tabellini 2003), levels of electoral and liberal democracy (Teorell et al. 2019), the level of institutionalized democracy and executive constraints on the powerholders (Marshall and Gurr 2020), and a binary indicator or armed internal conflict (Brecke 1999).

Our third class of covariates consists of demographic variables, which allows us to capture demographic similarities between Argentina and the rest of the world. Three specific variables are considered: (a) population size, (b) population density and (c) population growth. The data on the size, density and growth of population is from International Database of US Census Bureau, which covers 227 countries and territories for the period 1950 and onwards. Pre-1950 demographic data is from Maddison (2007) where coverage is expanded back until nineteenth century.

And lastly, our fourth class of covariates comprises the deep determinants of long-run development rooted in long-term historical setting, which have been a subject of intense scholarly debate (Spolaore and Wacziarg 2013). The approach to study the importance of deep determinants for long-run development usually emphasizes ancestral composition of the current population to capture the traits transmitted across generations over the long run either through the biological or cultural channel. To capture the biological transmission channel, we incorporate population-level genetic diversity (Ashraf and Galor 2013) and its squared term into the battery of covariates. On the other hand, to capture the cultural transmission channel, we use the constructed rates of country-level population from European descent (Easterly and Levine 2016). Albeit imperfect, both variables allows to partially control for the confounding influence of biological and cultural traits on long-term development.

To examine the long-term effect of the 1853 Constitution, the sample period is not restricted and comprises the period 1820–2016 to ensure a sufficient long pre-intervention period to carve out the synthetic version of Argentina. In addition, we set the year of the full implementation of constitution to 1860 when the Province of Buenos Aires officially joined the Argentine Federation. By contrast, the pre-intervention period is shortened and includes the year 1860–2016 to exclude pre-treatment period from the 1853 constitution as a potentially interfering shock. Table 1 reports the covariate means of Argentina prior to both institutional shocks and its synthetic counterpart that best reproduces and mimics the real characteristics of Argentina's growth and development. For both shocks, it becomes apparent that both synthetic control groups capture pre-intervention characteristics of real Argentina reasonably well with no major discrepancy in pre-T0 outcome and auxiliary covariate values. Although imperfect per se, reasonably good fit is further bolstered by the relatively low RMSPE which reinforces the notion that the lack of fit is an unlikely source of the estimated counterfactual scenario. Hence, post-intervention estimates may be used to evaluate the long-term effects of Peronist social and labor legislation and the 1853 Constitution.



Table 1 Covariate means

	Peronist takeover in 1943		Constitution of 1853	
	Argentina	Synthetic Argentina	Argentina	Synthetic Argentina
	238.91		48.06	
<i>Panel A: Past GDP per capita dynamics covariates</i>				
GDP per capita in 1860	1355	1355	998	983
GDP per capita in 1870	1468	1634	1083	1046
GDP per capita in 1890	2416	2418	1251	1172
GDP per capita in 1910	3822	3614	1345	1350
GDP per capita in 1930	4080	4295		
GDP per capita in pre-T0 year	4182	4120		
<i>Panel B: Physical geographic covariates</i>				
Island	0	0	0	0
Landlocked	0	0.32	0	0
Terrain ruggedness	0.78	2.46	0.78	0.35
Absolute latitude	35.40	32.89	35.40	24.54
Longitude	-65.17	-59.51	-65.17	-55.74
Soil quality	35.68	40.73	35.68	49.29
Desert	0	0.86	0	0.00
Tropics	0	14.05	0	34.02
Access to coastline	13.02	25.87	13.02	26.44
Log land area	14.81	12.84	14.81	13.62
<i>Panel C: Institutional quality covariates</i>				
Federation	1	0.83	1	0.40
V-DEM Polyarchy	0.36	0.32	0.12	0.23
V-DEM Liberal democracy	0.27	0.26	0.05	0.14



Table 1 (continued)

	Peronist takeover in 1943		Constitution of 1853	
	Argentina	Synthetic Argentina	Argentina	Synthetic Argentina
	238.91		48.06	
Polity2 Score	-0.37	0.21	-4.58	-4.22
Executive constraints	2.79	3.52	1.40	1.18
Armed conflict	0.17	0.11	0.50	0.15
<i>Panel D: Demographic covariates</i>				
Log population size	15.41	15.50	13.70	13.21
Log population density	1.10	2.77	0.29	0.53
Population growth	0.03	0.01	0.03	0.03
<i>Panel D: Deep determinants covariates</i>				
Share of European-descent population	0.90	0.63	0.90	0.85
Genetic diversity	0.57	0.65	0.57	0.58
Genetic diversity ²	0.33	0.43	0.33	0.33



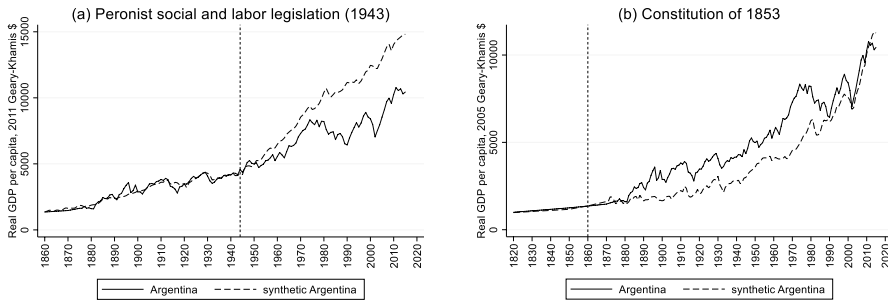


Fig. 1 Long-term growth effects of Peronist takeover and Alberdi's constitution

Results

Baseline Results

Figure 1 presents the baseline effects of the Peronist social and labor legislation and 1853 Constitution on Argentina's long-run economic growth trajectory. The figure exhibits both the observed growth trajectory and its synthetic counterpart that approximate the counterfactual growth scenario related to Péron's rule. The estimated long-term gap between Argentina and its synthetic control group suggests that in the hypothetical absence of the Peronist institutional reforms, per capita GDP would be significantly higher down to the present day. In particular, end-of-sample estimates invariably suggest that the per capita GDP of the synthetic control group where Peronist institutional reforms were not implemented is around 15,000 USD whereas the observed GDP per capita amounts to 10,437 USD by the end of the sample period. Thus, the gap translates into the implied 30% long-term loss that can be attributed to the Peronist power takeover and subsequent institutional reforms. The gap between Argentina and its synthetic control group begins to unfold immediately after the Peronist takeover and retains its steadiness until early 1970s whilst exhibit a large increase afterwards. Without the loss of generality, our estimates indicate a large-scale per capita loss emanating from the Peronist takeover of power in 1940s and its subsequent economic and institutional reforms undermining Argentina's long-term growth trajectory substantially. The Peronist social and labor legislation comprising the backbone of the social justice movement seems to have unleashed a vicious cycle of permanently slower economic growth whilst the breakdown of the long-term growth trajectory appears to be permanent.

In stark contrast to the Peronist institutional reforms, our evidence suggests both large and substantial improvement of Argentina's long-term growth trajectory in response to the Constitution of 1853. Our evidence suggests a gradual upward departure of Argentina's growth trajectory from its synthetic counterpart. In response to the adoption of the constitution, the gap between Argentina and its synthetic control group begins to unfold sporadically with a notable uptake after 1870s. Our point estimates suggest that the difference in GDP per capita between Argentina and its synthetic control group is around 600 USD after the first twenty years



of the constitution. By the year 1900, the gap increases to around 1100 USD and 1800 USD by 1950. Precisely after the Peronist takeover, the gap afterwards begins to narrow down considerably and completely disappears down to the present day. From the general perspective, our estimates thus imply that the Constitution of 1853 appears to have been a very long-lasting temporary institutional shock that seems to have been entirely downgraded by the political and institutional instability after the 1950s when Argentina gradually fell behind the other advanced nations in terms of GDP per capita.

Table A1 in the Appendix reports the composition of synthetic control groups for Argentina prior to the advent of the 1853 Constitution and Peronist takeover in 1940s. The composition of synthetic control groups reveals which particular convex combination of countries best reproduce pre-treatment economic growth trajectory of Argentina. It follows immediately that any such combination contains growth and development attributes implied by the pre-treatment outcomes and auxiliary covariates that fall within the convex hull of Argentina's growth characteristics. For both institutional shocks, the size of the root mean squared prediction error appears to be low compared to the observed levels of GDP per capita in training and validation period. This is further reinforced by the reasonably good quality of the fit between Argentina and its synthetic control group prior to the institutional shocks and does not invoke either misfit or large predictive discrepancy prior to the treatment as a source of the estimated counterfactuals.

More specifically, the synthetic control group indicate that prior to the 1860, the growth and development trajectory of Argentina can be best reproduced as a convex combination of the implied growth and development characteristics of Uruguay (60%), Brazil (38%) and United States (2%), respectively. The synthetic control group behind the Peronist takeover in 1940 appears to be somewhat more diverse and consists of Mexico (50%), Switzerland (32%), Uruguay (17%), and United States (1%).

Compared to existing estimates of long-term effect of Peronism (Ertola Navajas 2020), our results provide both several similarities and few differences. First, our estimates indicate 30% lower per capita GDP compared to the counterfactual scenario without Péron in power. By contrast, Ertola Navajas (2020) arrives at a larger impact, and suggests that Argentina without Péron in power would have two times higher per capita GDP compared to the actual realization. One possible source of such differences arises from the time span used in the analysis as we are using a sample with 30 years longer pre-treatment period. A different length of pre-treatment period invariably implies a distinctive composition of synthetic control group. In our analysis, synthetic control group of pre-Péron Argentina consists of the weighted combination of Mexico (50%) and Switzerland (32%) followed by Uruguay and United States with considerably lower total weight shares. By contrast, Ertola Navajas' version of synthetic Argentina consists of Switzerland (53%) and Denmark (37%) followed by nine countries with substantially smaller share. This implies that two high-income countries with considerably higher GDP per capita in post-treatment period influence the estimated counterfactual scenario down to the present day whilst in our case, synthetic Argentina is dominantly influenced by one high-income country and one middle-income countries which implies that the



estimated per capita GDP penalty of Péron's rule is considerably smaller compared to Ertola Navajas.

Another possible source of differences arises from the specification of the model that captures Argentina's growth and development attributes. In this respect, Ertola Navajas (2020) includes lagged levels of per capita GDP averaged across three pre-treatment sub-periods and population size averaged across the full pre-treatment period as the set of pre-T0 outcomes and covariates to reproduce pre-Péron's growth trajectory. Our battery of covariates is somewhat wider and also includes auxiliary covariates related to physical geographic attributes, institutional quality, population growth and density as well as deep determinants of economic growth such as ancestry history and genetic diversity. Taken together, this implies that predictors other than past GDP per capita are distinctively important covariates to capture the attributes of pre-Péron's growth and development covariates of Argentina, and yield distinctive values of \mathbf{W} and \mathbf{V} matrices. Subsequently, our estimate of long-term effect of Péron's rule on Argentina's growth trajectory is somewhat lower than that of Ertola Navajas.

Sensitivity Analysis

A notable caveat behind our estimates hinges on the composition of the synthetic control groups. For instance, one could argue that the estimated counterfactual with respect to the Peronist takeover and 1853 constitution is disproportionately influenced by a handful of countries such as Mexico and Uruguay which renders the estimates somewhat uncertain. Another related caveat behind our estimates invokes the length of the pre-treatment period. Given that pre-treatment period is relatively long for both institutional shock, the question that arises immediately is whether a different amount of pre-intervention information yields similar results. Abadie (2021) notes that the credibility of the synthetic control approach depends chiefly on its ability to track and reproduce the trajectory of outcome variable for the treated unit. However, excessively long pre-intervention period may pose a risk of possible structural breaks even if the long-term growth specification is a seemingly good representation of the data, which implies that the accuracy may suffer if the length of pre-intervention period is too large. To address these concerns, we proceed in two steps. In the first step, the composition of the donor pool is varied to check for the sensitivity of the estimated gaps to the structure of the donor pool. Second, we iteratively reduce the length of pre-intervention period and re-estimate the baseline synthetic control specification with the same set of pre-intervention outcomes and auxiliary covariates.

Varying the Composition of Synthetic Control Groups

Figure 2 reports the sensitivity of the long-term per capita GDP gap to the composition of synthetic control groups that best synthesize Argentina's pre-Péron economic development trajectory. The sensitivity analysis consists of two blocks. In the first block, specific world regions are excluded from the donor pool as a check on the



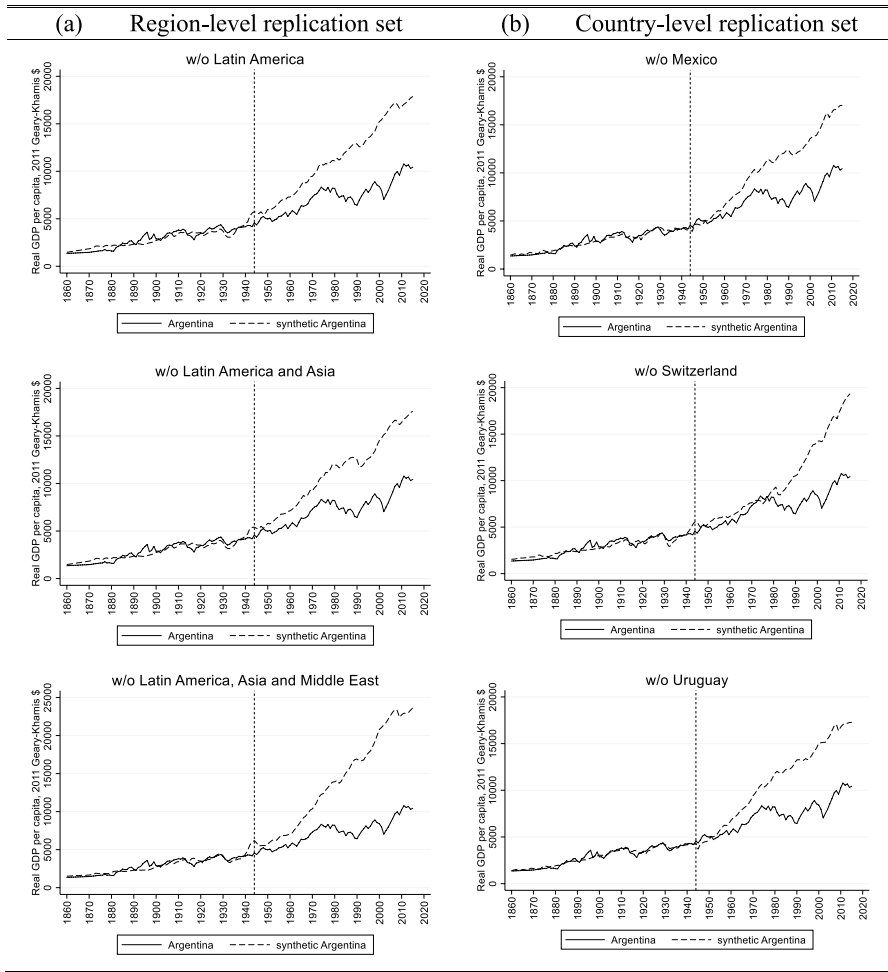


Fig. 2 Sensitivity analysis of the long-term growth impact of Peronist legislation and Alberdian constitution

influence of each region behind the estimated counterfactuals. Region-level exclusion restriction consists of Latin America and iteratively proceeds with Middle East and Asia to build a more parsimonious donor pool where Argentina is ultimately compared with European countries where many pre-shock similarities can be drawn. In the second block, countries that form the baseline synthetic control group are iteratively excluded from the donor pool. This can be viewed as “leave-one-out” analysis suggested earlier by Abadie et al. (2015) and Klößner et al. (2018).

Panel (a) reports the replicated estimation of counterfactual scenario using region-level restrictions on the composition of the donor pool. Across three specific restrictions, the estimated end-of-sample per capita GDP gaps ranges from -40% when Latin American countries are dropped from the donor pool to -55% when



only European countries are used in the donor pool. Across all replicated specifications, the estimated per capita GDP gap appears to have evolved gradually and exhibits the characteristics of permanency instead of temporariness which confirms the notion of growth breakdown induced by the Peronist takeover. Panel (b) reports the replicated estimates where the countries from the original pre-1940s control group are piecewise excluded from the donor pool. The re-estimated per capita GDP gap is in the range between -35% when Mexico is dropped off the pool to -45% when Switzerland is discarded from the analysis. When the neighboring Uruguay is excluded from the analysis as a potential source of spatial interference, the end-of-sample per capita GDP gap is around -37% which appears to be reasonably well aligned with the baseline estimate. Hence, the estimated per capita GDP seems to be robust to the varying composition of synthetic control groups and confirms both negative and permanent growth implications of the Peronist takeover in 1940s.

Table A2 in the Appendix exhibits the composition of synthetic control groups based on country-level and region-level replication sets. Across the full set of specifications, the size of the root mean squared prediction error (RMSE) appears to be both low and similar which may rule out the lack of fit as the underlying driver of the estimated counterfactuals. The alternative composition of synthetic control groups reveals several distinctive insights on the ability to reproduce and track Argentina's pre-Péron growth trajectory. When Mexico is discarded from the pool as the dominant donor, Argentina's pre-Péron growth trajectory is best synthesized as a convex combination of the growth and development attributes of Switzerland (38%), Brazil (28%), Slovenia (14%), China (12%), Canada (4%) and Jordan (1%), respectively.² When Uruguay is discarded from the donor pool, the growth trajectory of Argentina is best reproduced as a convex combination of Mexico (43%), Switzerland (31%), Austria (22%), Brazil (3%), Denmark (1%) as well as Australia ($<1\%$) and Jordan ($<1\%$), yielding a similar RMSE than the one obtained in the baseline analysis.

Furthermore, in the most parsimonious region-level replication where Latin American, Asian and Middle Eastern countries are jointly discarded from the donor pool, Argentina is effectively compared to the European and North American and Australasian countries which further suppresses treatment interference that could potentially arise from the spatial spillovers. In this particular replication, the growth trajectory of Argentina prior to Peronist takeover is best synthesized by the weighted combination of Spain (45%), Canada (28%), New Zealand (19%), and United States (8%) which implies that nearly one half of the variation comes from Europe and the

² In the respective synthetic control group, the weight shares of Switzerland and Slovenia are particularly noteworthy given that about one half of the variation comes from both countries which appear to be quite different from Argentina. Based on the decomposition of V matrix from Eq. (3), the covariates with the strongest loading include GDP per capita in 1940 (19%), GDP per capita in 1900 (15%), GDP per capita in 1920 (11%) and population density (9%) among several others. This implies that most of the similarity between Argentina, Switzerland and Slovenia arises from pre-treatment level of economic development. For instance, the observed level of GDP per capita in Argentina in 1920 is \$G-K 3473 whilst the corresponding figures for Switzerland and Slovenia are \$G-K 6568 and \$G-K 2329, which implies that Argentina's development trajectory in 1920 appears to have been in the convex range between the level of both countries. This is why nearly one half of the variation in the control group is both feasible and not entirely surprising.



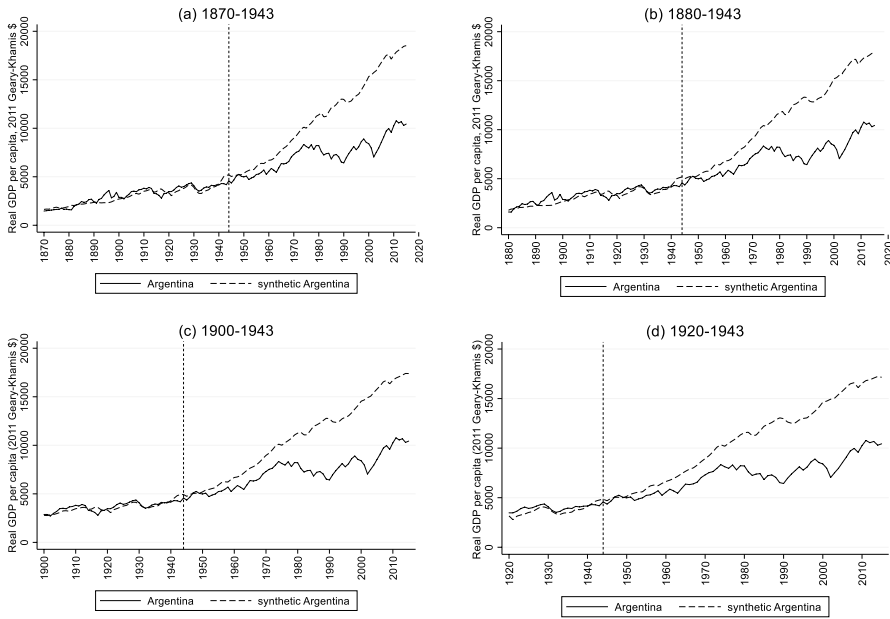


Fig. 3 Long-term effect of Peronist rule using short pre-treatment period

other half from Western Offshoots that have had a similar but yet somewhat distinctive experience with the European colonization. Across the entire set of specifications, the estimated post-treatment GDP per capita gaps indicative a rather pervasive growth breakdown triggered by the Peronist takeover without the interfering influence of pre-existing trends. Down to the present day, the observed growth trajectory in Argentina does not seem to catch-up with the estimated counterfactual, which self-suggests that the breakdown of the growth trajectory entail the characteristics of permanency.

Varying the Length of Pre-treatment Period

Figure 3 reports the estimated post-Peron GDP per capita gaps using varying lengths of the pre-treatment period. In particular, the length of the period used to match Argentina with the donor pool is iteratively reduced from the time span of 43 years in panel (a) to 23 years in panel (d). The evidence bolsters further empirical support for the notion of growth breakdown induced by the Peronist takeover in 1940s. In each respective modification of the pre-treatment period, Argentina’s post-1940s growth trajectory departs downward from its synthetic control group. End-of-sample gap magnitudes are remarkably similar across the iterated estimated specifications and are in the range between 39 and 41%, respectively. The break in the growth trajectory appears to be permanent, which further pinpoints large long-run growth losses and long-last economic implications emanating from the Peronist rule.

Table A3 in the Appendix exhibits the composition of the synthetic control groups for Argentina by varying length of the pre-treatment period. The evidence



suggests that a relatively stable and unique set of countries is able to reproduce and best synthesize pre-Peron economic trajectory of Argentina. For instance, when the length of training and validation period is reduced to 43 years, pre-1940s Argentina's growth trajectory can be best reproduced as a convex set of growth and development attributes of Canada (37%), Algeria (23%), Switzerland (11%), Australia (11%), Chile (10%) and Mexico (7%), respectively. The implied growth trajectory of this particular set of countries implied that the end-of-sample gap between Argentina and its control group is -41% . End-of-sample gaps are almost identical in the iterated specifications when the length of the pre-treatment period is reduced down to 23 years in panel (d) with a comparable and low RMSE.

In-space Placebo Analysis

One of the remaining questions behind the panoply of long-term effects of Peronist takeover concerns the unique and perceptibility of large-scale overhaul in social and labor legislation induced by Peronist rule in explaining the departure of Argentina's economic growth trajectory from its synthetic control group. To answer this question, we ask whether post-1940s per capita GDP gap is specific to Argentina or simultaneously perceptible in the donor pool. More specifically, we perform a series of in-space placebo analyses, assign the Peronist rule to all other countries except Argentina, and iteratively run synthetic control estimator on the unaffected countries. Henceforth, we compute the gap in per capita GDP between the quasi-treated countries and their control groups, and build the internal distribution of placebo estimates. Finally, we compute the statistical significance of the Peronist rule in explaining Argentina's per capita GDP gap by calculating a proportion of countries with similar post-1940s GDP per capita gap behavior as Argentina. The underlying intuition behind the in-space placebo analysis is simple. If the distribution of placebo effect yields many effects being as large as the baseline effect, then it becomes quite likely that the estimated effect of the Peronist takeover is obtained by chance, and is probably driven by structural and idiosyncratic factors other than the Peronist rule itself. By contrast, if the post-1940s gap is particularly unique to Argentina and can be only seldom perceivable elsewhere, the notion of the negative effect of the Peronist rule becomes more plausible. A similar placebo analysis is also performed for the 1853 constitution to determine whether the Peronist rule can be classified as a distinctive institutional shock compared to the 1853 Constitution in terms of their long-lasting economic implications.

Figure 4 presents the full set of placebo estimates both for the Peronist takeover in 1940s and the 1853 Constitution. Notice that in both iterations of the synthetic control analysis, Argentina is shifted in the donor pool. As indicated earlier by Abadie et al. (2010), large placebo effects may be driven by the relative rarity of obtaining an extremely large effect. To address this particular discrepancy, poorly fit placebo gaps with RMSE in excess of ten times the ratio of Argentina are ex-ante discarded from the placebo analysis. Although such approach may be viewed as a somewhat more lenient one, it effectively compares Argentina's post-treatment per capita GDP gap only to those countries that match well with it. Without the loss of generality,



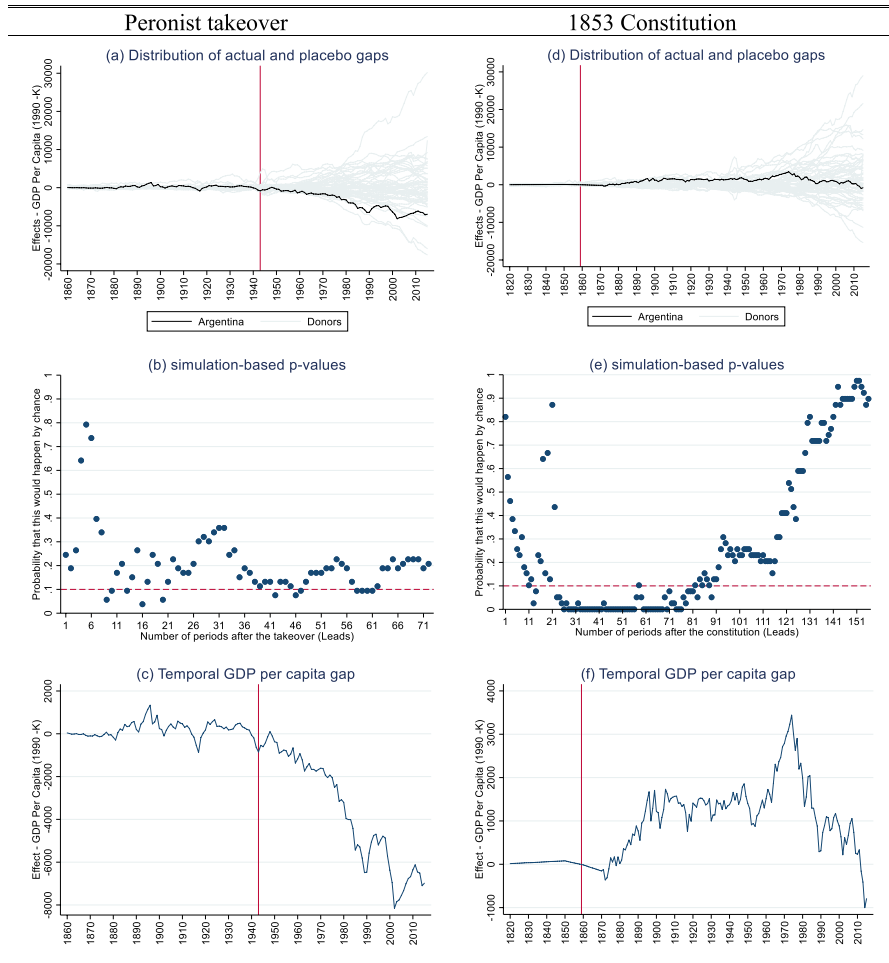


Fig. 4 In-space placebo analysis of long-term effect of Peronism and 1853 Constitution

the evidence from the in-space placebo analysis suggests two important insights. First, the estimated gap in response to the Peronist takeover appears to be relatively uniquely perceptible to Argentina and does not seem to be tainted by a common trend that would be easily perceivable elsewhere. The growth gap appears to be statistically significant 10 years after the takeover when the simulation-based p value moves very close to the zero threshold. Afterwards, the estimated gap retains its strength given that p values revolve around the 10% significance threshold consistently down to the present day. Hence, the evidence from the placebo analysis is quite strongly indicative of the notion that Peronist takeover in the 1940s induced a rather permanent breakdown of the growth trajectory compared to Argentina’s reasonably attainable frontier indicated by its synthetic control group. And second, the Constitution of 1853 appears to be a source of very long-lasting but temporary institutional



change with a notable improvement in economic growth in the medium run. In particular, Argentina's growth trajectory in the early post constitutional period tends to improved markedly compared to the placebo gaps. The positive gap induced by the Constitution tends to persist precisely until 1940s and arguably disappears amidst the Peronist takeover. Later episodes of political and institutional instability down to the present day further downgrade the growth premium of Alberdi's constitution. This notion is further reinforced by the intertemporal distribution of p values. In particular, roughly ten years after the adoption of the constitution, p value on the per capita GDP drops to zero and remains at the threshold until 1930s. The p value tends to increase substantially and exits the conventional 10% significance threshold in the year 1942 which is almost precisely a year coinciding with the coup d'état against the Castillo administration which led to the rise of Péron first to the ranks of the secretary of labor in the military government, and later to the presidency in 1946. Afterwards, the p value tends to increase substantially, reaching 90% threshold down to the present day. This implies that the entire set of economic advantages posed by the Constitution of 1853 vanished, pushing Argentina's observed growth trajectory down to the estimated long counterfactual in the hypothetical absence of the constitutional change in 1853.

In-time Placebo Analysis

Another possible caveat against the estimated long-term growth effect of the Peronist takeover arises from the choice of the treatment year. The scholarly literature on structural breaks in Argentina's growth trajectory indicates multiple years when the break point is perceptible. For instance, Taylor (1992, 1994) suggests that the main break in Argentina's economic trajectory evolved around the year 1913 in the light of the interruption of foreign capital flows and closing of the agricultural frontier in the Pampas, attributing the year 1913 to end of Belle Époque. In addition, Díaz-Alejandro (1970) advocates the year 1929 as the onset of Argentina's economic decline in the midst of the abandonment of liberal economic policies towards trade, capital and labor embarked by the military coup d'état that led to inward-looking policies of industrialization through import substitution. Early 1930s have also been identified as critical turning point in Argentina's economic growth trajectory by Spiller and Tommasi (2007) and Alston and Gallo (2010) who further emphasize the lack of electoral transparency, practice of electoral fraud by incumbent government administration, and complete silence of Supreme Court over rampant constitutional violations. Furthermore, Sanz-Villarroya (2005) uses co-integration analysis to disentangle long-run behavior of Argentine economy and employs Bai-Perron structural break test to determine the exact timing of the onset of Argentina's economic decline. Her analysis reveals the years 1913, 1929 and 1974 as the points when Argentine GDP per capita tends to become stationary although some evidence behind the break dates suggests that Argentina has been detached from the catch-up with the OECD countries since 1913. Most recently, Campos et al. (2022) extend the array of empirical tests for structural breaks and employ sophisticated tests based on Bartlett kernel, quadratic spectral densities and various vector-autoregressive



approaches for the period 1886–2003. Their analysis indicates the two key structural breaks occurring in 1918 and 1948 that highlight the slowdown to domestic financial development and trade protectionism after 1918 and to the deterioration of institutional development after 1948.

The general thrust of these comparisons is relatively straightforward. If the estimated long-term effect of Peronist rule can be anticipated in the years where multiple structural breaks have been identified, the credibility of our synthetic control estimates can be brought into question. In particular, if the effect of Peronist takeover can be reasonably well anticipated prior to the takeover, any claims on the validity of the synthetic control estimator can be brought into question.

We partially address these concerns by undertaking an in-time placebo analysis. In contrast to the permutation of the Peronist rule to the unaffected countries, the timing of the Peronist rule is set to a deliberately wrong year by backdating the shock into the pre-treatment period to conduct the placebo analysis as suggested earlier by Heckman and Hotz (1989), Abadie et al. (2015) and Abadie (2021) amongst several others. However, the choice of the placebo year is usually left to an arbitrary judgement.³ It could hold that in the arbitrarily chosen placebo year, there seems to be no evidence of the structural break. As a rule of thumb, it is plausible to backdate the underlying intervention of interest to the year where structural break that could shape the estimated post-treatment gap in the outcome variable, is clearly perceptible. Such falsification check may allow us to rule out the alternative shocks from the estimated counterfactual scenario. To assess the validity of the synthetic control estimator in ascertaining the long-term growth effect of the Peronist rule, we perform the test of structural break in Argentina's GDP per capita series for the period 1820–2015 to detect the onset of the stationarity in the series using the test proposed by Zivot and Andrews (2002). Instead of assuming a deliberate fixed breakpoint (Perron 1988, 1989), our approach is to examine the entire possible breakpoint range, identify the years of structural break and apply the synthetic control estimator to the identified breakpoints. The choice of the falsification year to which the Peronist rule is assigned is somewhat less arbitrary and treats the breakpoint as endogenous. In addition, only the years where breakpoint t-statistics is within 10% significance threshold are considered whilst others are not given the obvious break ambiguity at artificially high significance thresholds. The structural break test indicates two distinctive breakpoint years for both treatments used in our analysis. By examining the period 1820–2015, the maximum value of breakpoint t-statistics is indicated for the year 1881. Moreover, when the period is restricted to 1860–2016 time range, the maximum absolute value of breakpoint statistics is found in the year 1913 which is consistent with the earlier evidence by Taylor (1992, 1994), Sanz-Villarroya (2005) and Campos et al. (2022).⁴ Figure 5 reports the in-time placebo

³ For instance, Abadie et al. (2015) study the economic growth effect of the German unification on West German economy, and find evidence of substantially negative effect. To assess whether the negative growth effect of unification is driven by the alternative shocks evolving in the years when unification did not occur, they falsely assign the year of unification to 1975 as a falsification check.

⁴ It should be noted that Zivot–Andrew structural break test indicates no significant break in the GDP per capita series for the period 1882–2015 whilst the year at which the breakpoint test statistics most



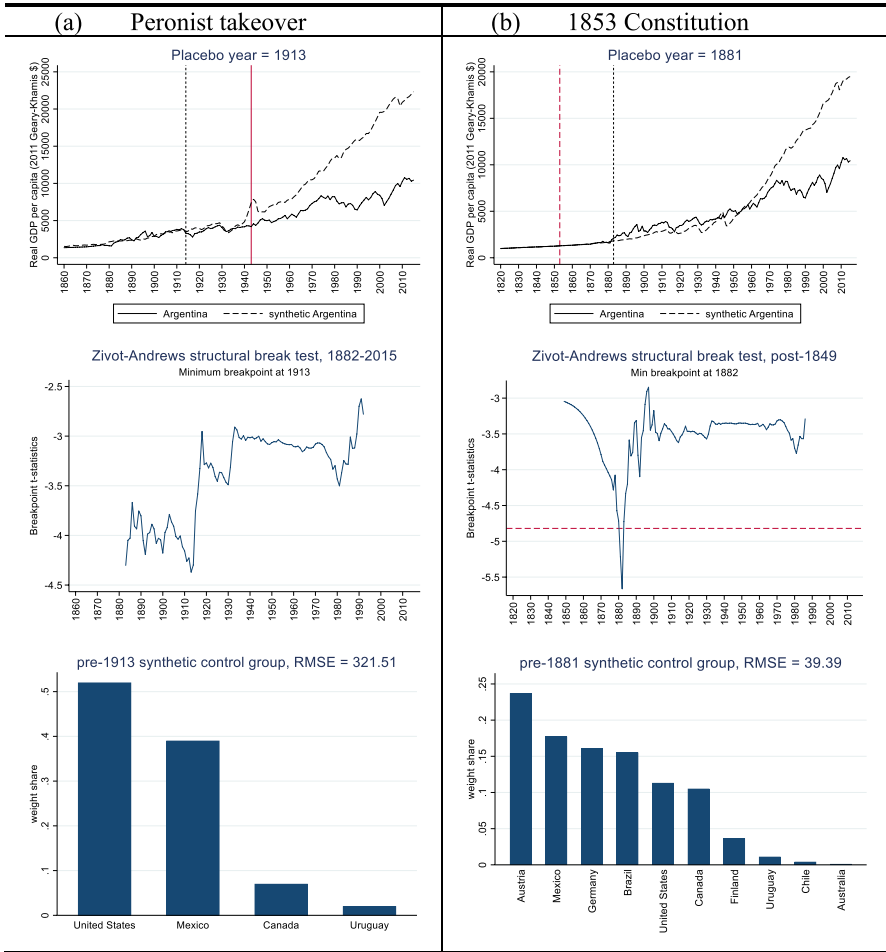


Fig. 5 In-time placebo analysis of

analysis. The evidence thoroughly suggests no respective break in assessing the validity of the long-term effect of 1853 Constitution since the pattern invariably suggests a nearly zero break between Argentina and its synthetic control group induced by the quasi-intervention in 1881. Furthermore, the evidence also invariably suggests no break in the year 1913 as the most likely contending break date in the attempt to falsify the effect of Peronist takeover. The general pattern reinforced by the in-time placebo analyses emphasizes the departure of Argentina’s observed

Footnote 4 (continued)

closely approaches the 10% threshold is the year 1913. Henceforth, this is the year we use to conduct in-time placebo analysis.



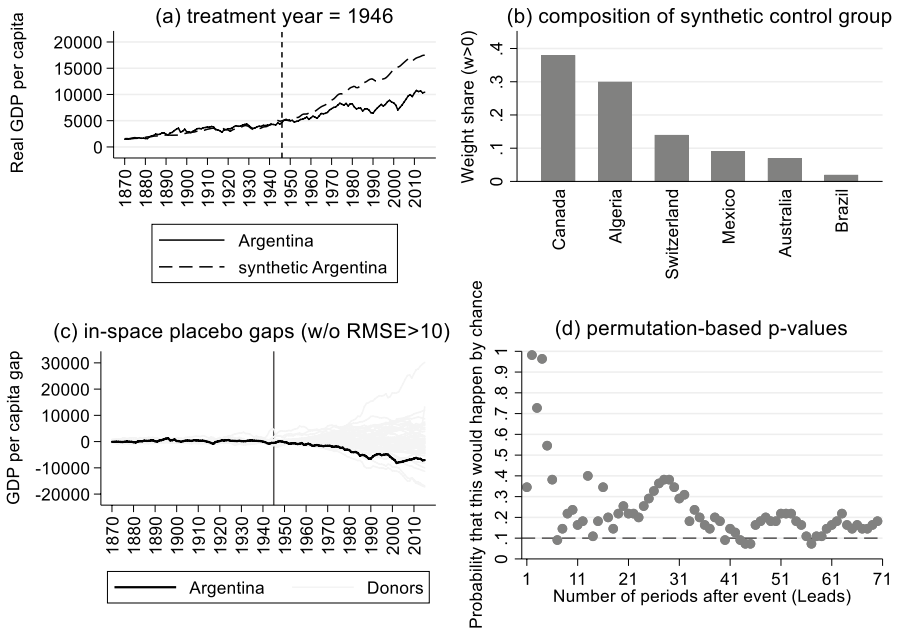


Fig. 6 Long-term growth effect of Péron’s rule using alternative treatment year

growth trajectory from its synthetic peer precisely throughout 1940s and 1950s, which almost exactly coincides with the years in which Péron had been in power.

Choice of Alternative Treatment Year

One obvious caveat behind the estimated long-term effect of Péron’s populist governance concerns the choice of exact treatment year. In our baseline analysis, the year 1943 is chosen as the date of treatment. Péron’s ascend to power began in 1943 when he implemented a variety of large-scale changes in social and labour legislation in his capacity as a secretary of labor. Péron’s tenure as a secretary of labour witnessed a wide range of social reforms leading an alliance with socialist and syndicalist movements in the Argentine labour unions, increasing his power and influence in the military government. However, Péron’s first presidential term began in 1946 when many far-reaching institutional reforms promulgating populist governance were initiated.

To address this particular concern, we re-estimate the baseline long-term specification by making use of 1946 instead of 1943 as the underlying treatment year. Figure 6 depicts the long-term effect of Péron’s rule on Argentina’s trajectory of economic growth along with the composition of synthetic control group and in-space placebo test. The evidence indicated a marked and permanent growth breakdown in response to Péron’s rule. In particular, Argentina’s growth trajectory departs from its estimated counterfactual trajectory immediately and appears to be permanent. In



quantitative terms, the end-of-sample difference between Argentina's synthetic and real GDP per capita amounts to 41%, respectively. Pre-1946 trajectory of economic growth is best reproduced as a convex combination of the growth and development attributes of Canada (38%), Algeria (30%), Switzerland (14%), Mexico (9%), Australia (7%), and Brazil (2%), respectively. By permuting Péron's rule to other countries that never had it and discarding the placebo gaps with RMSE at least ten times higher than that of Argentina, our findings invariably suggest that the probability of obtaining a random effect decreases significantly after Péron's rise to power and approaches the conventional 10% threshold, indicating a random effect as very unlikely.

Bias-Corrected Estimates

An additional caveat behind our baseline estimate is posited by the ability of the synthetic control group to resemble growth and development characteristics of Argentina before Péron's ascend to power. Without the loss of generality, the synthetic control group that best mimics pre-Péron's economic growth trajectory is composed of the weighted combination of the implied growth and development attributes of countries that fall within the convex hull of Argentina's observed characteristics. However, Abadie and L'Hour (2021) show that the synthetic control group based on $\hat{W}(V)$ similarity matrix that best reproduces the characteristics of treated units may not have a unique solution, and propose a synthetic control estimator that penalizes pairwise discrepancies between the characteristics of the treated unit and the characteristics of contributing units to the synthetic control group. More specifically, the proposed penalization parameter trades off pairwise matching discrepancies with respect to the characteristics of each unit in the synthetic control and with respect to the attributes of the synthetic control unit as a whole. They show that the penalized synthetic control estimator contains both sparsity and uniqueness, providing bias-corrected average treatment effects. To further assess the robustness of our baseline analysis to the penalization of discrepancies between Argentina and its synthetic control group, we estimate Abadie and L'Hour (2021) bias-corrected long-term effect of Péron's rule and Alberdi's constitution and compare both bias-corrected and classic synthetic control estimates accordingly. To obtain bias-corrected estimates, we fit our model by making use of elastic net regularization that combines the penalties of the LASSO and ridge methods.

Figure 7 presents both classic and bias-corrected estimates of Péron's ascend to power and Alberdi's constitution on Argentina's long-term economic growth trajectory. The evidence suggests that bias-corrected end-of-sample per capita GDP gap between synthetic and real Argentina is around 62% and appears to be consistent with our baseline estimate. Bias-corrected estimates do not indicate either zero or insignificant long-term growth gap induced by Péron's rule, and confirm both permanent and long-lasting breakdown of the growth trajectory in response to the populist governance. The correlation coefficient between the classic and bias-corrected estimates of post-treatment effect is +0.84, and is statistically significant at 1%, respectively. Although penalized discrepancies lead to a somewhat different



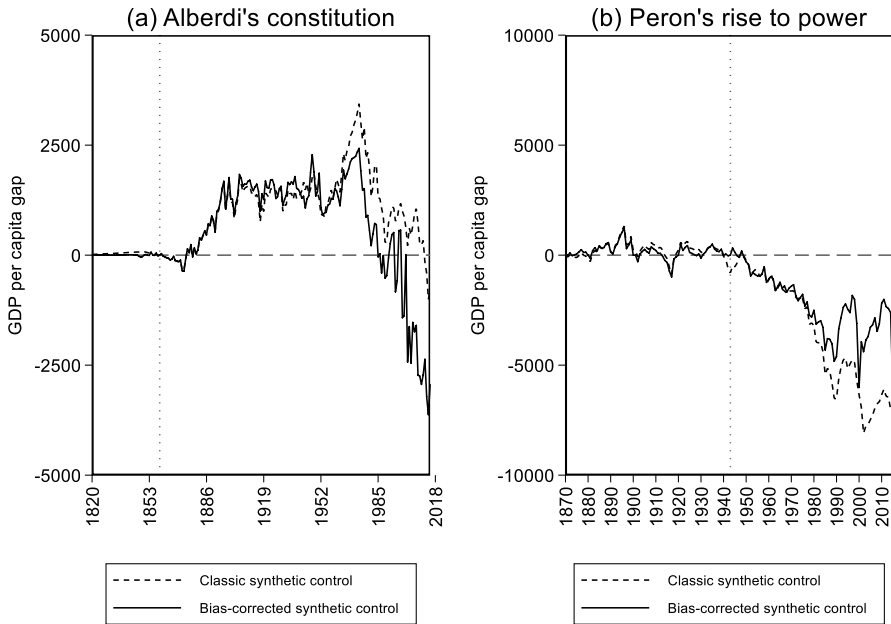


Fig. 7 Classic and bias-corrected estimates of long-term growth effect of Alberdi’s constitution and Péron’s rise to power

magnitude of post-treatment effects, particularly after 1970s, both sets of estimates are very similar in terms of the magnitude and jointly indicate permanent breakdown of the growth trajectory compared to the synthetic control group. Bias-corrected evidence on the long-term effect of Alberdi’s constitution confirms both our baseline estimates and our prior theoretical argument. In particular, Alberdi’s constitutions appears to have improved Argentina’s economic growth trajectory considerably above the level predicted by its synthetic control group. Down to the present day, the growth trajectories of both Argentina and its synthetic peer tend to move in tandem, mutually reinforcing the notion of a long-lasting and positive but temporary growth impulse posited by Alberdi’s constitution. More precisely, the correlation coefficient between classical and bias-corrected estimates is +0.71 and is statistically significant at 1% which readily uncovers a reasonably high degree of similarity between both sets of estimates, suggesting that the baseline estimated effect is robust to the bias-correction posed by multiple solutions for $\hat{W}(\mathbf{V})$ matrix.

Conclusion

On the eve of World War I, the future of Argentina looked bright. At the height of Belle Époque, Argentina’s per capita income had been among the highest ones worldwide and surpassed several southern and western European countries by a wide margin. Down to the present day, Argentina has degenerated from the status of the rich country in the early 20th century to the underdeveloped one. The obvious



question that we ask in this paper is what went wrong. Although the seemingly Argentine paradox is a subject of widespread scholarly attention, the causes of the decline remain a subject of intense scholarly debate.

In this paper, we exploit the rise of the populist governance ignited by the rule of Juan Domingo Péron as a source of variation in long-term economic performance. The legal and institutional reforms carried during the relatively short rule of Péron subverted a bulwark of institutional framework of Argentinean founding fathers, epitomized by Alberdi's 1853 Constitution that had contributed to Argentina's exceptional economic performance during the Belle Époque period between 1875 and 1913. By dismantling the rule of law and eroding the economic freedom, Peronism posited a social justice movement that overhauled the institutional framework that propelled Argentina into the league of prosperity.

To this end, we test our hypothesis by employing the synthetic control estimator originally proposed by Abadie and Gardeazabal (2003). In particular, we exploit the similarities in growth and development attributes between Argentina and a donor pool of 58 countries for the period 1820–2015. By synthetically matching Argentina's pre-Péron economic growth trajectory with the rest of the world, we estimate the counterfactual scenario through a latent factor model. We show that the synthetic control groups for Argentina are able to track and reproduce its growth and development trajectory before the onset of Peronism reasonably well. The empirical evidence from our analysis shows that the radical overhaul of the 1853 institutional framework and constitutional change is associated with pervasive loss of per capita in the long run. Compared to its synthetic control group, Argentina's per capita GDP by the end of our sample period is about 30% lower. The negative long-term growth effect of large-scale Peronist institutional reforms evolves in a gradual manner and appears to be permanent. In stark contrast to the Peronist reforms, our evidence suggests that the long-term economic growth effect of the 1853 Constitution is large, long-lasting but temporary. In particular, our estimates show that Argentina's economic growth trajectory outperformed its synthetic peer by a wide margin in the years after the adoption of the Constitution. However, the long-term economic advantages and growth benefits of Alberdi's constitution were almost entirely dismantled by the Peronist takeover and its subsequent large-scale economic and institutional reforms, which further reiterates the notion that the constitutional changes in 1853 contributed to the inception of Belle Époque. Our evidence invariably suggests that Argentina's economic growth trajectory outpaced its synthetic control group until 1930s while the positive growth gap began to dissipate at a heightened pace after the takeover of power by Péron and his accomplices. The estimated magnitudes of the gap are robust to a variety of sensitivity analysis and survive a battery of in-space and in-time placebo checks.

The key message of our paper is clear. Although episodes of populist governance may be short-lived, the long-term economic damage inflicted by populist economic policies and institutional reforms is both high and long-lasting with clear signs of permanency. From the theoretical perspective, the populist rule may be similar to the Michels (1911) iron law of oligarchy, stipulating that replacing the elites in power with different ones seldom changes the course of policies established by the preceding elites. The case of Argentina provides an institutional laboratory where



the populist rule by Péron lasted less than 10 years. Our evidence invariably suggests that the economic damage imposed by Peronist policies and reforms is far from temporary and appears to be permanent and long-lasting even after many years of removal from office. Our conservative estimates imply that without populist governance initiated by Peronist political ideology, Argentina's contemporary per capita income would be around 30% higher and comparable with countries such as Spain and Slovenia. Without the loss of generality, our evidence reinforces the claim that without populist governance, Argentina would be a rich country down to the present day.

Our investigation highlights three different suggestions as an avenue for future research. First, although the effect of Peronism on economic growth trajectory can be reasonably well understood, the effect of Peronism on its proximate determinants remains less clear and warrants further investigation. For instance, the effect of Peronist rule of social development as well as human capital formation have remained unanswered whilst the application of synthetic control analysis and alternative estimation methods may provide additional evidence on the specific transmission mechanisms at work. Second, most of the scholarly analysis of Argentina's economic decline deal with the aggregate data where Argentina is considered as a treated case. By contrast, a more disaggregated analysis that attempts to compare the long-term growth trajectories of provinces in response to the Peronist rule and 1853 constitution would uncover additional insights that may capture some of the heterogeneity masked in the aggregate effect. To partially fill the void in the literature, González et al. (2021) recently employ synthetic control methodology to examine the effects of removing Peronist elites from power on economic and social outcomes by drawing on the federal intervention in the province of Santiago del Estero in 2004. They find evidence that elite removal does not translated into higher growth, reduced inequality and increased tax collection. Yet, an analysis encompassing both alternative outcomes of growth and development and a greater number of provinces in different contextual circumstances is necessary to better understand the differences in the long-term effect of populist governance. In a related manner, it is equally important to empirically disentangle the policy narratives that can potentially break the chain of political continuity of populist governance. And third, a significant limitation on our research emanates from the external validity. Therefore, to further bolster the external validity, it is necessary to estimate and establish the effects of populist governance over the short and long run in different contextual setup to better understand the long-lasting implications of populist takeovers for economic growth and development.

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