# Electoral Law Enforcement and the Political Economy of Long-Run Development: Evidence from Latin America, 1800-2012

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## Abstract

*This paper exploits the variation in the timing of electoral law enforcement across nine Latin American countries to consistently examine the contribution of de jure and de facto political institutions to long-run development. The set of novel measures of electoral law enforcement is constructed focusing on de jure vs. de facto suffrage extension, abolition of wealth- and literacy-based voting restrictions, electoral fraud and oppression drawing on the extensive and largely unexploited Latin American historical bibliography. A simple difference-in-differences model of de jure and de facto institutional development is built to account for the effect of electoral law enforcement on institutional development, and used as a source of variation in long-run development paths. The evidence suggests the timing of enforcing electoral laws largely accounts for the contrasting paths of de jure and de facto institutional development in post-independence Latin America. The institutional changes toward suffrage extension, removal of voting restrictions and level-playing field with more inclusive de jure and de facto institutional setup are associated with large-scale improvements in long-run development paths. The effects of de jure and de facto institutions on long-run development do not depend on sample selection, specification bias or unobserved heterogeneity. The counterfactual scenario suggests having de jure and de facto political institutions on a similar level to the United States since independence would yield massive economic gains by narrowing Latin America's gap behind the U.S by a fifth. The counterfactual based on the institutional parallels of the U.S, Australia or United Kingdom in appears to speak in favor of large-scale gains in long-run development compared to the much smaller gains from the institutional design based on French, Spanish or Portuguese institutional benchmark.*

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## 1. Introduction

The origins of the long-standing development gap between North America and Latin America have revived a significant scholarly interest in the last three decades (Hirschman 1987, Cardoso and Fishlow 1992, Taylor 1998, Sokoloff and Engerman 2000, Coatsworth and Williamson 2004, Rodrik 2011, Allen et. al. 2012, Arroyo-Abad and Van Zanden 2014). In spite of the relative economic advantage on the eve of European colonization in late 15th and early 16th century, Latin America had experienced slow growth and less favorable development outcomes compared to the United States in spite of the initial advantage on the eve of European colonization. In 1500, real GDP per capita (adjusted for PPP) of the United States was no different from that of Brazil whereas Mexico's per capita GDP was 37 percent above the U.S. level (Coatsworth, 2008). In 1800, real GDP per capita of the United States ($G-K 1296) was markedly higher than that of Argentina ($G-K 931), Mexico ($G-K 836) and the rest of Latin America ($G-K 738). By 1900, United States enjoyed more than three-fold GDP per capita in comparison with Latin America (Bolt and Van Zanden, 2014). In 2010, the per capita income difference between United States and Latin America rose to almost four fold. How could initially most developed societies in the New World reverse the fortune and end up with inferior economic and development outcomes compared to the United States – initially the least developed society in the Americas?

Different theories have been proposed to explain cross-country growth and development gaps. The importance of physical geographic for long-run economic outcomes has been suggested by Diamond (1997) and Pomeranz (2000) while Bloom and Sachs (1998), Gallup et. al. (1999), and Presbitero (2005) found the empirical support for the geography thesis. The relevance of international trade for long-term economic change has been stressed by Ben-David (1996), Frankel and Romer (1999), Dollar and Kraay (2003) and Földvari (2006). The contribution of social, cultural, and religious factors in explaining contemporary economic growth and development has been initially suggested by Weber (1934) and Landes (1998), whereas Guiso et. al. (2008), Becker and Wössmann (2009), Tabellini (2010), and Gorodnichenko and Roland (2011) found empirical support for the culture hypothesis. The importance of human capital formation for contemporary economic and development outcomes has been stressed by Becker et. al. (1989, 1999) and Galor and Weil (1996), whilst Glaeser et. al. (2004), Van Leeuwen (2007), Van Leeuwen and Földvari (2008), Hanushek and Wössmann (2012) and Földvari and Van Leeuwen (2014) confirmed its contribution to long-term economic change. A large strand of literature emphasizes the fundamental importance of institutions in influencing long-run economic and development outcomes. North (1991) originally defined institutions as "humanly devised constraints that structure economic, social and political interaction (p.3)." Institutions consist of formal rules, recognized by laws, property rights, and constitutions, and informal rules which consist of traditions, customs and codes of conduct. Greif (1998) suggests institutions are a complex web of interactions where formal explicit rules are coexist with implicit informal rules, creating a coherent whole. Institutions and institutional change are both a process and reflection of past and present economic, political, social and cultural features with a long-lasting economic implications.

Hence, institutions determine the set of economic choices and affect the costs of engaging in economic activity (transaction costs) and the costs of production. As such, institutions facilitate the incentives to engage in either productive or unproductive activities. Constitutions, laws and electoral systems allocate de jure political power whereas de facto political power is based on the ability of the population to engage in various forms of collective action (Acemoglu and Robinson, 2006a). Since different groups benefit differently from

alternative economic institutions, the conflict between institutions as a set of social choices is usually determined in favor of groups with greater economic power (Acemoglu et. al. 2005). Therefore, groups with greater contemporary de facto political power strive to achieve greater de jure political power in the future. Institutions establish the incentive structure and shape the subsequent direction of economic change. Historically, the precedence of institutions has been recognized by North and Weingast (1989), Mokyr (1990), and Djankov et. al. (2003) whereas Hall and Jones (1999), Knack and Keefer (1995), Henisz (2000), Acemoglu et. al. (2001, 2002, 2005, 2011), Acemoglu and Johnson (2005), Rodrik et. al. (2004), Nunn (2008, 2009), Dell (2010), Van Zanden et.al. (2012), and Schäfer and Wulf (2014).

This paper presents a unified attempt to consistently estimate the effect of de jure and de facto political institutions on long-run economic growth and development of Latin America for the period 1800-2012. In particular, two distinctive measures of de jure and de facto political institutions are established for nine Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Peru, Uruguay and Venezuela) using Polyarchy Dataset 1.2. (Vanhanen 2000, 2003) and Polity IV Dataset (Marshall et. al. 2013). The former dataset captures the distribution of de facto political power whereas the latter one is based on the characteristics of de jure political institutions. Using the variation in the timing of electoral laws across Latin America to consistently estimate the effect of political institutions on long-term paths of economic growth and development across Latin America, this paper deploys a novel difference-in-difference (DiD) approach to modelling the long-runs path of institutional change to net out the causal effect of political institutions long-run development.

In the attempt to examine the relationship between the de jure and de facto political institutions, and long-run development building on the Latin American experience of two centuries of economic stagnation, an explicit attention is paid to the endogeneity of institutions (Acemoglu et. al. 2001) since the relationship between the two is likely driven by omitted variable bias. Building on the rich collection of Latin American historiography and the seminal contribution by Mariscal and Sokoloff (2000), I quantify the timing of electoral law enforcement across post-independence Latin America to capture the contribution of institutional changes to the long-run development through the varying levels of de jure and de facto political institutions over time. The set of constructed measures of electoral law enforcement captures various aspects of institutional inclusivity and open-access order (North et. al. 2013) such as the abolition of slavery, constitutional suffrage guarantee and its factual enforcement, arbitrary suffrage restrictions by income, race, property and literacy-related qualifications, periodic violations of voting rights through abrupt electoral fraud, female suffrage extension, and the transition to open-access order with free and fair elections. It is shown that conventionally established dates of institutional changes in Latin America fail to capture the true paths of institutional development given a deep-rooted persistence of violating voting rights pervading across the region. The constructed measures of the timing of electoral law enforcement are employed in the DiD model of institutional changes which is used to establish the post-enforcement effects on the paths of institutional development building on the parallel trend assumption. Using a structural model of long-run development, the DiD model of institutional change is employed in the first stage to address the endogeneity of political institutions to establish causal effects on long-run development.

Using the timing of electoral law enforcement as an exogenous turning point in the paths of de jure and de facto institutional development, the results suggest the differences in the degree of de jure and de facto institutional inclusivity largely explain the contrasting and unstable paths of Latin America's long-run development in the past two centuries and its long-

standing development gap behind the United States. The institutional changes towards open-access order varied profoundly across the region with a different set of implications. Compared to the United States, the abolition of slavery in Latin America did not matter a great deal for the paths of institutional development since the series of abolition laws were immediately undermined by the introduction of literacy- and property-related voting restrictions exhibiting a remarkable degree of historical persistence. In addition, the pluralistic and open-access facet of de jure and de facto political institutions was further undermined by the persistence of electoral fraud and oppression by existing powerholders effectively reversing the paths of institutional development. The results clearly suggest the effective institutional changes made the de jure and de facto political institutions in Latin America more inclusive. The slowness and frequent reversals of critical institutional changes for sustained long-run growth and development led to the widening of the Latin America's development gap since the persistence of voting rights restrictions exacerbated the development slowdown which pushed Latin America further behind the United States and Western Europe. The empirical evidence suggests the sustained move toward more inclusive de jure political institutions is associated with a rise of long-run per capita income between 12 percent and 28 percent respectively. The established effect is robust across various specification checks on the DiD model of institutional changes and appears to be causal. In a similar vein, a sustained move towards de facto institutional inclusivity tends to improve the long-run per capita income between 8 percent and 12 percent, respectively.

The first-stage evidence from DiD model of institutional change clearly highlights the ubiquitous importance of timing in electoral law enforcement set out to encourage more inclusive political institutions, and broadening access to the collective action. In the Latin American institutional context, early de jure and de facto franchise extension and the abolition of wealth and literacy-related voting requirements led to large-scale improvements in the paths of de jure and de facto political institutions which should have encouraged sustained long-run growth and development by making property rights more secure, and by expanding economic opportunities for the previously disenfranchised non-elites. In spite of such changes, Latin America fell further behind the United States since such changes were undermined by the powerholders losing payoffs and profits from such barriers using abrupt electoral fraud, military coups and unstable institutional regimes switching between dictatorship and weak democracy to block institutional changes which effectively banned access to the collective action, made property rights more insecure, and locked in the economic opportunities for the non-elites. The evidence clearly suggest the de jure political institutions appear to be slightly more important for Latin America's long-run development than de facto institutions.

In the counterfactual scenario, the paths of Latin America's long-run development are re-examined using alternative forms of institutional design and asking whether the timing of institutional changes would make a difference. Our counterfactual exercise suggests having U.S.-style de jure and de facto political institutions aligned with the principles of Maddisonian democracy such as checks-and-balances on the executive power, competitive polity, an independent Supreme Court, and the respect for the rule of law, would markedly improve the long-run development paths across Latin America with the contemporary development gap behind the United States declining by a fifth. In the counterfactual exercise, several different scenarios are considered depending on the time framework such as the establishment of U.S-style de jure and de facto political institutions upon the abolition of slavery, and upon the initial suffrage extension. The counterfactual evidence suggests such alternative paths of institutional change would generate a large-scale improvement in the path of long-run growth and development. If Argentina established the U.S.-style de jure and de facto political institutions

upon the abolition of slavery enshrined in its 1853 constitution, its contemporary per capita income would be 21,100 USD (1990 $Geary-Khamis) instead of 10,875 USD which is an equivalent of 194% implicit gain, and would make Argentina as rich as France since its counterfactual per capita income gap would approach roughly two thirds of the U.S level. In spite of the large development gains from having U.S.-style rather than Iberian political institutions in place since 1800 and given the absence of technological breakthroughs, our counterfactual exercise suggests Latin America under U.S.-style de jure and de facto political institutions would enjoy substantial economic advantage ahead of the U.S but would start falling behind since 1860s. In the comparative perspective, U.S.-style political institutions would moderate the development gap behind the U.S substantially but would not halt the relative decline behind the United States. The counterfactual scenario is robust to the parallel forms of institutional design and shows that following Australian, British, Canadian, French, Spanish or Portuguese institutional blueprints would yield similar effects on long-run development although there is a notably larger gain from following British, Canadian, and Australian Westminster-style institutional benchmark compared to the Latin European institutional development.

The rest of the paper is organized as follows. In Section 2, the historical background on Latin America's institutional development is discussed in more detail. Section 3 presents the data. In Section 4, the model of institutional change and long-run development is derived. Section 5 presents the results and robustness checks while Section 6 presents the counterfactual scenario. Section 7 concludes.

## 2. Institutional Change and Economic Growth in Latin America

### *2.1 The Origins of Latin America's Persistent Decline*

The path of long-run economic development in Latin America is characterized by persistently unstable growth trajectory, sudden growth shifts and slow long-term economic performance compared to the United States (Haber 1997, Bulmer-Thomas et. al 2006a, 2006b, Bertola and Ocampo 2012). However, Latin America has not always been characterized by substantial income, welfare and development gap compared to Canada and the United States. Existing literature emphasizes high comparable income levels in the early aftermath of European conquest. The study of the evolution of prices and wages between 1530 and 1820 by Arroyo-Abad et. al. (2012) suggests that prior to 1820 real wages in colonial Mexico, Bolivia, and Argentina were above subsistence levels and comparable to North-Western Europe. However, comparatively high real wage rates across Latin America did not result from productivity improvements or structural change but rather from exogenous post-conquest population decline (Mexico), silver boom (Bolivia) and low population density (Argentina). Due to the post-conquest demographic disaster (Livi-Bacci 2006) and absence of artificial wage shifters, real wages elsewhere in the region (Peru, Colombia, Chile) were much lower and increased above subsistence levels only during the second half of the 18$^{th}$ century. Williamson (2008) reconstructed post-1491 income per capita estimates for Latin America and suggests that by the divergence between United States and Latin America unfolded starting at the beginning of 18$^{th}$ century. In addition, Milanovic et. al. (2011), based on Maddison (2007) suggest that by 1790, Mexico's real GDP per capita ($790 G-K) was comparable to 18$^{th}$ century Old Castille whereas New Spain has been characterized by an extreme form of inequality with no evident parallel among pre-industrial societies. Williamson (2010) examined Latin American inequality from 1491 onwards and provided estimates of per capita income, inequality, urbanization rate and population density. His evidence suggests that between 1600

and 1700, real GDP per capita in Latin America ($G-K 530) was roughly comparable to the United States whereas income and welfare level in Latin America clearly diverged from the U.S. level in post-1700 period and the speed of divergence intensified until mid-19th century when the United States achieved high rates of economic growth while Latin America kept falling behind. Tentative estimates by Van Zanden et. al. (2014) confirm the 19th century divergence pattern in Latin America compared to the United States. Prados de la Escosura (2005) examined the long-run path of Latin American economic growth and constructed Gini coefficients and poverty headcount ratios for 18 Latin American countries and Spain for the period 1850-1990. His evidence suggests that although Latin American countries achieved substantial economic growth in post-independence period, its pace of growth was both too small to keep the pace with advanced industrialized nations since the income levels diverged markedly from the U.S. and Western European levels. Recently revised Maddison (2007) GDP estimates by Bolt and Van Zanden (2014) clearly suggest that the ratio of GDP per capita between the United States and 8 Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, Venezuela) rose three-fold between 1800 and 1950 and remains robust across countries and with respect to the choice of the initial year.

Why Latin American income and welfare levels diverged substantially from the U.S. frontier? The existing theoretical and empirical literature emphasizes (i) institutional differences between Latin America and United States (Acemoglu et. al. 2001, 2002, 2005), (ii) factor endowments (Engerman and Sokoloff 2000), and (iii) differences between Spain and United Kingdom in the pattern of colonization and domestic conditions (Lange et. al. 2006, Mahoney 2010), and confirms the importance of institutions in affecting long-run economic outcomes. North et. al. (2000) note that efficient institutions emerge under consensual political order which fosters social cooperation and sufficient agreement that a certain set of political institutions is desirable. Such a set of institutions includes the willingness to live under the decisions made by these institutions and defend them against abuse by public officials. Successful societies must limit the stakes of political decisions and rely on sufficient de jure and de facto rights which ensure that the multiple aspects of social, economic and political life are beyond the reach of the state. Absence of rights to valuable assets, incomplete specification and inadequate enforcement lead to unproductive rent-seeking and economic contraction. Credible commitment to establish, maintain and preserve the variety of citizen's rights involves a high degree of security from political opportunism. The absence of such credible commitment can lead to insufficient productive investment and to the investment in economically unproductive activities (North 1989, 1994, Safford 1987, Wiarda and Kline 1990). Przeworski and Curvale (2006) examined the long-term persistence of development gap between North and Latin America from 1700 onwards and suggest the importance of political institutions in constraining Latin America's long-run comparative development.

Why Latin America failed to develop on similar terms as the United States and Canada? In 1700, income per capita level of Latin America did not differ significantly from the U.S. level. In 2000, Latin American per capita income represented about one fifth of the U.S. level. Although Latin America achieved economic growth during 1870-1980 period, initial and contemporaneous differences behind the United States compounded at the same rate translated into enormous development. The political turmoil, rampant instability, insecure property rights and institutional weakness in post-independence period prevented the emergence of sustained economic growth. Unstable de jure and de facto political institutions with no constraint on executive powerholding rendered the growth-enhancing institutional framework inadequate since Latin American de jure and de facto political institutions emphasized political instability, disrespect for law and order and insecure property rights. The disintegration of the Spanish

colonial administration left the continent without an institutional framework that would absorb and regulate economic and political conflicts. Such institutional discontinuity exacerbated fragile and unstable institutional environment which failed to channel conflicts into a regulated framework and, coupled with recurrent instability, was costly to economic growth (Grafe and Irigoin 2006). Moreover, Prados de La Escosura (2005) notes that disorder after colonial independence kept increasing transaction costs as political and economic institutions were redefined through a lengthy and painful process which took decades of internal instability and civil strife to accomplish (Haber 1997, Bulmer-Thomas 2003, Della Paolera and Taylor 2005, Bulmer-Thomas et. al. 2006a, 2006b, Bértola and Ocampo 2012).

Why inclusive political institutions failed to develop across Latin America? The inheritance of formal and informal Iberian political, legal and economic institutions has affirmed the institutional persistence in the post-independence period despite the break from the Spanish empire (Hanson 1974, Lockhart and Schwarz 1983, Lynch 1992, Mirow 2004, Cañeque 2013). Coatsworth and Tortella-Casares (2002) documented remarkable parallels between Mexican and Spanish political histories after colonial independence characterized by painful institutional reform and adjustment, violent revolutions, civil and foreign wars. Decade-long failed attempts to establish inclusive parliamentary democracy precipitated continuous strives between church and the state, centralists and anti-centralists, liberals and conservatives. When the access to land, as the main asset of the church, was eased, the onset of political liberalism has exacerbated the rise of semi-authoritarian regimes in liberal parliamentary guise such as Porfiriato in Mexico and *Restauracion* in Spain. Such pervasive equilibria In Mexico, the transfer of Castillian legal and political norms led to the creation of the caste system, consisting of the nobility (*hidalguia*), commoners and outcasts (Moors, Jews). As a highly unequal society, Latin America failed to establish a durable set of democratic political institutions because alternative institutional arrangements were distributive failing to consolidate broad-based de jure and de facto political institutions and making property rights insecure which led to the oscillation between different political regimes via military coups exacerbating substantial fiscal and institutional volatility (Acemoglu and Robinson 2001). Nevertheless, such extractive legal and political institutions exacerbated a stratified social structure which led to higher levels of wealth, land and income inequality as elsewhere.[2] Extractive institutions transmitted from the Iberian legal tradition constrained the mobility of labor and capital because written laws and formal institutional framework failed to define and extend property rights outside the nobility clearly and coherently which led to high enforcement costs, inefficient institutions, interminable delays and endemic corruption in the judicial process.

The importance of political institutions for contemporary and historical development of Latin America was further advocated by Coatsworth (2008). The inheritance of dysfunctional and rigid colonial institutions from Spain established weak institutional constraints on the powerholders which critically inhibited the path and process of economic growth. Such weak institutional constraints on powerholding incentivized the elite to mount a coup when the non-democratic institutional arrangements were under threat. Apart from rendering property rights insecure, such an institutional equilibrium effectively locked-in the economic opportunities for the disenfranchised poor, and discouraged and prevented large-scale accumulation of physical and human capital as the intermediate causes of economic growth (Prados de la Escosura 2007). High colonial inequality, while not necessarily correlated with pre-independence economic

[2] Milanovic et. al. (2011) estimated income-based Gini coefficient for Nueva España in 1790 at 63.5 and for Old Castille in 1752 at 52.5. In a comparative perspective of pre-industrial societies, the estimated income inequality in Nueva España and Old Castille is among the highest recorded.

performance, mattered because it consolidated the post-independence resistance of the elites to institutional modernization which undermined the payoffs from the divide-and-rule institutional regimes. The onset of independence from Spain brought economic elites to power but excluded the majorities from the political process which raised inequality, restrained growth and critically inhibited the convergence to the U.S. income and welfare level by failing to develop an institutional framework with level-playing field. Coatsworth notes the adverse effects of Iberian-style colonialism on Latin American economic growth:

> *"Iberian colonialism failed to create dynamic societies that could independently generate technological or organizational innovation. As long as economic performance in the rest of the world remained similarly constrained, Latin America's abundant and accessible natural resources kept it at, or near, the top of the heap. Between the mid-eighteenth century and the second half of the nineteenth century, however, most of Latin America fell behind the North Atlantic economies. At first, the Anglo-American advantage may have come largely from the cumulative effects of institutional changes that made property rights more secure and increased the efficiency of market transactions. By the end of the eighteenth century, however, the first industrial revolution was pushing GDP per capita to heights beyond levels ever before attained, first in Britain and then in the United States, and much of North-Western Europe. All the mainland colonies except for Argentina had fallen well behind by 1800. Cuba, with its sugar economy booming, kept pace with the US economy for another quarter of the century. Most of Latin America could not keep up and would not have been able to do so, even without the costly independence wars that wrought havoc from 1810 to the 1820s. As the Industrial Revolution accelerated, Latin America stagnated. By 1850, Latin America's PPP-adjusted GDP per capita had fallen to only a quarter of that of the U.S. and Britain. In the short span of a century or so, Latin America had become 'under-developed' (p. 550)."*

Which mechanisms prevented the development of inclusive political institutions across Latin America after the independence from Spain and Portugal? Rosenn (1990) draws on the comparative constitutional development of the United States and Latin America, suggesting six causes of Latin American failure to develop the institutional framework comparable to the U.S, namely (i) the absence of real revolutionary changes after independence from Spain and Portugal, (ii) inexperience with self-government inherited from Iberian legal institutional tradition, (iii) inherent tensions between the fundamentally conflicting traditions, (iv) traditional disrespect for law and order, (v) difficulties in developing procedural institutions as a check on the abuse of executive power, and (vi) the failure to create a common market.

The evidence from Mexico indicates that extractive institutional environment coupled with inadequate transport infrastructure and inefficient economic organization critically hampered the emergence of sustained growth. Coatsworth (1974) examined the obstacles to economic growth in 19$^{th}$ century Mexico when its PPP-adjusted per capita GDP stagnated from $G-K 836 in 1800 to $G-K 573 by 1870 at 1990 constant prices (Bolt and Van Zanden 2014). In a sharp contrast to the U.S declaration of independence, Mexican independence in 1810 came through a virtual military coup by the colonial Creole elite which carried out the coup to isolate Mexico from the wave of political and economic liberalization in Spain envisaged by the Cadíz Constitution. Conservative efforts in the decades after independence by major landowners and industrialists were made to re-establish the centralist state inherited from the colonial era. Principal benefits of such adversary interventionism stemmed from the attempt to regain the privileges which the Spanish crown abolished in the late Bourbon reform period. Such perverse incentives generated an adverse institutional development which gradually resulted in the persistent rise of crony capitalism. Rent-seeking coalitions comprised major asset holders, bankers and creditors seeking to consolidate massive concentration of land ownership in the

hands of elites, make the government too weak to establish a strong state, and receive monopoly rents in exchange for enforcing the contract between asset holders and the government (Maurer and Gomberg 2004).As emphasized by Dominguez (2008, p.86):

> *"A distinctive feature in Latin America has been the systematic and enduring persistence of violations of property rights, even in the absence of international wars or prolonged civil wars. That persistence, in several cases still a pressing issue to this day, brings about conditions of permanent insecurity for savings and investment and stimulate capital flight in search of the rule of law. Accordingly, most of the Latin American countries lack institutions capable of creating trust in the existence of a rule of law that protects long-term investments, which in turn would bring about sustained economic growth."*

Away from limited government with effective institutionalized constraints on the predatory power to protect and serve the citizens, Mexican post-independence experience was marked by foreign and civil wars, political instability and Porfirian system of institutionalized cronyism. Such system failed to produce sustained economic growth by guaranteeing protection to a small elite of politically well-connected bankers, industrialists and foreign companies. The 1910 revolution fractured the Porfirian system, resulting in chaotic civil warfare but new deals by entrenched elites were made before the civil strife had ended (Haber et. al. 2004). Dobado and Marrero (2006) examined why Mexican independence failed to further the trend of sustained economic growth, and emphasize the role of mining and Crown's mining policy in the economic expansion of Bourbon Mexico. Since mining comprised the backbone of pre-industrial colonial economic activity, it had been an important engine of colonial economic growth, creating linkages between dynamic market-oriented sectors. Recurrent wars and political instability interrupted the mining-led growth. Given its importance in the contribution of silver production, the interruption of mining production furthered the high cost of Mexican independence and led to lost post-independence decades in terms of growth and convergence to the United States.

Recent studies brought into question the new institutional economics perspective on long-run development emphasizing the compression of economic history (Austin 2008), and mono-causal explanations (Vries 2012). In addition, recent studies of the evolution of biological standard of living in Mexico emphasize significant differences in net nutritional status between the elites and non-elites and refute the extractive institutions hypothesis for Latin America's long-run growth and development using new data on height and wages (Dobado-Gonzáles and García-Montero 2010). López-Alonso and Porras-Codnex (2003) and López-Alonso (2007) examined the change in the biological standard of living in Mexico between 1870 and 1950. Their results suggest that in spite of the industrialization and rapid late 19$^{th}$ century economic growth, height, health and nutritional status of the Mexican population improved only modestly with considerable class and social differences. The Mexican upper class was substantially taller and healthier than the working class and this gap increased until the revolution. The benefits of economic growth under Diaz regime (1876-1910) failed to translate into the favorable impact on the biological well-being of the laboring population. Significant social disparities in biological and nutritional well-being coincide with the pattern of economic growth with systematic inequality.

Against the backdrop of the criticism upon new institutional economics, long-run effects of institutions on economic outcomes were confirmed empirically by Acemoglu et. al. (2001) suggesting that the advent of European colonization of the Americas led to the settlement in densely-populated areas which, coupled with high settler mortality rates, allowed the colonizers to extract the surplus and resources from the population, as indicated by forced labor camps

*encomienda* and *mita* in 16th century Spanish America (Dell 2010, Acemoglu and Robinson 2012). Such colonial exploitation laid the seeds of extractive legal, political and economic institutions which persisted across the post-colonial period and inhibited the convergence of Latin American economies to the U.S. income and welfare frontier. In addition, Engerman and Sokoloff (2000) suggest the consolidation of extractive institutions was permitted by the initial differences in resource endowments (rather than political and legal inequality as advocated by Acemoglu et. al. 2001) which led to extreme wealth and land ownership inequality, enabling the colonial elites to reframe the institutions to their own advantage, by extracting the surplus from the laboring population. According to the factor endowment view, differences in the degree of wealth inequality, human capital and political power are rooted in the distribution of factor endowments which tend to persist over time. In Latin America, these differences, amplified by extensive concentration of land ownership, preserved the type of economic institutions which limited access to the economic opportunities and preserved extractive de jure and de facto political institutions at the cost of society not realizing the full economic potential. Summerhill (2000, p.62-64) provides evidence on the adverse effects of extractive and rent-seeking political institutions on the railroad development in 19th century Brazil:

> *"By the end of the [Portuguese] Empire, railroad technology had created large gains from the economy. These gains were a good deal lower than they could have been, however, since many individual railroad produced mediocre outcomes. This was not the result of foreign investment, exploitation, dependency, the export of surplus value, or foreigners conspiring to undercut efficient service… It stemmed directly from the way in which Brazil's political organization channeled investment subsidies. The polity was neither endogenous to the structure of the international market nor bending to the demands of foreign investors. One key difference was the highly centralized character of the political institutions that were empowered to undertake market intervention. Since the market's failure to provide railroads in Brazil was widespread…the results [of market intervention] fell short of maximizing the potential gains from railroad projects. The state did not pursue a development strategy in a single-minded fashion, nor did it act as a simple agent of the collective elite. Instead, institutional arrangements structured distributive politics in such a way to make railroad subsidy and regulation politically attractive. Political institutions and procedural details transform preferences into outcomes. Because policies, laws and regulations, and administrative decrees involve the efficiency of economic organization, formal political institutions bear directly on economic performance. Although representative government, majority rules, and distributive incentives all contributed to the gap between Brazil's policy equilibrium and economic efficiency, political centralization exacerbated the costs of that gap… Those costs proved particularly acute in the context of low levels of overall productivity and income."*

### *2.2 Electoral Laws and the Origins of Latin American De Jure and De Facto Political Institutions*

Extreme forms of inequality which characterized the path of political and economic development of Latin America from the colonial period to the post-independence decades had shaped political and economic institutions to the benefit of landed elites and limited access to economic opportunities for the non-elites. Such forms of inequality limited access to public land, and financial markets and ultimately established fragile, ill-defined and insecure property rights. The persistence of elites has led to the emergence and persistence of inefficient institutions at the expense of societies not realizing the potential economic growth. Such persistence of fortune from the colonial era was critically permitted by denying access to collective action and economic opportunities. Centralized political power inherited from the

Iberian institutional tradition translated into inequality of wealth and human capital, restricting political competition and contributing to the persistence of inequality in Latin America.

Yet, the critical question to ask is what led to the emergence of extractive political institutions, and what accounted for the persistence of laws limiting the franchise and ability of the population to engage in the collective action in early post-independence Latin America? Engerman and Sokoloff (2005) examined the evolution of suffrage institutions in Latin America. Extreme inequality in Latin America persisted through the systematic ability of the elites to shape legal institutions to advantage themselves. On the contrary, societies such as the United States and Canada, and, to a lesser extent, Argentina and Uruguay in Latin America, experienced labor scarcity which pushed wages up, reducing income inequality. These societies led in broadening the franchise and attaining relatively high rates of electoral participation. Across Latin America, despite nominal institutional changes in the post-independence period, less than 5 percent of the population participated in the electoral process in late 19th century:

> *"The independent Latin American nations maintained the same political institutions and policies in place during the colonial period when they excluded non-property owners from the legal standing to vote. Although the Spanish Crown had appointed the chief official in its colonies, municipal councils (cabildos) were charged with responsibility for providing local public services and granted the authority to levy taxes to pay for them. These councils were primarily composed of appointments from the ranks of prominent citizens (vecions) of the municipality or pueblo, but some members were selected by election. Participation in such elections was generally restricted to substantial landowners (and sometimes even confined to the council members themselves. In restricting the right to vote to an elite propertied class, the regulation of suffrage in the Spanish colonies resembled that in the English colonies but was much more restrictive with respect to the proportion of the population that had voting rights (p.910)."*

Deep and persistent effects of electoral laws limiting franchise and political competition has long been neglected despite laying the foundations of extractive institutional regime which allowed the post-independence elites to subordinate the institutions of collective action to their own benefit. None of the Latin American countries had achieved a similar proportion of the population voting as the United States. In spite of the independence from Spain and Portugal, qualifications based on wealth and literacy became widespread across Latin America throughout the 19th century. The literacy requirements became almost universally accepted across the region and were established soon after the abolition of slavery which de facto banned access to economic and political markets for the non-elites (Peloso and Tennenbaum 1996). In essence, post-independence Latin American countries have prolonged the institutional legacy inherited from the colonial period when voting was restricted to major landowners and upper classes of Creole elite. The continuity of such qualifications, extreme inequality of land and wealth distribution and low literacy rates (Sokoloff 2005) had established a network of political clans and rent-seeking coalitions, effectively banning a large cross-section of wage-earning population from voting. Post-independence institutional change took more than a century to accomplish reasonably competitive polities and a level-playing field in political participation, and was often accompanied by civil strife and military coups (Wiarda and Kline 2013). In Table 1, the evolution of the underlying institutional changes to de jure and de facto political institutions is presented emphasizing the abolition of slavery, suffrage extension, suffrage restrictions, female suffrage, and the move towards universal suffrage with free and fair elections. The focus on these types of institutional changes does not imply that such changes exclusively are the only facet of de jure and de facto political institutions but merely highlights

its underlying pillars which prevented the population from engaging in collective choice and further limited the access to economic opportunities.

TABLE 1 [INSERT HERE]

### *2.2.1 Abolition of Slavery*

One of the first post-independence institutional changes was the abolition of slavery. In 1816, Simon Bolivar proclaimed the emancipation of all slaves in the Province of Venezuela (Graham 2013). The law was passed by Gran Colombia in 1821 which also instituted the program of compensated emancipation for the daughters and sons born to slave mothers (Lecuna 1939, Bierck 1953). In 1823, Chile universally abolished slavery when the National Congress passed the abolition law of July 24th (*Ley de Abolición de la esclavitud absoluta en Chile*) followed by Bolivia in 1826 (Feliú Cruz 1942, Rout 1976, Lynch 2006, Brown and Morgan 2008, Obregón Iturra and Zavala Cepeda 2009). In Mexico, the abolition of slavery took two decades after the independence from Spain to accomplish in a series of gradual steps. In 1810, Miguel Hidalgo y Costilla, the leader in Mexican War for Independence, declared the abolition of slavery (Clementi 1974). In 1813, the abolition of the slavery was written in *Sentimentos de la Nacíon*, which outlined the future vision of Mexico. In 1820, *Plan Trigarante*, peace treaty between Mexico and Spain, was signed which furthered abolished slavery, proposed by Agustin de Iturbide. In 1824, the abolition of slavery was also enacted in the federal Mexican constitution which formally and effectively ended the slavery, and by 1829, the last slaves were freed (Valdés 1987, Hinks and McKivigan 2007, Herrejón Peredo 2010, Olveda Legaspi 2013, Rodriguez 2015). In Uruguay, slavery was constitutionally abolished in 1830 (Mirow 2004) and the constitution declared slaves free although slave trafficking was prohibited in 1825 (Juang and Morrissette 2008) when Uruguay declared independence from Brazil. In Colombia, despite the passage of the law to abolish slavery by Gran Colombia in 1821, the territory of New Granada, encompassing contemporary Colombia, had not effectively ended slavery until 1851 when the national abolition law was passed (Bushnell 1993, Drescher and Emmer 2010, Klein 2014). In 1853, Argentina promulgated the constitution to abolish the slavery which was effectively accomplished in the same year (Bethell 1993, Lynch 2001). In 1854, slavery was abolished in Peru (Blanchard 1992, Aguirre 1993, Hunefeldt 1994, Romero 1994, Ramirez 1996). The abolition of slavery also served as a bandwagon strategy by caudillos to prevent the former slaves from the fighting on the Spanish side against the Creole elites (Dawson 2010).

Nowhere else was resistance to the abolition of slavery by the slave-holding plantation elites more profound than in Brazil (Bethell 2009). The abolition of slavery took many decades to accomplish followed by the resistance of landowning families, trying to turn the institutions to their own advantage (Toplin 1969, Drescher 1988). In 1831, Brazil adopted the Law of 7 November, abolishing the maritime slave trade, prohibiting any form of slavery, and granting freedom to slaves if they were illegally imported into Brazil. The law was seldom enforced until 1850 when Brazil was pressured by Britain to adopt additional legislation to criminalize the importation of slaves. In 1850, Brazil adopted *Eusébio de Queiróz Act* (Law of 4 September) which imposed criminal sanctions on the importation of slaves (Graham 1966). In 1871, *Rio Branco Law* was passed which declared the daughters and sons born to slave mothers free. In 1885, Sexagenarians Law (*Saraia-Cotegipe Act*) was passed, freeing all slaves aged 60 and over and creating other measures for gradually abolishing slavery such as state-administered

Manumissions Fund (Conrad 1972). In 1888, Brazil enacted the Golden Law which decreed the complete immediate abolition of slavery, without indemnities and compensation to slave owners (Martin 1933). However, the law did not provide for aid and compensation to newly freed former slaves and failed to ignite the equal footing of political and economic opportunities for the former slaves which further contributed to the persistent wealth and income inequality (Bucciferro 2015)

### *2.2.2 The Introduction of Limited Franchise*

The introduction of the limited suffrage varied greatly both compared to the United States and within region. In 1833, Chile was the first Latin American country to attain a secret ballot and introduce the restricted male suffrage enshrined on the US model of the republican constitution (Lane 1996). The suffrage was restricted in 1888 by imposing the literacy requirement. In spite of the independence from Spain in 1818, the Spanish colonial institutions which laid the seeds of authoritarian rule of military leaders (caudillos) never disappeared from the set of institutional choices (Bauer 1975, Loveman 1979). Drury (1991) draws strong parallels between the Spanish and Chilean institutional development routes:

> *"The Chilean Constitution of 1833, written by the Conservatives, embodied the patterns of Spanish colonialism without the presence of the Crown. Primogeniture, a state church, limited male suffrage based on literacy and property, and a minimal government with a powerful president provided stability and little possibilities of social change. Spanish imperialism was removed from Chile but its local progeny, the landed elite, remained firmly entrenched in position to exploit the majority of Chileans through their control of the land and the government.*

Starting in 1925, the suffrage was further restricted by the joint ability to read and write. In 1934, women were allowed to vote in municipal elections but not at the national level. From 1949, the literacy requirement was further imposed on the female population eligible to vote. In 1970, universal male and female suffrage was accomplished by the complete abolition of wealth and literacy requirements (Valenzuela 1978). In Colombia, the restricted male franchise was instituted in 1853 but the introduction varied across regions which possessed full autonomy in the introduction of the franchise. The Province of Vélez, under this reform introduced female suffrage in its constitution in 1853 but the Supreme Court annulled the provision (Mirow 2015). Limited suffrage arrangement was repealed by the Conservatives in 1886 and was not re-established until 1914. The Venezuelan experience was different as the country did not experience mass politics until 1945 and was trapped in the double angle of personalist dictatorial rule and transitional military regime (Levine 1989) which resulted in the late introduction of general suffrage compared to more advanced polities in the region such as Uruguay which had a democratic regime since 1918 (Gillespie and Gonzalez 1989), and the female suffrage was introduced much earlier than in the rest of Latin America.

Arguing against this pattern of political development**,** Posada-Carbó (2006) enters the literature suggesting that universal suffrage across Latin America had been instituted earlier than indicated by the Mariscal and Sokoloff (2000) and long before Western democracies. Relying on the estimates by Benson (1946) and Bushnell (1968, 1972), Posada-Carbó suggests that Mexico and Venezuela introduced universal male suffrage in 1853 whilst four years later universal male suffrage was adopted by Argentina, invalidating the dates suggested by Mariscal and Sokoloff.

These conjectural estimates of the date of suffrage extension is markedly different from Mariscal and Sokoloff (2000), and Engerman and Sokoloff (2005). Although electoral laws emphasizing the popular participation were adopted by Mexico, Venezuela, and Argentina by mid-19th century, such laws de jure granted suffrage whereas the national and parliamentary elections were plagued by widespread electoral fraud. Rock (1987) suggests the Argentine electoral law of 1853 set to allow the popular participation had become a sham since elections were invariably ritualistic processes staged by the powerful elites with a minor fraction of the electorate participating in the elections. After the presidency of Bartolomé Mitre ended in 1868, successive presidents from the Partido Autonomista Nacional (PAN) party consistently manipulated elections. An English newspaper in 1890 highlighted the Argentine electoral fraud described the rise of Miguel Juárez Celman to the presidency: "*Today there are dozens of men in government who are publicly accused of malpractice, who in any civilized country would be quickly punished with imprisonment, and yet none of them have been brought to justice. Meanwhile Celman is at liberty to enjoy the comfort of his farm and no one thinks to punish him.*" (Pigna 2016). Consistent manipulation of the elections through fraud had been a norm until 1916 when a rising social discontent resulted in the emergence of a strong government opposition formed around the Union Civica Radical (UCR) party which launched successive revolts against the government under the leadership of Hipólito Yrigoyen. Such revolts raised the critical awareness by the Argentine elites of the necessity of political reforms. In 1912, Saenz Peña Law was passed introducing secret ballot outlawing abrupt and fraudulent electoral practices as a de facto enforcement of 1853 de jure constitutional provision (Acemoglu and Robinson 2005).[3] The old oligarchic conservative factions suddenly viewed democracy as dysfunctional and continually used fraudulent electoral practices to block franchise extension to women which gained foothold in Western democracies. Such electoral fraud invariably resulted in 1930 military coup which restored the political power to the exporters in the pampas and provincial landowners that controlled before 1916 (Smith 1981). Conservative elites continuously used electoral fraud until 1940 in the successive attempts to maintain power and prevent the excluded majorities from voting. Such attempts were ended by the Peronist military coup in 1943 which set the country on the path of large-scale social mobilization (O'Donnell 1978). Similar developments with the persistent electoral fraud in maintaining the distribution of political power tilted towards the powerful despite the *de jure* electoral laws unfolded in Mexico (Negretto and Aguilar Rivera 2000**,** Aguilar Rivera 2012), and Venezuela (Doser 1949**,** Gilmore 1964**,** Busey 1967**,** Buxton 2005).

In 1912, Argentina passed Saénz Peña Law which extended the secret ballot and mandatory suffrage to male citizens aged 18 and over, but excluded non-native men and women from suffrage which comprised a significant proportion of adult population at the time. In 1947, General Election Law was passed which promulgated universal female suffrage without wealth and literacy restrictions. In Mexico, restricted male suffrage was nominally attained after the Mexican War of Independence but had not been effectively enacted until 1917. In 1953, the franchise was extended to include female without any restrictions since women were allowed to vote in municipal elections by 1947. In Uruguay, 1918 Constitution introduced the universal

[3] In 1857, Argentine National Congress passed Law No. 140 which granted universal suffrage to adult male citizens aged 18 and above on the condition that an adult citizens can be an electoral candidate on the basis of proven property ownership, and thus maintained the restriction imposed by the 1853 Constitution which set annual income and savings requirements in the candidature for the Senate. Despite granted provisions by 1857 Law No. 140, widespread electoral fraud implied that de jure suffrage extension had not been factually implemented. The 1912 Saenz Peña Law established universal, secret and mandatory vote by outlawing the fraud. Such electoral fraud de facto excluded women from voting until the 1947. Female suffrage extension was supplemented by Law No. 14032 which de facto enforced female suffrage in the general election. I thank Ignacio Cofone for highlighting these distinctions between electoral provisions of 1853 Argentine Constitution and the factual enforcement of suffrage extensions.

male suffrage and extended it to female population in 1934, and eliminated literacy and wealth qualifications. In Peru, general male suffrage was attained in 1931. Suffrage was granted for women in 1955 while illiterates were banned from voting until 1979. Brazil instituted universal male and female suffrage in 1932 whereas the literacy qualification was not abolished until 1988. And lastly, Venezuela introduced equal male and female universal suffrage which included the abolition of wealth and literacy requirement in 1946/1947.

### *2.2.3 De Jure vs. De Facto Suffrage Guarantee*

In spite of the passage of electoral laws purporting to allow competitive polities, voter participation and a democratic political regime, the actual fraction of the voting population remained negligible throughout the region. Sabato (1992, 2001) notes that the actual fraction of votes registered in the national election contests seldom reached half the votes among the potential voters eligible to vote. In Argentina, the National Congress promulgated the universal male suffrage in the 1853 Constitution, and yet the number of registered votes had been extremely variable and rarely exceeded 20 percent of those qualified to vote in the polling station. The 1912 Saenz Pena Law introduced universal, secret and mandatory male suffrage but excluded more than one half of adult population from voting such as unnaturalized adult men, women, and immigrants (Alonso 1996, Sabato 1998). In Brazil, the passing of 1881 electoral law introduced direct elections but drastically restricted the fraction of eligible voters by enshrining the literacy requirement in the law which dropped the voter based to 0.8 percent of the total population which failed to increase any discernable rise with the establishment of republican government in 1891, and even after the approval of 1891 electoral bill. In 1894 presidential election, voters represented only 2.2 percent of the adult population (Graham 1994). In both cases, the de jure legislation and constitutional guarantees were not always decisive to the de facto political competition and voter turnout (Bushnell 1968, German Tjarks et. al. 1969, Carmagnani and Hernández 1999). In Bolivia, a restricted form of male suffrage was introduced in the Constitution in 1939 but was not de facto enforced until the 1952 Bolivian revolution (Irurozqui 1999). In Chile, a restrictive form of male suffrage was introduced in 1833 based on the literacy requirement and property ownership qualification. Suffrage was gradually extended by dropping the property requirement in 1925 although the ability to read and write was promulgated in the electoral law as a key voting requirement until 1970 (Romero 1997). In Colombia, general male suffrage was introduced by the Liberals in 1853 but was annulled by the Conservatives in 1886. A restricted form of male suffrage was re-introduced in 1914 but the period between 1932 and 1957 foresaw de facto disenfranchisement of the large fraction of voters as a result of the Liberal-Conservative political conflict. De facto male suffrage was finally achieved in 1958 (Deas 1993, Posada-Carbó 1994). In Mexico, the series of electoral laws between 1813 and 1855 restricted the right to vote to the members of local councils (vecinos). The 1857 liberal constitution withered away the indirect three-tier electoral system by the system indirect only in the first degree but the actual voter turnout remained negligble. General male suffrage was not introduced a restricted form of general male suffrage until the 1917 Mexican Revolution (Mallon 1997). In Peru, male suffrage was de jure enshrined in the 1858 constitution which further established direct voting system but the de jure suffrage provision was periodically manipulated by a series of military dictatorship which switched back and forth from the de facto enforcement to the annulment which ended in the political transition to the democractic rule in 1979. Uruguay introduced general male suffrage in 1918 Constitution and largely respected the provision in terms of de facto enforcement and political participation. In Venezuela, male suffrage had been established in 1947 without a military coup or civil conflict compared to other countries in the region.

### *2.2.4 Wealth and Literacy Restrictions*

Whereas the U.S ended tax- and property-related voting restrictions before 1860, and whilst passage of the Fifteenth Amendment forbade the literacy-based voting requirement. all Latin American countries swiftly instituted literacy-based citizenship requirements in the post-independence constitutions. Such qualifications in the electoral law effectively prevented access to economic and political organization and markets for a large cross-section of society, including the former slaves and thus stifled the development of inclusive political institutions. Bolivia advanced literacy restriction in its 1826 constitution (García Linera 2005). The literacy requirement in Bolivia had been maintained beyond the 1945 constitution and was not effectively abolished until 1956 (Marsical and Sokoloff 2000). Chile adopted the same kind of requirement in 1833 and which was officially maintained until 1989 (Eltis et. al. 2009). Peru introduced wealth and literacy qualifications in 1826 constitution and maintained it until 1979 (Correa 2003, Chust 2012). In Uruguay, such qualifications lasted from 1830 to 1918 when the new constitution abolished wealth and literacy requirement altogether. Brazil maintained property-based as well as literacy-based restrictions after independence, introduced during the Portuguese reign (Bethell 2000). Wealth-based qualification was replaced by literacy qualification in 1891 which lasted until 1988 when it was effectively ended. Argentina and Colombia did not establish literacy and wealth restrictions on the national level but a considerable degree of political autonomy allowed their provinces to decide independently on voting qualifications, and some of them eventually maintained literacy and wealth requirements until 1912 in Argentina (Rock 1975, Crawley 1984, Halperin Donghi 1985, Pucciarelli 1986, Yablon 2003) and until 1936 in Colombia (Lapp 2004, Przeworski 2009). The empirical evidence on the economic effects of progressive election laws and franchise extension is limited. Ferguson and Vargas (2013) examined the effect of franchise extension on the incidence of civil conflict in 19$^{th}$ century Colombia by using the introduction of 1853 universal male suffrage as an exogenous source of variation in civil conflict and performed difference-in-difference analysis at the municipal level. The evidence suggests municipalities with more voters enfranchised relative to the rest of the population experienced fewer violent political battles where the reform was in effect. The estimated effects are stronger in places with more political competition and remain robust to additional control variables.

Despite the early move with the abolition of slavery, broadening access to economic and political opportunities for the previously disenfranchised was immediately subdued by the widespread establishment of wealth and literacy qualification which were essential to the private interests of the *caudillos* and large landowners that maintained the political and economic power from the colonial state into the post-independence period. Such institutional restrictions on voting testifies to the persistence of economic and political power of post-colonial elites and their opposition to the political and economic liberalization in Spain, which brought down monopolies and trade concessions, as the rationale for declaring the independence. Voting restrictions coupled with the late extension of general suffrage clearly suggests inclusive political institutions and its de facto enforcement emerged late despite a few de jure provisions guaranteeing some degree of level-playing field in the set of political institutions.

### *2.2.5 Electoral Fraud and Oppression*

In spite of the constitutional guarantees on de jure general suffrage and its factual enforcement, the powerful elites in virtually every Latin American country continuously attempted to prevent suffrage extension through electoral fraud, vote oppression and consistent

manipulation of election (Hartlyn and Valenzuela 1998, Fernandes Da Silva 1999, Molina and Lehoucq 1999, Posada-Carbó 2000, Ricci 2012). Despite the 1912 Saénz Peña Law, Argentina did not experienced a sustained transition to democracy. Starting with the 1930 Coup d'Etat by the José Félix Uriburu, the onset of the infamous decade precipitated electoral fraud, prosecution of political opposition and pervasive government corruption. Electoral fraud lingered throughout the Peronist years with a widespread prosecution and violence against the political opposition (Fayt and Angeleri 1967, Murmis and Portantiero 1972, Smith 1972, 1974a, Germani 1973, Little 1973, Halperin Donghi 1975, Kenworthy 1975, Ferrero 1976, Ciria 1975, Matsushita 1983, Crawley 1984, Elizagaray 1985, Waisman 1987, Romero 1988, Sabato 1988, Gerchunoff 1989, Horowitz 1990, Brennan 1998, Di Tella 1998, Jones et. al. 2002). A military coup in 1955 abandoned democracy and brought a series of military-controlled civilian governments until 1958 when the special election was won by Union Civil Radical and which briefly restored democracy until 1961 although elections were marred by prosecution, harassment and fraud. (Snow 1965, Herring 1968, Rosa 1970). In 1966, the civilian rule was undermined by another military coup (O'Donnell 1978, Smith 1974b). The coup transformed Argentina into an authoritarian-bureaucratic state and the de facto military junta under the presidency of Juan Carlos Onganía was followed by riots, uprisings and the rise of armed groups and guerilla to overthrow the regime. Several attempts to re-establish democracy failed until de jure and de facto democratic rule was re-created in 1973 upon the return of Juan Peron from exile. Despite the re-establishment of the democratic rule, the political institutions were short-lived as it unleashed the same kind of conflict it did before. A military coup in 1976 established the rule of the military junta which effectively dismantled the democratic rule in a highly repressive and fraudulent fashion (Rock 1987). A ban on political parties was lifted in 1982 which gradually restored the de jure and de facto democracy which was not undermined by the presidency of Carlos Menem in 1990, Fernando de la Rua in 2000, and by the bewildering succession of temporary presidents during the 2001-2 economic crisis. Acemoglu and Robinson (2006, pp. 7-8) describe the unstable pattern of Argentine institutional development:

> *"The political history of Argentina reveals an extraordinary pattern where democracy was created in 1912, undermined in 1930, re-created in 1946, undermined in 1955, fully re-created in 1973, undermined in 1976, and finally reestablished in 1983. In between were various shades of non-democratic governments ranging from restricted democracies to the full military regimes. The political history of Argentina is the one of incessant instability and conflict. Economic development, changes in class structure, and rapidly widening inequality, which occurred as a result of the export boom from the 1880s, coincided with pressure on the traditional political elite to open the system. But the nature of Argentine society meant that democracy was not stable. Traditional interests were too threatened by the rise to power of the Radicals and continuously worked to undermine democracy. The economic changes of the 1930s exacerbated this conflict. The workers became stronger and more militant as they found a leader in Perón, and the distributional conflicts then became embedded in the pro-Perón, anti-Perón struggle. Dictatorial regimes collapses because of social protests, and democracies collapses because the radical, populist, and often unsustainable policies they adopted induced military coups."*

The period and unabated electoral fraud and political violence became a norm throughout the region in spite of the de jure and de facto constitutional changes towards general suffrage. In Bolivia, the factual enforcement of restricted male suffrage in 1952 Bolivian Revolution was short-lived as the country succumbed to the military coup by the junta in 1964. In spite of the

brief reestablishment of suffrage in 1966, the succession of weak and nondemocratic governments proved unable to uphold the key institutional changes as election were marred by widespread electoral fraud followed by military coups, countercoups, and caretaker governments (Llanos and Marsteintredt 2010). In 1980, a violent coup d'etat by Luis Garcia de Tejada forged civil unrest forcing the military to convoke the Congress and allow it to choose a new president. Hence, the universal suffrage without arbitrary restrictions and as factually enforced was established no later than in 1982. In between were various military factions and regimes who non-democratic guise either periodically violated suffrage provisions, or undermined the de jure and de facto foundations of the democratic rule (Lehoucq 2008)

In Brazil, after the independence from Portugal in 1822, the political power remained firmly in the hands of the political elites and was subject to internal unrest and political instability (Waisman and Rein 2005). A military coup by Deodoro de Fonseca in 1889 marked Brazil formally a democratic rule but the de facto political power remained firmly in the hands of powerful elites formed around coffee-exporting industry (Roett 1999). In 1930, a coup by the military junta under Getúlio Vargas enshrined Estado Novo-style dictatorship formally abandoning the de jure democratic regime. In 1932, the electoral law introduced indirect elections for men and women but the de facto voter turnout remained near zero until 1944. In the subsequent year, the transition to de jure democracy and the return to the civilian rule established the provisionally democratic rule but the voter turnout was critically undermined by prolonged institutional crises, electoral fraud and the persistence of income and property requirements which de facto disenfranchised the majority of the freed former slaves (Schneider 1991, Levine and Crocitti 1999). Weak form of de jure and de facto democracy was further undermined by the 1964 military coup deposing a democratically-elected government with a heavy suppression of political rights, torture and imprisonment of political opponents which abandoned the democratic rule. The defeat of the military in 1985 elections earmarked the critical return to the civilian rule. A series of constitutional amendments was passed until 1988 eliminating fraudulent electoral practices, enfranchising the former slaves which paved the way to the full-fledged de jure and de facto democratization in 1988 (Rogers 2010).

In Chile, the episodes of electoral fraud and political violence were rarer compared to the rest of Latin America. In 1833, the Chilean constitution enshrined the principles of U.S-style republicanism and introduced limited suffrage based on a myriad of wealth-, property-, and literacy-related qualifications which changed only gradually to expand the suffrage to previously excluded groups although the property qualification remained firmly embedded in the Chilean constitution (Collier and Sater 2004). A military coup by Augusto Pinochet in 1973 deposed the government of Salvador Allende and established a dictatorship of the military junta embarking on the harassment of political opponents, heavy suppression of basic political rights, widespread electoral fraud which effectively dismantled the de jure and de facto political democracy. A peaceful political transition to the civilian rule in 1989 designated a formal shift to stable de jure and de facto political democracy (Rector 2003)

Colombia's experience with electoral fraud and political harassment is different from other countries in the region (Palacios 2002). The 1853 liberal constitution enshrined a restricted form of male suffrage limited by literacy- and income-related voting qualifications (Safford and Palacios 2002). In 1884 elections, the elections were won by the Conservative party under the authoritarian regime of Rafael Nuñez. A new constitution was promulgated in 1886 which strengthened the power of central government and undermined the institutional constraints on the office powerholding (Posada-Carbó 1997). The ensuing liberal-conservative conflict resulted in two chaotic civil wars and a series of military uprisings (Kline 1995). A

universal form of male suffrage was reestablished in 1936 under the liberal government together with the abolition of wealth- and property-related voting qualifications. A military coup in 1953 deposed the conservative government and in the subsequent years, women were enfranchised although the piecewise transition to democratic rule was undermined by open repressions and electoral fraud . De jure and de facto political democracy with universal suffrage was established in 1958 (Bergquist and Peñaranda 1992).

After the independence from Spain, Mexico's institutional development had been chaotic and highly unstable. In spite of weak constraints on the executive powerholding espoused by the 1824 Mexican Constitution, the inclusivity of de jure and de facto political institutions was undermined by the adverse effects of independence war with Spain, political violence, revolutionary rebellions, coups, countercoups, widespread corruption and inefficient economic organization (Coatsworth 1978). In the 55 years since independence, the presidency changed 75 times (Meyer et. al. 1979). A restricted form of male suffrage at the federal level was achieved by the end of the Díaz dictatorship in 1917. Female suffrage was established in 1958 together with the abolition of wealth- and literacy-related voting requirements (Morton 1962). In spite of the suffrage extension and enfranchisement of the previously excluded groups, the de facto institutional development had been critically undermined by the widespread electoral fraud and political oppression by the leading Institutional Revolutionary Party (PRI). As a beneficiary of non-competitive electoral process, the party had enjoy a near monopoly at all levels of public office (Lehoucq 2003). For almost six decades, the pluralist institutional development was subdued by the political fight among elite factions and interest groups within the PRI with the near absence of the participation by the opposition parties and independent groups (Magaloni 2010). The institutional constraints that paved way to electoral democracy failed to enshrine a broad-based level-playing field based on inclusive institutional development. Although the electoral reforms in 1970s guaranteed a minimum number of congressional seats to the opposition parties, such inclusive elements of institutional development were essentially meaningless as the state-level and federal elections were marred by pervasive electoral fraud keeping the PRI stronghold essentially intact (Lawson 2000, Eisenstadt 2004). A series of electoral reforms in the 1980s and the popular backlash against the widespread fraud and pacification of opposition groups eventually led to the adoption of the 1990 electoral code which introduced an independent supervision of elections, mandatory non-partisan representation in the electoral commission, and an independent audit of the national voter list. Such set of political reforms clearly facilitated a stable and relatively inclusive de jure and de facto institutional development by abruptly ending the persistent and endemic electoral fraud of the PRI (Fox 1994).

In Peru, a limited form of male suffrage was introduced in the 1823 constitution based on literacy requirement but this particular provision was essentially meaningless as the voter turnout remained chronically low and encompassed the members of electoral college. Following the aboltion of slavery in 1854, the property ownership qualification was introduced into the constitution which severely restricted the electoral participation to the small group of large landowners. Although male suffrage was expanded in the series of electoral reforms in early 1930s, widespread political repression and uninterrupted electoral fraud became a mainstream of Peruvian politics for decades as the country continuously alternated between a weak form of de jure democracy and militarism which led to rampant corruption, severe restrictions on civil rights, internal strife and a series of military juntas emphasizing divide-and-rule personalistic politics (Werlich 1978). A military dictatorship by Juan Velasco Alvarado was ended in 1979 upon the return to the civilian rule and the creation of the constitutional assembly. Full suffrage with upon the democratic restoration with free and fair regular elections

was attained in 1979 alongside with the abolition of the wealth- and literacy-related voting restrictions (Koonings and Kruijt 1999)

Upon the proclamation of the 1830 Constitution, Uruguay introduced a series of constitutional provisions effectively restricting the male suffrage using wealth and literacy-related qualifications. The path of institutional development was critically hampered by the political unrest between the Blanco and Colorado political alliances (Finch 1981). From 1865 to 1958, the Colorado alliance ruled Uruguay without interruption despite a series of internal conflicts. The authoritarian rule by Maximo Tajes set the stage for institutional modernization followed by the rule of José Battle y Ordóñez holding the political power until 1928. Universal male suffrage was introduced in 1918 following the abolition of literacy- and wealth-related voting qualification in the same year. Women were de facto enfranchised in 1934 after the military coup in the preceding years by Gabriel Terra (Oddone 1986). The coup set the stage for widespread and pervasive electoral fraud which had been ended following the 1942 Constitution whereafter basic political rights, free and fair elections were generally respected and regularly exercised (Rock 2000, López-Alves 2000). A long-standing de jure and de facto institutional development was reversed in 1973 following another coup by Juan María Bordaberry after the declaration of the state of emergency in 1968. Torture and harrasement of the political opposition coupled with massive electoral fraud became a norm to an extent that Uruguay had the highest percentage of political prisoners in the world by 1984. Following widespread civil unrest against the military dictatorship, the return to the civilian rule after the decisive victory of Julío Maria Sanguinetti earmarked the path to sustained de jure and de facto institutional development with free, fair and regular elections (Panizza 1997).

In the absence of any experience with mass political movements, Venezuela's path of institutional development was substantially different from the rest of Latin America (Wilpert 2007). Universal suffrage was introduced in 1948 under the government of Democratic Action party gaining office under a three-year experiment in political democracy known as El Trienio Adeco. The party gained formal power via the 1945 coup d'etat against the President Isaías Medina Angarita. In the 1947 general election, Democratic Action was formally elected into the office but removed from it shortly after in the 1948 bloodless coup d'etat led by Marcos Pérez Jiménez (Levine 1973). From 1948 to 1958, Venezuela experienced ten years of military dictatorship which falsified the 1952 presidential elections (Karl 1987, Kornblith 1991). In 1958, coup d'etat by Wolfgang Larrazábal established a transitional government providing the foundations of participatory de jure and de facto institutional development with free and fair elections (Gil Fortoul 1942**,** Moron 1967). Following the signing up of puntofijo powersharing agreement between the three main political parties, the democratic regime was initially preserved but soon evolved into an uneven distribution of political power creating a Venezuelan oligarchy  to the rise of United Socialist Party under Hugo Chávez in 1998 which undermined the foundations of the pluralist de jure and de facto institutional development by harassing political opponents of the Bolivarian regime, dismantling checks and balances, granting unlimited decree powers to the president and removing term limits for all elected officials. Such institutional gridlock undermined the possibility of building more pluralist political institutions and set Venezuela's institutional development on a downward path (**Alvarez and Acosta 2006**)

*2.3 Hypotheses*

The introduction and maintenance of wealth and literacy qualifications had further widened the inequality in the distribution of political power, inherited from the Iberian colonial institutions. Political inequality between the Creole elite and a large fraction of non-elite living

from wage-earning subsistence income prolonged extremely low literacy rates and inhibited the formation of human capital among non-elites as the engine of economic growth. As noted by Mariscal and Sokoloff (2000), despite the independence from Spain and Portugal, none of Latin American countries instituted universal primary schooling on widespread basis from state to local level as a contrast to the widespread expansion of universal schooling in 19th century United States and Canada. The maintenance of wealth and literacy qualifications, coupled with low literacy rates and almost non-existent human capital, prevented a large fraction of the population from voting and engaging in various forms of collective action.

The spread of general suffrage, abolition of slavery and arbitrary racial and wealth-based voting qualifications had been trigged by the enforcement of the electoral law whose timing varied greatly throughout the region. The paths of institutional development before versus after these changes took place clearly marks a discontinuous break in the development of political institutions over time as indicated by Table 1.

Since the de jure and de facto political institutions are clearly endogenous to long-run development, it is not possible to overcome the identification dilemma in the absence of observable instruments providing a random source of variation exogenous to the long-run economic growth and development. I exploit the timing of electoral law enforcement to identify the causal effect of de jure and de facto political institutions on long-run development. Figure 1 demonstrates a close relationship between the degree of suffrage violations across by electoral fraud and oppression, and wealth- and literacy-related voting restrictions across the nine Latin American countries in our sample. The figure plots the fraction of time since the de jure suffrage extension when voting rights were violated by electoral fraud and/or oppression against the fraction of time voting rights were violated by means of wealth- and literacy-related requirements. In spite of the close and persistent relationship between the types of suffrage violation, there is a marked heterogeneity across countries since some of them, such as Peru and Brazil, display an enormous long-run tendency of suffrage violation compared to Uruguay and Venezuela, and Argentina to a lesser extent.

FIGURE 1 [INSERT HERE]

Using the timing in the enforcement of electoral laws to consistently estimate the contribution of de jure and de facto political institutions to long-run development conveys three distinctive advantages in addressing the identification dilemma. First, the timing of electoral laws took place largely independent of the development levels prior to the enforcement of electoral law. Argentina and Uruguay established general suffrage much later than the early movers such as Chile and Colombia in spite of the higher level of income and development than the rest of the region. In spite of being poorer than the rest of Latin America, Brazil was among the first countries to move forward with the universal female suffrage. In a similar vein, there appears to be very little correlation between income level and the removal of wealth- and literacy-based voting qualifications which largely testifies to the exogeneity of electoral laws with respect to long-run growth and development. Second, using the variation in the timing of electoral laws allows us to decompose the pattern of institutional development in before-the-law and after-the-law component which does not render the exogeneity assumption absent and does not lead to the weak instrument and weak identification problem where it is not possible to claim that the instrument in question is sufficiently orthogonal to the long-run growth and development path. The breakdown of the de jure and de facto institutional development into before-the-law and after-the-law component sets to establish a random source of variation in long-run development triggered by the sequence of events rather than potential covariates

related to both institutions and long-run development where it is nearly impossible to statistically identify the exogenous of variation and stable exclusion restrictions. And third, satisfying the relevance and exogeneity criteria is much easier with the treatment and post-treatment variables related to institutional changes since these changes tend to impact the development of de jure and de facto political institutions and affecting long-run political development only indirectly. The relevance of the timing of laws is clearly demonstrated in Table 1. It is safe to assume that the electoral laws are exogenous to long-run economic development since such laws improved existing political institutions rather than introduced new ones capturing various aspects of non-political institutions which could bring the exogeneity assumption into question. Our hypotheses can be summarized as follows:

***H1****: De jure and de facto political institutions matter for long-run economic development*

***H2****: General suffrage extension, abolition of slavery and the removal of wealth- and literacy-based voting qualifications encouraged more inclusive institutional development of post-independence Latin America*

## 3. Data and Covariates

### *3.1 The Dependent Variable*

Our dependent variable is the real GDP per capita at 1990 constant prices (Geary-Khamis international dollar). The data on per capita GDP are from the first Maddison Update (Bolt and Van Zanden 2014) on the basis of original estimates by Maddison. The GDP per capita estimates encompass the temporal period 1800-2012. Discontinuous benchmark estimates for pre-1870 period are based on conjectural estimates based on the earlier empirical work on (i) pre-industrial GDP for Latin American countries by Prados de la Escosura (2009), and (ii) direct proxies for historical GDP per capita trajectory in the recently updated estimates for Argentina (Newland and Poulson 1998, 2001), Brazil (Leff 1982, Goldsmith 1986), Chile (Diaz et. al. 2007), Colombia (Kalmanovitz Krauter and Lopez Rivera 2009), Mexico (Coatsworth 1989) and Uruguay (Bertola et. al,. 1998), and Venezuela (Baptista 1997). Pre-1870 conjectural estimates are used to establish a first-order approximation for pre-industrial economic performance of Latin American countries in the long-run perspective in the quest to examine the set of contestable hypotheses on the institutional origins of Latin America's long-run economic performance. Such first-order approximation does not directly provide the actual dynamics of per capita GDP due to the lack of data availability and the reliance of multiple proxy variable but merely reflects the trend in the economic growth between the adjacent benchmark years until continuous post-1870 estimates begin which essentially comprises one of the building blocks of our hypotheses on the institutional origins of Latin America's long-run economic development.

Figure 2 displays the long-run paths of comparative development across the core sample of 9 Latin American countries under investigation relative to the United States for the period 1800-2010. Stylized evidence clearly suggests that Latin America's economic performance over time deteriorated relative to the United States. The decline behind the U.S. frontier has not appeared monotonous. The conjectural estimates clearly imply that Argentina and Uruguay achieved parity with the U.S. per capita GDP in late 1890s but failed to keep pace with U.S. economic growth in the aftermath. On the other hand, Peru, Bolivia, Colombia, Chile, Mexico and Brazil furthered the economic gap behind the U.S. in the aftermath of the independence from Spain and Portugal despite short-lived and self-recurring reversals. On the other hand,

Venezuela experienced a short-lived rapid catch-up to the U.S. frontier until late 1950s followed by a continuous and irreversible decline. The stylized evidence on comparative long-run development of Latin American countries underlines the ultimate failure to bridge the gap behind the United States since only Chile, due its post-1970 structural break in economic growth appears to have recovered the gap behind the United States that existed before the independence from Spain.

FIGURE 2 [INSERT HERE]

### *3.2. Independent Variables*

The data on the structure of long-term political institutions is used to explicitly consider the distinction between de jure and de facto aspect of political power. The former captures the structure of institutions and political power delegated by laws, electoral systems and constitutions whereas the latter captures the distribution of political power as the ability to engage in various forms of collective action (Acemoglu and Robinson 2006b, Robinson 2013, Voigt 2013, Földvari [2016, Forthcoming]). The data on the structure of de jure political institutions from Polity IV is used for the period 1810-2000 from Marshall et. al. 2013 to capture the contribution of formal (de jure) structure of political regimes on the path of economic performance. The Polity IV index is constructed from six main indicators: (i) regulation of chief executive recruitment, (ii) competitiveness of executive recruitment, (iii) openness of executive recruitment, (iv) executive constraints on decision rules, (v) regulation of participation, and (vi) competitiveness of the participation. The first three underlying indicators capture the executive recruitment rules. The fourth indicator captures the independence of executive authority whereas the fifth and sixth indicator designate the degree of constitutionalized political competition. The aggregate index is scaled between -10 (full autocracy) and 10 (full democracy).

The data on de facto political institutions is from Vanhanen's index of democracy in *Polyarchy Dataset 1.2* based on Vanhanen (2000, 2003) for the period 1810-2000 to capture the contribution of factually enforced (de facto) political institutions on the long-run economic performance of Latin America . The underlying index of democracy comprises two underlying sub-indices reflecting two sets of factually implemented political institutions. First, the index of political competition is constructed on the basis of percentage share of smaller political parties' and independents' of the votes cast in the parliamentary elections, or of the seats in the parliament. The index is constructed by subtracting the largest party's vote share from 100 percent. Second, the index of political participation is composed of the percentage of the adult population that voted in the elections which captures the degree of political participation. The index is scaled between 0 and 100 where higher values indicate greater political participation. Combined, both indices capture the ability of the population to engage in various forms of collective action which reflects the de facto distribution of political power.

Since the long-run relationship between political institutions and the paths of economic development in Latin America might be potentially confounded by omitted variables that systematically affect both dynamics of institutional development and the trajectory of economic growth over time, five additional structural covariates are included in the empirical model of long-run development to address the omitted variable bias: (i) episodes of armed internal conflict, (ii) war of independence, (iii) postwar of independence, (iv) World War 1, (v) World War 2, and (vi) the frequency of military coups. Such structural covariates potentially alter the

long-run equilibrium relationship between political institutions and economic growth and can confound the particular impact of institutional change on economic growth.

The episodes of armed internal conflict are coded into a binary variable following Brecke (2001) and Sarkees and Wayman (2010) *Correlates of War Project, 1816-2007*. Episodes of armed internal conflict are coded into a binary variable if the conflict between competing armed forces and civilian groups have taken place. Two binary variables are constructed for the period of (i) independence war against Spain which took place at the beginning of 19$^{th}$ century, and for (ii) the post-independence period to control for potential changes in the equilibrium path of long-run growth following the structural break after the wars of independence.[4]. The effects of military coups on long-run economic growth are captured by coding the periods of military coups into a binary variable. In this respect, the chronological literature on the coup'd etats in Latin American history is scanned to systematically document the episodes of military coups (Odena 1977, Scenna 1980, Potash 1969, 1980, 1996, Middlebrook 2000, Calvert 2004, Powell and Thyne 2011), and to control for the potential effects on long-run development. Varying frequencies of military coups are detected for nine Latin American countries in our sample ranging from 14 in Bolivia and Chile, 7 in Argentina and Peru, and 5 in Mexico and Venezuela, to 3 in Brazil, 2 in Uruguay, and 1 in Colombia.

Key descriptive statistics for the whole sample are summarized in Table 2 and decomposed both within and between countries for the temporal period 1800-2012. Panel A exhibits the key parameters of interest for the real GDP per capita and for the per capita GDP growth rate. In Panel B, the components of Polity IV and Vanhanen Index of Democracy are presented concurrent to the two key measures of political institutions for the nine Latin American countries. The mean values of structural covariates in Panel C, and the respective standard deviation for each covariate, denote the likelihood and frequency of each conflict episode during the estimation period. Table 3 present the mean values and the standard deviation on the enforcement of electoral law per individual country. The mean values simply correspond to the fraction of time in our estimation period when each type of electoral law was enforced.

TABLE 2 [INSERT HERE]

TABLE 3 [INSERT HERE]

## 4. Institutional Change, Institutional Development and Long-Run Growth: A Difference-in-Difference Approach

The goal of the underlying model is to examine the contribution of de jure and de facto political institutions to long-run development consistently using the variation in the timing of electoral law enforcement. The timing of abolition of slavery, constitutional suffrage guarantee,

[4] Argentina's war of independence started in 1810 and ended in 1818 when the Argentine forces under Manuel Belgrano and Jose de San Martin against the royal forces of the Spanish Crown. Bolivia's war of independence began in 1809 and ceased in 1824 when a Colombian-Peruvian army defeated the Spanish army under Jose de la Serna in the Battle of Ayacucho. Brazil experienced a short-lived war of independence in the years 1822 and 1823 when the last Portuguese garrisons surrendered to the colonial militia under Prince Regent Dom Pedro I (Andrie and Johnson 1994). Chile's war of independence from Spanish rule started in 1810 and lasted until 1826 when the royalist army collapsed. Colombia's war of independence ended in 1820 and lasted ten years since the declaration of independence from Spain (Bushnell and Macaulay 1994) Peru's war of independence began in 1810 and ceded in 1825 after the defeat of the royalist forces at the Battle of Ayacucho. Uruguay's war of independence began in 1811 after the initial revolt against Spain. In 1821, Uruguay (Provincia Oriental del Rio de la Plata) was claimed by Argentina but annexed by Portugal into Brazilian Empire. It secured its independence from Brazil in 1825. War of independence from Spain in Venezuela started in 1812 and ended in 1821 (Brown 2006).

suffrage restrictions, female suffrage and full suffrage is exploited as a random source of variation in long-run economic development to identify the effect of institutions on the paths of economic growth in Latin America. The key assumption postulates that the change of the electoral law and the subsequent constitutional provision independently affects the path of long-run economic development through the induced change in the de jure and de facto political institutions in the countries which underwent such institutional changes in the electoral law (treatment group) compared to the countries where the old electoral law remained intact (control group).

A simple naïve approach to examine the effects of changes in the electoral law would be to measure the difference in the paths of long-run economic development between treatment group and control group following the switch to a different electoral law. Such an approach would examine the change in the indices of de jure and de facto political institutions before and after each reform of the electoral law took place. Both methods neglect the heterogeneity bias and the fact that the path of institutional development may exert a common trend over time. Neglect for common trend in the dependent variable can lead to mean reversion and omitted variable bias. Difference-in-difference (DiD) analysis partly overcomes omitted variable bias by exploiting the variation in exogenous changes related to the development of electoral law and its subsequent effect on the path of institutional development between treatment group and control group. Therefore, DiD estimator yields the difference in the outcome of interest before versus after the institutional changes to the existing electoral law between the treatment group and control group. Consider a simple model of cross-country economic growth that takes place:

$$\ln y_{i,t} = \sum_{i=\text{Argentina}}^{\text{Venezuela}} \delta_i \times D_i + \mu_1 \cdot \mathbf{Z}_{i,t} + \mathbf{X}'_{i,t}\omega + u_{i,t} \qquad (4.1)$$

where $\ln y_{i,t}$ is the natural log of per capita output of *i*-th Latin American country at time *t* relative to time *t-1*, $\delta_i$ is the set of unobserved country-specific effects, $\mathbf{Z}$ is the measure of institutions, $\mathbf{X}$ is the vector of structural covariates that simultaneously affect the path of long-run growth, and $u$ is the stochastic disturbance term for which the temporal and cross-sectional independence is assumed. Such empirical model of economic growth tackles the contribution of institutions to long-run path of economic growth and development, and allows us to investigate whether the differences in the institutional development can account for the disparities in long-run development. The key coefficient of interest is $\mu_1$ which represents the magnitude of the effect of institutions on the path economic growth.

Our goal is to consistently estimate the contribution of institutional development to the paths of economic growth across Latin America which requires an unbiased coefficient that reflects the true effect of institutions on long-run path of economic growth. One possible setback of the empirical model of long-run development as described by (4.1) is that the underlying coefficient $\mu_1$ is contaminated by omitted variable bias since a substantial fraction of the effect on long-run growth can be attenuated by omitted and spurious factors that simultaneously affect the paths of institutional and economic development and thus systematically underscore the true effect of institutions on long-run growth and development.

Omitted variable bias imply that a non-trivial fraction of the estimated effect of institutions on the long-run growth is absorbed by the error term which leads to

$\text{cov}\left(u_{i,t}, \text{Z}_{i,t} \mid \delta_i\right) \neq 0$. For the non-negative covariance between the stochastic disturbances and the institutional variable, $\text{cov}\left(u_{i,t}, \text{Z}_{i,t} \mid \delta_i\right) > 0$, the underlying coefficient of interest is biased upward $E\left(\mu_1 \mid \text{Z}\right) > \mu$ and thus departs from the true effect. For the negative covariance between the stochastic disturbances and the measure of institutional development, $\text{cov}\left(u_{i,t}, \text{Z}_{i,t} \mid \delta_i\right) < 0$, the underlying coefficient is biased downward $E\left(\mu_1 \mid \text{Z}\right) < \mu$ and thus the neglect for the omitted variable and simple OLS estimation of comparative growth and development model in (4.1) can lead to biased and inconsistent estimated of institutional development on the long-run output per capita.

The effect of omitted variable that simultaneously affects both the institutions and the path of long-run growth advocates the endogeneity of institutional development whereas under a naive approach, one would assume institutions to exogenously affect the long-run economic performance. Our attempt to address the endogeneity of institutions and omitted variable bias is based on constructing the appropriate instruments capturing the timing of the electoral law enforcement to isolate the effect of de jure and de facto political institutions on growth and development from the omitted variables that confound the underlying relationship between de jure and de facto institutions and long-run growth.

Our key identification assumption is the changes in electoral law from Table 1 are exogenous to the long-run development path and affect it only through the induced change in the existing de jure and de facto political institutions. Such an approach allows us to capture the timing of electoral law enforcement across Latin America and relate it to the change of existing political institutions rather than directly to long-run development paths. The proposed identification strategy can be defended on three different grounds. First, the enforcement of electoral law which expanded suffrage and removed restrictive voting practices changed the existing political institutions, and does not represent an independent source of variation from the effects of de jure and de facto political institutions. Second, the timing of enforcing institutional changes in electoral law simply allows to decompose the variance in institutional development into "before-law" and "after-law" component which implies that post-treatment effects of electoral changes after their introduction are largely independent of the long-run economic performance. Third, the introduction of constitutional provisions from the electoral law exhibits the impact on the de jure and de facto political institutions only which implies that accounting for post-treatment effects independently might render the underlying effects spurious as the set of political institutions is endogenous to long-run development (Acemoglu et. al. 2001, 2005). And lastly, the electoral provisions such as general suffrage and voting restrictions represent flows changing the existing stock of institutions and cannot be considered independent source of variation in long-run development since such an empirical strategy would not properly control for common trends affecting both de jure and de facto political institutions and the long-run development, making it almost impossible to identify the effects of de jure and de facto political institutions on long-run development by ruling out the spurious causes of long-run development.

The potential endogeneity of the Polity2 and Vanhanen measures of political institutions is addressed by constructing seven instruments from Table 1 for each of the two institutional variables. The instruments are constructed using the difference-in-differences approach (Autor 2003, Angrist and Pischke 2009). Our sample of core 9 Latin American countries is broken down in treatment and control group. Each country is assigned into treatment group if franchise

extension, abolition of slavery and removal of voting qualifications had been implemented in a given year. Countries that did not pass laws extending the franchise and political opportunities to the non-elites comprise the control group. Our interest lies primarily in whether the de jure and de facto political institutions improved substantially after suffrage extension laws and removal of the voting restrictions have been passed compared to those that decided to maintain the restrictions on access to political opportunities and collective action.

Seven binary treatment and post-treatment variables are constructed to account for the differential patterns of institutional development from Table 1 based on whether or not franchise extension laws had been passed and voting restrictions and fraudulent practices had been removed. Seven exogenous shock variables are constructed for the timing of institutional changes that reflect the immediate (treatment) effects of changes in electoral law on de jure and de facto political institutions and separate them from the associated post-treatment variables capturing the permanent changes in electoral law are built. Post-treatment variables are simply constructed by multiplying the treatment variable for each type of electoral reform from Table 1 with post-treatment time period when and where such changes have been enforced and implemented.

The compact form of difference-in-differences (DiD) model specification for de jure and de facto institutional development that takes place is:

$$\mathrm{Z}_{i,t}^{De\ Jure} = \sum_{i=\mathrm{Argentina}}^{\mathrm{Venezuela}} \eta_i \times D_i + \sum_{j=1}^{7} \alpha_j \times \begin{pmatrix} \mathrm{Electoral} \\ \mathrm{Provision} \end{pmatrix}_{i,t}^{j} + \sum_{t=1800}^{2012} \beta_t \times \mathrm{T}_t^j + \sum_{t=\tau}^{k} \lambda_\tau \times \begin{pmatrix} \mathrm{Electoral} \\ \mathrm{Provision} \end{pmatrix}_{i,t}^{j} \times \mathrm{T}_{i,\tau+k}^j + \varepsilon_{i,t} \tag{4.2}$$

$$\mathrm{Z}_{i,t}^{De\ Facto} = \sum_{i=\mathrm{Argentina}}^{\mathrm{Venezuela}} \chi_i \times D_i + \sum_{j=1}^{7} \theta_j \times \begin{pmatrix} \mathrm{Electoral} \\ \mathrm{Provision} \end{pmatrix}_{i,t}^{j} + \sum_{t=1800}^{2012} \kappa_t \times \mathrm{T}_t^j + \sum_{\tau=1}^{k} \gamma_\tau \times \begin{pmatrix} \mathrm{Electoral} \\ \mathrm{Provision} \end{pmatrix}_{i,t}^{j} \cdot \mathrm{T}_{i,\tau+k}^j + \nu_{i,t} \tag{4.3}$$

where $\eta_i$ and $\chi_i$ represent the unobserved country-specific effects on both types of political institutions, $\alpha_j$ and $\theta_j$ denote the treatment effects of institutional changes where $j = 1, 2, \ldots J$ is the index of the number of institutional changes taken into consideration and $J = 4$ for our case. The variable $\begin{pmatrix} \mathrm{Electoral} \\ \mathrm{Provision} \end{pmatrix}_{i,t}^{j}$ denotes the treatment group dummy variable for country *i* at time *t* for *j*-th type of institutional change in electoral law, $\mathrm{T}_t^j$ denotes the exogenous shock variable for each *j*-th type of institutional change whether or not it had taken place in a given year $t = 1, 2, \ldots T$ and the set of coefficients $\beta_t$ and $\kappa_t$ describe the immediate effects of four institutional changes from Table 1 on de jure and de facto political institutions. In DiD reduced-form specifications for both institutional variables in (4.2) and (4.3), the year in which each institutional change is passed is denoted by $\tau$ and the underlying index for the after-treatment period is denoted by $\tau = 1, 2, \ldots k$ where k is the number of years elapsed since the adoption of

institutional change. Our primary interest in DiD model specifications for institutional development lies in the set of post-treatment coefficients $\lambda_\tau$ and $\gamma_\tau$ which capture permanent contribution of four institutional changes from Table 1 to the institutional development for each post-treatment effect $\begin{pmatrix}\text{Electoral}\\ \text{Provision}\end{pmatrix}_{i,t}^{j} \cdot \mathrm{T}_{i,\tau+k}^{j}$. In both first-stage relationships, $\varepsilon_{i,t}$ and $\nu_{i,t}$ represent the unobserved component of de jure and de facto institutional development that is not affected by the four underlying institutional changes.

Taking into account the endogeneity of political institutions allows us to reconstruct the structural long-run growth model alongside the simple model of growth in Eq. (4.1) in the following form:

$$\ln y_{i,t} = \sum_{i=\text{Argentina}}^{\text{Venezuela}} \delta_i \times D_i + \mu_1 \times \hat{\mathrm{Z}}_{i,t}^{De\ Jure} + \mu_2 \times \hat{\mathrm{Z}}_{i,t}^{De\ Facto} + \mathbf{X}_{i,t}'\omega + u_{i,t} \tag{4.4}$$

where $\hat{\mathrm{Z}}_{i,t}^{De\ Jure}$ and $\hat{\mathrm{Z}}_{i,t}^{De\ Facto}$ are the fitted values from the first-stage regressions of de jure and de facto indices on the treatment effects and post-treatment effects of four types institutional changes on political institutions from Eq. (4.2) and (4.3). The endogenous measures political institutions are allowed to affect the path of long-run growth both simultaneously and independently. The application of DiD methodology to the model of institutional changes and long-run growth and development deserves a special note. In their seminal contribution, Bertrand et. al. (2004) suggest that conventional standard errors in DiD applications may grossly understate the estimated treatment effects due to serially correlated error terms which leads to overestimated t-statistics and generally unreliable inference from the estimated parameters. When the number of individual panel units is low, arbitrary variance matrix estimator artificially increase the rejection rates above 5% significance level which renders the inference on treatment effects unreliable. Even the control for the set of unobserved effects does little to mitigate the standard errors of the estimators.

Inconsistency of the conventional standard errors stems from the serially correlated disturbances both across and within countries. In panel data or repeated cross-section data, within-country and between-country serially correlated disturbances does not disappear when country-specific and year-specific effects are controlled for. Bertrand et. al. (2004) further recommend collapsing the time series into pre-treatment and post-treatment period by averaging the data before and after the change has taken place. In our setting, such an approach is not feasible since it combines the IV-2SLS and the first-stage DiD modelling of institutional change. In our setting, the composition of the treatment group changes over time as the number of countries implementing institutional change gradually increases. Collapsing the data into pre- and post-treatment period by ignoring time-series information alongside a changing composition of both treatment and control group would leave us with too few observations to compute an unbiased and valid effect of the institutional change on the de iure and de facto political institutions and their respective impact on long-run growth. A valid inference in such setting requires clustering standard errors both between countries and within single countries to address the inconsistency of the conventional and single-clustered standard errors. The failure to control for clustering can lead to massively underestimated standard errors and overrejection of the null hypotheses on treatment effects as originally highlighted by Moulton (1986, 1990), Davis (2002), and Kezdi (2004).

Two-way clustering method by Cameron, Gelbach and Miller (2011) is used to provide a robust and valid inference on the key coefficients of interest in Eq. (4.2) through (4.4). In this setting, standard errors are adjusted for arbitrary heteroskedasticity and serially correlated disturbances both between countries and within countries over time to provide a valid inference on the respective effects of de iure and de facto political institutions on the economic gap behind the United States. Using the extension of standard cluster-robust variance matrix estimator from White (1980, 1984), Liang and Zeger (1984) and Arellano (1987) two-way clustering estimator allows us to partially alleviate non-random distribution of error variance from the underlying institutional time-series for each country in the panel and serially correlated disturbances that usually contaminate long-run cross-country regression analyses. Two-way clustering estimator allows us to avoid underestimated standard errors and over-rejecting the null hypothesis on both the treatment and post-treatment effects.

## 5. Results

### *5.1 Baseline Results*

In Table 4, results from the baseline estimated long-run development model are presented. Across columns (1) through (4), the effects of de jure political institutions on long-run development paths are presented whilst columns (5) through (8) present the effects of de facto political institutions. The structural estimates are displayed in Panel A while Panel B presents the first stages for de jure and de facto institutional development. The evidence readily suggests strong and powerful effects of both dimensions of political institutions on long-run development regardless of the type of first-stage OLS specification for de jure and de facto political institutions. In column (1), an improvement of de jure political institutions by 1 basis point (equivalent to the 1 index point increase in Polity2 score) is associated with 25.4 percent long-run increase in per capita income even after controlling for episodes of armed conflict, war of independence, the structural break after independence and the episodes of military coups conflating the unconditional effect of de jure institutions on long-run development. In Panel B, the first-stage evidence highlights the ubiquitous importance of electoral law for the participatory de jure institutional development. The set of post-treatment effects suggests the abolition of slavery across Latin America failed to facilitate a broad-based de jure institutional development since the estimated effect is not statistically significant even at artificially high levels. On the other hand, the constitutional suffrage guarantee tends to foster de jure institutional development significantly. The point estimate in column (1) suggests the switch towards the de jure constitutional suffrage guarantee is associated with 2.6 permanent basis point improvement in the Polity2 score and is statistically significant at 5%. Furthermore, the introduction of female suffrage tends to produce a similar first-stage effect on de jure institutional development equivalent to 3.2 long-run improvement in Polity2 score following the switch to the female suffrage. In the first stage, the post-treatment effects of electoral law are jointly significant at 1% advocating persistent, broad and discernable effects on de jure institutional development.

In column (2), the first-stage DiD model of de jure institutional change is expanded by the suffrage extension and income-related suffrage restriction. The evidence suggests the post-treatment effect of suffrage extension is large and favorable, indicating 3.5 basis point improvement in Polity2 score following the introduction of de jure suffrage provision in the constitution. On the other hand, the restriction of suffrage using wealth- and property-related qualifications is associated with about 5.8 basis point decline in Polity2 score indicating a

substantial worsening of de jure institutional development. The negative effect of suffrage restriction outperforms the beneficial effect of suffrage extension which suggests that using such arbitrary qualifications after the independence from Spain and Portugal depressed Latin America's long-run development substantially. In quantitative terms, 5.8 basis point decline in Polity2 score following the introduction of wealth-related voting restriction implies that the long-run income per capita is 59 percent lower compared to the counterfactual scenario without income-related restriction. In the second stage, the estimated effect of de jure political institutions on long-run development is substantially smaller compared to column (1) but nevertheless indicates a key institutional source of improvement in long-run development. In column (3), the income-related suffrage restriction in the first stage is replaced by the post-treatment effect of electoral fraud and oppression. The evidence clearly suggests the onset of electoral fraud condemned the de jure institutional development. The switch to electoral fraud and political oppression is associated with 2.8 basis point decline in Polity2 score. Taking the structural effect of de jure institutions on long-run development from Panel A, such a drop in Polity2 as a result of fraud and oppression leads to 34 percent drop in long-run per capita income. In the first stage, the post-treatment effect of the switch to the universal suffrage with free and fair elections is associated with a large-scale improvement in the de jure institutional development and long-run per capita income suggesting an earlier switch would have improved Latin America's long-run development considerably. In column (4), the first-stage OLS specification of de jure institutional development is augmented by the whole set of post-treatment effects as a benchmark to gauge the effect strength and robustness in accounting for the temporal development of de jure institutions. The evidence clearly suggests the de jure suffrage extension and the onset of electoral fraud tend to account for the large-scale variation in de jure institutional development path to the highest degree, and are in line with prior parameter estimates across columns (1) through (3). The first-stage highlights the detrimental effects of electoral fraud since the onset of fraud and oppression tends to fade away the beneficial effect of de jure constitutional suffrage guarantee whilst the switch to universal suffrage with free and fair elections tends to improve the Polity2 score by 6.7 basis points testifying to a large and persistent effect on per capita income. In the second stage, each additional basis point improvement in de jure political institutions (measured by Polity2 index) is associated with 14.4 percent increase in long-run per capita income.

TABLE 4 [INSERT HERE]

In column (5), the effects of de facto political institutions on long-run development are examined. In the baseline specification, the parameter estimate suggests each additional basis point increase in Vanhanen index of democracy (a proxy for de facto institutional development) is associated with 11.2 percent improvement in long-run per capita income. In the first-stage OLS characterization of de facto institutional development, the estimates suggest the switch to the factual enforcement of male suffrage is associated with 2.8 basis point improvement in Vanhanen index of democracy, and is statistically significant at 5%. Improving the de facto institutional development along the magnitude indicated by column (5) in Panel B is associated with considerable economic gains as our model predicts 38 percent increase in long-run per capita income. In addition, the evidence suggests a large-scale effect of introducing a female suffrage on the paths of de facto institutional development which is almost five-fold the magnitude of the effect of de facto suffrage extension.

In column (6), the first-stage evidence suggests the beneficial effect of female suffrage extension is critically undermined by the introduction of income- and property-related voting qualifications. The OLS parameter estimates arguably suggest the introduction of such

qualifications is associated with 7.8 decline in Vanhanen index of democracy while the de facto suffrage extension tends to generate 6.8 basis point increase in the index of democracy. Such a disparity succinctly suggests the gains from the de facto enforcement of suffrage extension are entirely displaced by the introduction of pervasive wealth- and property-related voting restrictions. In the second stage, each additional basis point improvement in the path of de facto institutional development tends to generate 10.4 percent long-run increase in per capita income which is slightly lower compared to column (5). In column (7), the equivalent improvement in de facto institutional development is associated with 8.5 percent long-run increase in per capita income although the evidence from the first stage by and large suggests arguably highlights the switch to universal suffrage with free and fair elections as a source of substantial improvement in de facto institutional development. Finally, in column (8), the first-stage OLS specification of de facto institutional development is augmented by the whole set of post-treatment effects. The parameter estimates advocate a ubiquitous importance of the switch to female suffrage and universal suffrage under free and fair elections in explaining the distinctive paths of de facto institutional development in post-independence Latin America. In addition, the introduction of income- and property-related voting requirements is associated with 2.2 basis point permanent decline in the path of de facto institutional development which is the equivalent of 17 percent decline long-run per capita income. The parameter estimates are robust to the time-invariant heterogeneity bias and do not suggest the obtained effects are contaminated by the influence of unobservables. In our model setup, the variation in de jure and de facto institutional development tends to explain between 30 percent and 52 percent of the long-run development paths whereas the exclusion restriction remain stable suggesting the validity of the timing of electoral law enforcement as an exogenous source of variation in long-run development as the valid restrictions confirm there is no direct relationship between the timing of electoral law enforcement and long-run development since the timing affects long-run development only through the de jure and de facto institutional channels. The first-stage and second-stage evidence offer substantial confirmatory evidence in support of hypotheses H1 and H2 suggesting the de jure and de facto political institutions matter a great deal for long-run development and that the associated institutional reforms of the electoral law made de jure and de facto political institutions more inclusive and hence improved the path of long-run growth.

### *5.2 Testing Parallel Trend Assumption*

The validity of DiD model of de jure and de facto institutional change critically hinges on the parallel trend assumption. In our setup, the assumption postulates that the countries undertaking the reforms of the electoral law (treatment group) follow the same trend as the control group in the absence of the electoral law enforcement. Such an assumption clearly does not imply that the treatment and control group have the same mean value of de jure and de facto institutional indices but suggests both groups share the same trend in the respective paths of institutional development. In Figure 3, the parallel trend assumption is tested using the political transition to the universal suffrage as a treatment juncture point. The assumption is tested for every country compared to the control group indicating the trend in institutional development in the absence of institutional reforms and after the treatment countries moved towards the universal suffrage. The evidence clearly suggests a split in the paths of de jure and de facto institutional development between the treatment and control group following the transition to the universal suffrage with free and fair elections. The comparison of trends clearly suggests a change in the trend of institutional development after the transition to full suffrage which holds across multiple country-specific sub-samples.

FIGURE 3 [INSERT HERE]

*5.3 Robustness Checks*

*5.3.1 Temporal and Spatial Sample Splits*

In Table 5, the baseline IV-DiD long-run development model is assessed against the temporal and spatial sample splits by excluding specific time periods and individual countries from the core sample. The structural effect of de jure and de facto political institutions on long-run development appears to be stable over time and statistically significant at 1% although the magnitude of the effect tends to decrease over time once a greater fraction of the overall temporal period is excluded from the core sample. The parameter estimates suggest each additional basis point improvement in the path of de jure institutional development is associated with an increase in per capita income between 11.2 percent and 14.4 percent, respectively. An equivalent improvement in the path of de facto institutional development is set to increase per capita income between 7 percent and 8.5 percent in the long run which roughly corresponds to the effects in the set of baseline model specifications in Table 4. In the first stage, the restriction of suffrage by means of income- or property-related qualifications or electoral fraud is associated with a marked worsening of de facto and de jure institutional development whereas the switch to the universal suffrage with free and fair elections tends to improve the institutional development alongside both dimensions considerably. In particular, the onset of electoral fraud and oppression is associated with 2.8 basis point decrease in the Polity2 score whereas the introduction of income- and literacy-related restrictions tends to depress the de facto institutional development (measured using the Vanhanen index of democracy) by 2.5 basis points. Female suffrage extension and universal suffrage with free and fair elections are critical to the de facto institutional development, generating large increases in the institutional inclusivity whereas the effects of timing of constitutional suffrage guarantees are weak.

TABLE 5 [INSERT HERE]

In Table 6, the robustness of the combined IV-DiD structural model setup is tested by excluding individual countries from the core sample and replicating the first-stage DiD model of institutional change from (4.2) and (4.3) and the structural long-run development model from (4.1). The evidence confirms the prior parameter estimates and confirm the baseline effect of de jure political institutions on long-run development in the range between 13.1 percent and 14.9 percent for each basis point increase in the de jure institutional development (proxied by Polity2 index) which also suggests there is little contamination of the core effect by sample selection and potentially omitted variables. In a similar vein, the parameter estimates from Table 6 indicate the effect of de facto political institutions on long-run development is in the range between 7.6 percent and 9.4 percent for each basis point improvement in the path of de facto political institutions (proxied by Vanhanen index of democracy). In Panel F and Panel G, the first stages for de jure and de facto institutional indices are presented. The replicated first-stage OLS relationship clearly confirm the negative effects of fraud and oppression on de jure political institutions, indicated the beneficial effects of de jure constitutional suffrage guarantee and confirms large-scale effects of the political transition to the universal suffrage with free and fair elections. The replicated DiD model specification for de facto institutional changes confirms the ubiquitous importance of introducing female suffrage, suffrage restrictions by income- and literacy-based qualifications, and the universal suffrage with free and fair elections for the genuine path of de facto institutional development. In quantitative terms, the depressing effect of voting restrictions on de facto institutional development is slightly smaller than beneficial effect of introducing female suffrage although it contributed significantly to the

institutional reversals across Latin America. In Panel F and Panel G, the imposed overidentifying restrictions remain stable and highlight the validity of timing of electoral law enforcement in establishing a causal effect of de jure and de facto political institutions on long-run development and do not appear to be sensitive to the unobserved time-invariant heterogeneity bias.

TABLE 6 [INSERT HERE]

*5.3.2 Extreme Bounds of De Jure and De Facto Political Institutions*

Does the timing of electoral laws robustly explain the distinctive paths of de jure and de facto institutional development? The evidence presented so far suggests arguably large and discernable post-treatment effects of the institutional reforms of the electoral law on the paths of institutional development. Two caveats follow immediately. First, the magnitude of the established effects is quite large and varies substantially across DiD model specifications which poses some ambiguity on whether the effects are driven by spurious factors. And second, the established effects may be driven by the specification bias masking the true post-treatment effects by the difficulty of disentangling the correct DiD model of institutional change. To overcome the two particular dilemmas, the post-treatment effects of electoral laws are evaluated at extreme bounds in an approach similar to Sala-i-Martin (2002) to establish the true model of de jure and de facto institutional change and address the potential specification bias committed by the first-stage omitted variable bias and model misspecification. We combine the electoral law instruments in the first-stage OLS specification of de jure and de facto institutional development into the sets of eight allowing for a parsimonious specification whilst still not neglecting the treatment effects of the institutional reforms of electoral law. For the two first-stage de jure and de facto institutional outcomes and given the sample size, the total number of regressions is slightly above 1.3 million to gauge the robustness of electoral law enforcement in explaining the paths of institutional development in Latin America.

In Table 7, the extreme bounds of post-treatment effects of electoral law on de jure and de facto institutional development are presented. Specifically, the weighted post-treatment effect, its minimum and maximum bounds, standard deviation, the probability of obtaining the effect greater than zero, and the cumulative distribution function are calculated. The latter is particularly interesting as it designates the fraction of time in the replicated regressions when each post-treatment effect is positive and statistically significant at 5%. Panel A reports the extreme bounds of post-treatment effects on de jure institutional development whilst Panel B focuses on de facto institutional development. Considering the post-treatment effects, extreme bounds confirm the robustness of electoral law in explaining both de jure and de facto paths of institutional development. Universal suffrage with free and fair elections, abolition of slavery, de jure and de facto constitutional suffrage guarantee, female suffrage and fraud-related suffrage restriction exhibit the expected effect for 100 percent of the time in explaining the de jure institutional change in the extreme bounds whereas the effect of income- and literacy-related voting restriction is moderate. In Panel B, the post-treatment effects on the timing of electoral law robustly explain the de facto institutional changes since each electoral law instrument is statistically significant at 5% and exhibits the expected sign in the complete set of replicated regressions. The extreme bounds confirm the negative effects of fraud-related suffrage restriction, income- and wealth-related voting qualifications on the paths of de jure and de facto institutional development whereas the universal suffrage, suffrage extension, abolition of slavery and the introduction of female suffrage exhibit a strong, persistent and robust effect

on institutional development and suggest the parameter estimates might be susceptible to the specification bias if the entire distribution of the whole set of effects is not taken into account.

TABLE 7 [INSERT HERE]

*5.3.3 Standardized Effects of De Jure and De Facto Political Institutions*

Are de facto political institutions more important for long-run economic growth and development than de jure political institutions or vice versa? Moreover, which electoral provision is the most important one for the trajectory of long-run de jure and de facto institutional development? The estimated coefficients at extreme bounds clearly indicate the robustness of de jure and de facto institutional indices to alternative specification checks and sample selection in explaining long-run development of Latin America. It remains less clear which dimension of political institutions is more important than the other in accounting for the differential paths of economic development in post-independence Latin America. It also remains far from obvious which type of provision from electoral law has been the most important one for the de jure and de facto institutional development since the estimated first-stage effects vary widely across specifications and sub-samples. In Table 8, the effects of electoral law on de jure and de facto institutions, and of de jure and de facto political institutions on long-run economic growth are standardized. Specifically, two sets of standardized effects are considered: (i) within-country effect focusing on the effects of electoral law and de jure and de facto institutions on the path of long-run development within countries, and (ii) between-country effect emphasizing the effects of electoral law and de jure and de facto institutions on cross-country income differences. Standardized (beta) coefficients are constructed as follows:

$$\hat{b}^{within}_{\text{De Jure}} = \hat{\mu}_1 \times \left( \frac{\sigma^{within}_{\text{De Jure}}}{\sigma^{within}_{\ln y}} \right) \qquad \hat{b}^{between}_{\text{De Jure}} = \hat{\mu}_1 \times \left( \frac{\sigma^{between}_{\text{De Jure}}}{\sigma^{between}_{\ln y}} \right)$$

$$\hat{b}^{within}_{\text{De Facto}} = \hat{\mu}_2 \times \left( \frac{\sigma^{within}_{\text{De Facto}}}{\sigma^{within}_{\ln y}} \right) \qquad \hat{b}^{between}_{\text{De Facto}} = \hat{\mu}_2 \times \left( \frac{\sigma^{between}_{\text{De Facto}}}{\sigma^{between}_{\ln y}} \right)$$

where $\hat{b}^{within}_{\text{De Jure}}$ and $\hat{b}^{within}_{\text{De Facto}}$ denote the standardized beta coefficients for "within-country" effect of de jure and de facto political institutions on long-run development, and $\hat{b}^{between}_{\text{De Jure}}$ and $\hat{b}^{between}_{\text{De Facto}}$ are standardized beta coefficients for the effects of de jure and de facto political institutions on long-run development differences across countries. The standard deviation of de facto and de jure institutional indices is decomposed into "within-country" and "between-country" component, and denoted as $\sigma^{within}_{\text{De Jure}}$, $\sigma^{between}_{\text{De Jure}}$, $\sigma^{within}_{\text{De Facto}}$, and $\sigma^{between}_{\text{De Facto}}$, respectively. The baseline coefficients $\hat{\mu}_1$ and $\hat{\mu}_2$ are taken from the structural model of long-run growth and development in Eq. (4.4). In a similar vein, the standardized coefficients for the post-treatment effects of electoral provisions are compute to examine which type of provision from the electoral law is the most important one in explaining the paths of de jure and de facto institutional development.

In Table 8, the standardized effects of de jure and de facto political institutions and electoral laws are presented. Specifically, the effects are examined for the full sample and various sub-samples. In Panel A, the standardized effects are evaluated for the nine sub-sample where each individual country is the excluded subset while Panel B presents the standardized effects by excluding particular sub-periods from the core sample. The standardized effects

suggest the de jure and de facto political institutions matter differently for within-country and between-country long-run development paths. Using the whole sample, the de jure political institutions are more important in explaining long-run development than de facto political institutions although the beta coefficients are similar. The within-country estimates readily indicate that 1 standard deviation improvement in the de jure institutional index is associated with 0.12 standard deviation increase in per capita output growth. The corresponding 1 standard deviation improvement in de facto institutional index tends to increase per capita output by 0.09 standard deviation over time, and arguably suggests de jure political institutions are slightly more important for "within-country" long-run growth and economic development than de facto political institutions. The effect of de jure and de facto political institutions on long-run development differential between countries is more pronounced. In particular, the standardized effect of de jure political institutions on long-run development across countries amounts to 0.81 suggesting a 1 standard deviation improvement in de jure institutional index tends to increase the long-run rate of growth by such an amount relative to the country that did not change its de jure institutions. Similarly, 1 standard deviation improvement in de facto political institutions is associated with a marked increase in per capita output growth in comparison with the country leaving its de facto institutions unchanged. Although the effects vary substantially once individual country and time periods are split off the full sample, the general tendency consistently advocates slightly greater importance of de jure over de facto political institutions for the paths of Latin America's long-run development.

TABLE 8 [INSERT HERE]

In Table 9, the standardized post-treatment effects of electoral laws on de jure and de facto institutional development are presented. The general pattern clearly suggests the introduction of universal suffrage, abolition of slavery and removal of wealth- and literacy-based voting restrictions influenced the de jure and de facto political institutions to a different degree. From within-country perspective, the transition to the free and fair elections, de jure constitutional suffrage guarantee and the suffrage restriction by electoral fraud appear to be the most important drivers of de jure institutional change. From between-country perspective, the de jure constitutional suffrage guarantee, the switch to free and fair elections and electoral fraud tend to be the most important drivers of institutional change shaping cross-country gaps in de jure institutional development across Latin America. The landscape of the effects on de facto institutional development is more nuanced. From the within-country perspective, the de facto political institutions are the most profoundly affected by free and fair elections, introduction of female suffrage, and de facto constitutional suffrage guarantee whereas literacy- and wealth-related voting requirements and universal suffrage appear to be the two single most important shifters of the differences in de facto institutional development whereas the standardized effects of suffrage extension and electoral fraud also appear to be indicated a non-negligible importance for the path of inclusive de facto institutional development.

TABLE 9 [INSERT HERE]

### *5.3.4 Causal Effects of Electoral Law*

The evidence so far clearly advocates the fundamental importance of inclusive de jure and de facto political institutions in explaining the path of long-run economic development in post-independence Latin America. Strong and robust relationship between the setup of political institutions and long-run growth and development immediately invokes whether the effect of de jure and de facto political institutions is causal. The full sample covers many years which

implies that DiD model of de jure and de facto institutional development allows for a test of causality (Granger 1969, Angrist and Pischke 2009) to see whether the electoral laws happened before the subsequent improvement of de jure and de facto political institutions and not vice versa. Dates of electoral law enforcement changed at different times in different countries across Latin America as summarized in Table 1. The heterogeneity in the timing of electoral laws allows to investigate whether lagged values of electoral law variables predict de jure and de facto institutional development while future values do not conditional on country-fixed effects and time-fixed effects.[5]

The core DiD model setup describing de jure and de facto institutional development from Eq. (4.2) is rearranged to allow for the causality test into a flexible setup:

$$Z_{i,t}^{\text{De Jure}} = \sum_{i=\text{Argentina}}^{\text{Venezuela}} \phi_i \times D_i + \sum_{t=1800}^{2012} \varphi_t \times D_t + \sum_{j=1}^{J} \sum_{\tau=0}^{10} \delta_{-\tau} \times \left( \begin{matrix} \text{Electoral} \\ \text{Provision} \end{matrix} \right)_{i,t}^{j} + \sum_{j=1}^{J} \sum_{\tau=1}^{10} \delta_{+\tau} \times \left( \begin{matrix} \text{Electoral} \\ \text{Provision} \end{matrix} \right)_{i,t}^{j} + \mathbf{X}_{i,t}' \beta + v_{i,t} \tag{5.1}$$

$$Z_{i,t}^{\text{De Facto}} = \sum_{i=\text{Argentina}}^{\text{Venezuela}} \alpha_i \times D_i + \sum_{t=1800}^{2012} \psi_t \times D_t + \sum_{j=1}^{J} \sum_{\tau=0}^{10} \pi_{-\tau} \times \left( \begin{matrix} \text{Electoral} \\ \text{Provision} \end{matrix} \right)_{i,t}^{j} + \sum_{j=1}^{J} \sum_{\tau=0}^{10} \pi_{+\tau} \times \left( \begin{matrix} \text{Electoral} \\ \text{Provision} \end{matrix} \right)_{i,t}^{j} + \mathbf{X}_{i,t}' \beta + w_{i,t} \tag{5.2}$$

where $\phi_i$ and $\alpha_i$ denote country-fixed effects, $\varphi_t$ and $\psi_t$ are time-fixed effects, $\mathbf{X}$ is the set of control variables from the structural long-run development model in Eq. (4.1) while $v_{i,t}$ and $w_{i,t}$ denote stochastic disturbances. The sum of the coefficients for $j$-th $\left(j = 1,2,...J\right)$ $\left( \begin{matrix} \text{Electoral} \\ \text{Provision} \end{matrix} \right)$ allows for $m = 10$ lagged or post-electoral provision effects $\left(\delta_{-1}, \delta_{-2}, ...\delta_{-10}\right)$ and $q = 10$ leads indicating anticipatory or pre-electoral provision effects to examine whether the electoral provisions introducing general suffrage and abolishing slavery and arbitrary voting qualifications caused the de jure and de facto institutional development and not vice versa. If the four provisions of electoral law caused the de jure and de facto institutional development, pre-electoral provision (anticipatory) effects should not be statistically different from zero.

In Table 10, the causal effects of four provisions of electoral laws on de jure and de facto institutional development are investigated by testing the joint significance of pre-electoral provision (pre-treatment) effects vs. the joint significance of post-electoral provision (post-treatment) effects. *Panel A* displays the causal effects of electoral provisions on de jure institutional development whilst *Panel B* presents the causal effects on de facto institutions. Each panel breaks down the causality test into the full sample and subsamples by excluding individual countries to further assess the robustness of the causality test outcomes. If the four

[5] Autor (2003) used a similar strategy and implemented the Granger causality test to investigate the effect of employment protection on firms' use of temporary help.

provisions caused the de jure and de facto institutional development, conditional on unobserved effects, pre-treatment effects should be jointly insignificant whereas the post-treatment effects should be jointly significant with respect to the changes of de jure and de facto political institutions the after the enforcement of electoral laws. The causality tests consistently imply that not all electoral provisions were equally important in causing the de jure and de facto institutional development.

TABLE 10 [INSERT HERE]

The evidence from testing the causal relationship suggests not all electoral laws are created equal. In Panel A, the causal effects of electoral law on long-run development via de jure institutional channel are presented. The evidence suggests that the null hypothesis on set of lead coefficients, indicating the anticipatory effects is rejected at 5% level for the introduction of female suffrage whereas the null is not rejected for other types of electoral law although the causality test is partly susceptible to the exclusion of individual countries from the core sample. Since the lead coefficients are not statistically different from zero, the evidence readily indicates the timing of female suffrage happened before the fundamental change in the de jure political institutions whereas other types of electoral law preclude this kind of possibility. In Panel B, the causal effects of electoral law on long-run development via the de facto institutional change are disentangled. The set of anticipatory effects is not statistically different from zero with regards to the abolition of slavery but not regarding other forms of electoral law where it is not possible to determine whether the change in the path of de facto political institutions happened before or after the concrete electoral law had been enforced. On the surface level, the evidence from causality test does not overwhelmingly reject the notion that the effect of de jure and de facto political institutions on long-run development appears to be causal but merely highlights the types of electoral laws unbundling the causal sequence.

### *5.3.5 Difference-in-Differences Identification Checks: Country-Specific Time Trends*

The causal effects of electoral provisions clearly underpin the importance of general suffrage for de jure institutional development and the centrality of removing voting qualifications in the determination of de facto institutional development. The causal effects of electoral law from Table 11 might simply reflect the notion that the four types of provisions were introduced at different dates which varied substantially across countries which might render causal effects weak. As an alternative check on the DiD identification strategy, country-specific time trends are added to the list of control variables in a baseline relationship between electoral law and de jure and de facto institutional development. Specifically, the relationship is re-examined by reconstructing and estimating the following first-stages from Eq. (4.2) and (4.3) for each type of electoral provision:

$$Z_{i,t}^{\text{De Jure}} = \sum_{i=\text{Argentina}}^{\text{Venezuela}} \phi_i \times D_i + \sum_{t=1800}^{2012} \gamma_t \times D_t + \omega_i \times t + \hat{\delta}_1 \times \left( \begin{matrix} \text{Electoral} \\ \text{Provision} \end{matrix} \right)_{i,t}^{j} + \mathbf{X}_{i,t}^{'} \beta + v_{i,t} \tag{5.3}$$

$$Z_{i,t}^{\text{De Facto}} = \sum_{i=\text{Argentina}}^{\text{Venezuela}} \alpha_i \times D_i + \sum_{t=1800}^{2012} \psi_t \times D_t + \theta_i \times t + \hat{\pi}_1 \times \left( \begin{matrix} \text{Electoral} \\ \text{Provision} \end{matrix} \right)_{i,t}^{j} + \mathbf{X}_{i,t}^{'} \beta + w_{i,t} \tag{5.4}$$

where $\phi_t$ and $\alpha_i$ capture the country-fixed effects, $\gamma_t$ and $\psi_t$ denote the time-fixed effects common to all countries, the coefficients $\hat{\delta}_1$ and $\hat{\pi}_1$ capture the potentially causal relationship between *j*-th electoral provision ( $j = 1, 2, \ldots J$ ) on de jure and de facto institutional development for country $i = 1, 2, \ldots n$ at time $t = 1, 2, \ldots T$, $\mathbf{X}$ is the vector of structural controls while $_v$ and $_w$ represent the stochastic disturbances, respectively. The key coefficients of interest are $\omega_i$ and $\theta_i$ which capture the contribution of country-specific time trends to the de jure and de facto institutional development which might confound the causal effects of electoral provisions on the paths of institutional change and development, and both coefficients are allowed to vary across countries. Country-specific time trends allow the treatment and control group to follow different trends to uncover the true causal effects. As a rule, estimating DiD with the country-specific time trends is likely to be more robust and convincing when the pattern of institutional development before the introduction of electoral provisions exerts a clear trend that can be extrapolated into the period after the introduction of such provisions. In this respect, the DiD specification check in Eq. (5.3) and (5.4) follows Besley and Burgess (2004) where the state-specific trends are used as a robustness check in investigating the effects of labor regulation on firm productivity across Indian states.

TABLE 11 [INSERT HERE]

In Table 11, DiD model estimates of de jure and de facto institutional development are presented using the country-specific time trends as a robustness check. Panel A displays the effects of electoral provisions on the paths of de jure institutional development while Panel B presents the effects on the paths of de facto institutional development. The estimates from the baseline DiD model specification are replicated for each electoral provision with and without country-specific time trends to compare the effects of provisions on de jure and de facto institutions in a potentially revealing way. The evidence clearly confirms strong and robust effects of electoral provisions on the distinctive paths of institutional development in post-independence Latin America although the magnitude of the effect varies greatly depending on the control for the confounding effects of country-specific time trends. The evidence readily suggests the established effects of electoral law enforcement on de jure and de facto are not driven by country-specific time trends. The effects of electoral laws on institutional development are not susceptible to the country-specific time trends since both sets of effects are very similar across different specifications when the individual countries are piecewise split off the core sample as a check on potential outliers shaping the general pattern of institutional change.

## 6. Counterfactual Scenario

The evidence so far implies that the failure of post-independence Latin America behind the United States is rooted in the absence of inclusive de jure and de facto political institutions which were necessary for sustained long-run growth but did not emerge in Latin America for more than one hundred years after its independence from Spain and Portugal. Ultimately, the obvious question to ask is how would Latin America's long-run development look like if it had established US-, Australian-, British-, French- or Spanish-style de jure and de facto political institutions since 1800? Developing a counterfactual scenario for the path of Latin America's long-run development might show whether the gap behind the United States or Western Europe

from Figure 1 would narrow or be similar to the observed one if Latin American countries embarked on the path of the counterfactual institutional design.

Assume the counterfactual path of long-run development can be decomposed into the (i) observable component and (ii) unobserved component where the former captures the contribution of de jure and de facto political institutions to long-run development path whilst the latter captures the contribution of unobserved country-specific effects and common technology shocks. Specifically, the counterfactual series can be written as follows:

$$\ln y_{i,t}^{counterfactual} = \ln y_{i,t}^{observable} + \Delta \ln y_{i,t}^{unobserved} \tag{6.1}$$

where $y_{i,t}^{counterfactual}$ denotes the counterfactual level of per capita output, $y_{i,t}^{observable}$ is the observable component of per capita output, and $y_{i,t}^{unobserved}$ is the unobserved component contributing to the change in per capita output. For both components, assume the following reduced-form regression model is used to examine the contribution of institutions and unobserved effects to the per capita output:

$$\ln y_{i,t}^{observable} = A_0 + \eta_1 \tilde{Z}_{1i,t}^{\text{De Jure}} + \eta_2 \tilde{Z}_{2i,t}^{\text{De Facto}} + u_{i,t} \tag{6.2}$$

$$\Delta \ln y_{i,t}^{unobserved} = \sum_{i=\text{Argentina}}^{\text{Venezuela}} \delta_i \times D_i + \sum_{t=1800}^{2012} \psi_t \times D_t + v_{i,t} \tag{6.3}$$

where $A_0$ is the baseline technology level, $\tilde{Z}_{1i,t}^{\text{De Jure}}$ and $\tilde{Z}_{2i,t}^{\text{De Facto}}$ denote the de jure and de facto indices of institutional development using the Polity2 (de jure) and Vanhanen Index of Democracy variables (de facto), and $u_{i,t}$ is the stochastic disturbance. The set of coefficients $\delta_i$, and $\psi_t$ denote the contribution of unobserved country-specific effects $D_i$ and time-fixed effects $D_t$. The variation in the unobserved effects is used to adjust the baseline technology level and allow for country-specific differences in the paths of long-run development, and capture the role of idiosyncratic factors which differ substantially across post-independence Latin America. The key coefficients of interest are $\eta_1$ and $\eta_2$ which denote the contribution of de jure and de facto political institutions to long-run development path of Latin America.

The major threat to the counterfactual scenario of long-run development with the benchmark countries is posed by the unstable series of Polity2 and Vanhanen Index of Democracy for Latin America which fluctuates widely over time rendering the corresponding counterfactual levels of long-run development unstable and unreliable. Excessive fluctuations in the underlying series on de jure and de facto institutional development are mitigated by extracting the long-run variation in institutional development from the underlying series and suppress the cyclical variation which renders the series unstable using Hodrick and Prescott (1997) decomposition method to remove the cyclical component from the underlying time series and obtain smooth curves of long-run per capita GDP, de jure and de facto institutional development. Suppose each of the three underlying series consists of the long-run (trend) component and the short-run (cyclical component):

$$y_{i,t} = \tau_{i,t}^{observable} + c_{i,t} \tag{6.4}$$

$$Z_{1i,\mathrm{t}}^{\text{De Jure}} = \tau_{i,t}^{\text{De Jure}} + c_{i,t}^{\text{De Jure}} \tag{6.5}$$

$$Z_{2i,\mathrm{t}}^{\text{De Facto}} = \tau_{i,t}^{\text{De Facto}} + c_{i,t}^{\text{De Facto}} \tag{6.6}$$

where $\tau$ is the long-run component and $c$ is the short-run component. Both components specifically delineate the fundamental shifts in long-run economic and institutional development from the short-run fluctuations. Smooth-curve representation of long-run development paths allows us to construct the counterfactual series that is more sensitive to long-run than to short-run fluctuations. Since the number of covariates controlling for period-specific events which shaped the path of economic development in Table 1 is low and each covariate is a binary one, this implies that the neglect of long-run fluctuations and a focus on short-run fluctuations disallows the distinction between trend-based variance and cyclical variance which necessitates the decomposition of the series to remove the cyclical component from the long-run variation.

For country *i* at time *t*, the series on long-run economic development is adjusted to account for the sensitivity of the long-run variation to short-run fluctuations by solving the following minimization problem:

$$\tilde{y}_{i,t} = \min_{\tau}\left(\sum_{t=1}^{T}\left(y_{i,t}-\tau_{i,t}\right)+\lambda\sum_{t=2}^{T-1}\left[\left(\tau_{i,t+1}-\tau_{i,t}\right)-\left(\tau_{i,t}-\tau_{i,t-1}\right)\right]^2\right) \tag{6.7}$$

where $\tilde{y}_{i,t}$ is the smoothed long-run per capita output series, $y_{i,t}$ is its original untransformed series, and $\lambda$ is the arbitrary parameter of the positive value for which a long-run (trend) component exists that solves the minimization problem. The first term of (6.7) denotes the sum of squared deviations and penalizes the cyclical component of the series while the second term penalizes the variation in the trend component. Following Hodrick and Prescott, $\lambda = 100$ is chosen since our series comprises annual observations. In the counterfactual scenario, constructing the institutional series of the country to which Latin America's long-run development is compared is warranted. Therefore, the series on de jure and de facto institutional development for *i*-th country and the benchmark country at time *t* are constructed in the similar fashion:

$$\tilde{Z}_{1i,t}^{\text{De Jure}} = \min_{\tau}\left(\sum_{t=1}^{T}\left(Z_{1i,t}^{\text{De Jure}}-\tau_{i,t}^{\text{De Jure}}\right)+\lambda\sum_{t=2}^{T-1}\left[\left(\tau_{i,t+1}^{\text{De Jure}}-\tau_{i,t}^{\text{De Jure}}\right)-\left(\tau_{i,t}^{\text{De Jure}}-\tau_{i,t-1}^{\text{De Jure}}\right)\right]^2\right) \tag{6.8}$$

$$\tilde{Z}_{2i,t}^{\text{De Facto}} = \min_{\tau}\left(\sum_{t=1}^{T}\left(Z_{1i,t}^{\text{De Facto}}-\tau_{i,t}^{\text{De Facto}}\right)+\lambda\sum_{t=2}^{T-1}\left[\left(\tau_{i,t+1}^{\text{De Facto}}-\tau_{i,t}^{\text{De Facto}}\right)-\left(\tau_{i,t}^{\text{De Facto}}-\tau_{i,t-1}^{\text{De Facto}}\right)\right]^2\right) \tag{6.9}$$

$$\tilde{Z}_{1,Benchmark,t}^{\text{De Jure}} = \min_{\tau}\left(\sum_{t=1}^{T}\left(Z_{1,Benchmark,t}^{\text{De Jure}}-\tau_{Benchmark,t}^{\text{De Jure}}\right)+\lambda\sum_{t=2}^{T-1}\left[\left(\tau_{Benchmark,t+1}^{\text{De Jure}}-\tau_{Benchmark,t}^{\text{De Jure}}\right)-\left(\tau_{Benchmark,t}^{\text{De Jure}}-\tau_{Benchmark,t-1}^{\text{De Jure}}\right)\right]^2\right) \tag{6.10}$$

$$\tilde{Z}_{2,Benchmark,t}^{\text{De Facto}} = \min_{\tau}\left(\sum_{t=1}^{T}\left(Z_{1,Benchmark,t}^{\text{De Facto}}-\tau_{Benchmark,t}^{\text{De Facto}}\right)+\lambda\sum_{t=2}^{T-1}\left[\left(\tau_{Benchmark,t+1}^{\text{De Facto}}-\tau_{Benchmark,t}^{\text{De Facto}}\right)-\left(\tau_{Benchmark,t}^{\text{De Facto}}-\tau_{Benchmark,t-1}^{\text{De Facto}}\right)\right]^2\right) \tag{6.11}$$

The smoothed values of de jure and de facto institutional indices are used in a simple OLS regression model with clustered standard errors to establish the counterfactual response of long-run development path to the de jure and de facto institutional development

under alternative institutional design of the benchmark country over time which leads to the following estimating equation:

$$\ln y_{i,t}^{observed} = A_0 + \eta_1 \tilde{Z}_{1i,t}^{\text{De Jure}} + \eta_2 \tilde{Z}_{2i,t}^{\text{De Facto}} + u_{i,t} \quad (6.12)$$

where $y_{i,t}^{observed}$ is the observed per capita output, $A_0$ is the baseline technology parameter, and $u_{i,t}$ is the structural error term accounting for the omitted variables. The key coefficients of interest are $\eta_1$ and $\eta_2$ which denote the response of per capita output to the change in trend-based de jure and de facto political institutions, $\tilde{Z}_{1i,t}^{\text{De Jure}}$ and $\tilde{Z}_{2i,t}^{\text{De Facto}}$. A simple OLS regression of log per capita output on the smoothed indices of de jure and de facto institutions from Eq. (6.8) and (6.9) with country-clustered standard errors yield $\hat{\eta}_1 = .035$ with standard error = .012 and the p-value of 0.018, and $\hat{\eta}_2 = .061$ with the standard error of .013 and the p-value = 0.002. The estimated constant term equals $A_0 = 7.203$ with the standard error of 0.071 and the p-value = 0.000. The smoothed indices of de jure and de facto political institutions jointly account for 55 percent of the long-run development differences across countries and up to 56 percent of the within-country development path.

In the next step, the values of benchmark de jure and de facto political institutions are used to construct the counterfactual path of the long-run development from Eq. (6.1) based on the established responses of per capita output to the change in both types of political institutions from Eq. (6.12) which leads to:

$$\ln \hat{y}_{i,t}^{observed} = A_0 + \eta_1^{LA} \tilde{Z}_{1,Benchmark,t}^{\text{De Jure}} + \eta_2^{LA} \tilde{Z}_{2,Benchmark,t}^{\text{De Facto}} + u_{i,t} \quad (6.13)$$

where $\eta_1^{LA}$ and $\eta_2^{LA}$ denote the response of long-run economic development path of nine Latin American countries to the change in de jure and de facto political institutions while $\tilde{Z}_{1,Benchmark,t}^{\text{De Jure}}$ and $\tilde{Z}_{2,Benchmark,t}^{\text{De Facto}}$ represent the indices of de jure and de facto institutions of the benchmark country from the year 1800 onwards, and $u$ is the error term. The counterfactual series allows us to project the path of long-run development of Latin America since 1800 if the countries had de jure and de facto political institutions similar to the ones of benchmark countries. Unobserved heterogeneity across countries, capturing the effect of unobservables on long-run development, and the unobserved technology shocks common to all Latin American countries over time, are added to the counterfactual series which allows us to partially alleviate the omitted variable concerns and to construct a series which clearly differs across countries, and is thus not based on the Latin America's average.

Figure 3 presents the counterfactual per capita GDP under U.S. de jure and de facto political institutions plotted against the observed per capita GDP for each Latin American country in the sample from 1800 to 2012. Panel (a) depicts the counterfactual path of long-run development computed from Eq. (6.12) while Panel (b) displays the counterfactual gap in long-run development behind the U.S. The evidence strikingly suggests Latin American countries would be much richer than the United States in early 1800s if it had the U.S de jure and de facto

political institutions in place instead of the ones inherited from the Spanish and Portuguese colonial period.

*6.3.1 Counterfactual Scenario with U.S-style De Jure and De Facto Political Institutions*

The counterfactual estimates arguably imply that the path of long-run development of Latin America would be substantially better than the one maintained under the historical de jure and de facto political institutions. The comparison of counterfactual paths in Panel (a) unravels large gains from establishing more inclusive and participatory political institutions since the independence from Spain and Portugal as each Latin American country would end up much ricer over time. Countries such as Argentina, Uruguay, Mexico, Peru and Bolivia would achieve consistently higher levels of development with the U.S political institutions in place since independence whilst the gains for other countries are smaller albeit still substantial.

FIGURE 3 [INSERT HERE]

In Table 12, the counterfactual scenario is summarized across the entire set of countries in the sample suggesting large gains in long-run development had the Latin American countries established U.S-style de jure and de facto political institutions since 1800 onwards. In such scenario, Argentina's counterfactual per capita income would be 89% higher than the actual one, setting its income level on equal footing with Germany rather than Russia with the development gap behind the U.S decreasing by 31 percentage points. In addition, having U.S. institutions instead of the historical ones would make Argentina by far the richest country in the region and the only one achieving two thirds of the U.S income level. Of all countries in the region, Bolivia would gain most. Having U.S de jure and de facto institutions in place since 1800 would increase its 2012 per capita income by 189 percent which is the equivalent of Thailand's income level. In addition, Bolivia's development gap would shrink by 20 percentage points. Brazil's counterfactual development level would similar to the one of Poland with the estimated 53 percent gain in per capita income and 12 percentage point narrow-up of the gap behind the U.S. Compared to Bolivia, Chile would gain least with the implicit gain in contemporary per capita income by 8 percent making its income level comparable to Spain. Colombia's per capita income would increase by 24 percent with the U.S de jure and de facto political institutions, making it comparable to Hungary, while its gap behind the U.S would shrink by 6 percentage points. Mexico's gain would equal 82 percent, making its income level look similar to Czech Republic with the corresponding decrease in development gap behind the U.S by 21 percentage points which would raise the ratio of its income level to the U.S from 26 percent to 47 percent, respectively. Similarly, Peru's development gap behind the U.S would shrink by 15 percentage points if it had the U.S. institutions in place since independence from Spain while Uruguay's counterfactual development path corresponds closely to that of Chile with the per capita income moving towards the level comparable with Spain albeit its development level would decrease by more than three times as much as that of Chile. In addition, Venezuela's counterfactual scenario corresponds to the 38 percent gain in per capita income which implies that the development gap behind the U.S would decline by 22 percentage points making Venezuela's per capita income similar to that of Czech Republic by 2012.

TABLE 12 [INSERT HERE]

*6.3.2 Counterfactual Scenario under Alternative Institutional Design*

In Table 13, the results from the counterfactual scenario under alternative forms of institutional design are presented. In Panel B, the United States is replaced by Australia as a benchmark country and the estimates highlight the long-run development path under Australian de jure and de facto political institutions. The evidence suggests slightly larger gains in long-run development as if the Latin American countries adopted the U.S-style de jure and de facto political institutions. For instance, Argentina's long-run development under Australian-style de jure and de facto institutions would improve by 114 percent with the contemporary per capita income similar to that of Belgium. In comparative terms, such a large-scale improvement of the long-run development is equivalent to the decrease of per capita income gap behind Australia from 40 percent to 87 percent which translates into 47 percentage points implicit gain in the path of comparative development. The comparison between Latin America and Australia is especially pronounced since both continents were colonized by European powers and share a similar set of geographic conditions which simplifies the comparison and partially alleviates the implicit effects of confounding effects of long-run growth determinants which is somewhat unaddressed when Latin America is compared to the United States. The gains from adopting Australian-style de jure and de facto political institutions are similarly large across other countries in the sample, ranging from 229% in Bolivia to 23% in Chile. In Panel C, the U.S. institutional design is replaced by Canada as a benchmark country. The evidence suggests much smaller gains in long-run development compared to U.S and Australian counterfactual scenario. The long-run development of Bolivia, Argentina, Mexico, Peru and Brazil would improve substantially whereas there is little difference between the observed and counterfactual per capita income in Colombia, Uruguay, and Venezuela whereas Chile's per capita income would drop by 20% if the country adopted Canadian-style de jure and de facto political institutions upon the independence from Spain. In Panel D, the UK institutional design is used as a benchmark to establish the counterfactual path of Latin America's counterfactual path of long-run development under Westminster-style parliamentary de jure and de facto institutional setup. Under such scenario, the countries in the most temperate region of Latin America would gain most and approach the income levels of Central Europe. Argentina and Uruguay's the counterfactual per capita income equivalent to Slovenia and Czech Republic, respectively whereas Bolivia would gain most with 180% increase in per capita income, shrinking its development gap behind the UK from 12% to a third.

The counterfactual scenario under the genuine Anglo-American institutional design arguably draws strong parallels in the divergent paths of long-run development suggest large-scale economic payoff from the counterfactual design of de jure and de facto political institutions. What happened to Latin America's long-run development if its institutional design were based on the adoption of de jure and de facto political institutions from culturally similar countries such as France, Spain and Portugal? The evidence suggests the economic payoff from such an institutional design would drop markedly. In Panel E, France is used as a benchmark country in the counterfactual institutional design. Under French-style de jure and de facto political institutions, Argentina's long-run per capita income would improve by 27 percent compared to 89 percent and 114 percent gain under the U.S.- and Australian-style institutional design. Under the French-style de jure and de facto institutional makeup, Brazil's long-run per capita income would barely improve by 3 percent which is the nearest-country equivalent of Iran whereas under the U.S and Australian-style de jure and de facto institutions, its per capita income would be similar to Poland. Four countries (44 percent of the sample) would experience lower counterfactual per capita income compared to the observed one under the French institutional makeup with loss ranging from 28 percent in Chile, 16 percent in Colombia, 13 percent in Uruguay to 7 percent in Venezuela. The economic payoff from adopting the French-style de jure and de facto institutional design in Mexico is equivalent to 23 percent gain in per

capita income making it similar to Eastern European countries such as Bulgaria, Peru would gain 18 percent, reaching per capita income similar to China whereas Bolivia would be as rich as Tunisia which is the equivalent of 94 percent gain in absolute per capita income.

Panel F and Panel G summarize the counterfactual scenario under the adoption of Portuguese and Spanish-style de jure and de facto political institutions. Such a comparison is especially noteworthy given shared cultural characteristics and strong parallels of institutional development between Portugal and Spain on one hand and Latin America on the other hand. If Latin America embarked on the path of de jure and de facto institutional modernization to the same degree as Portugal, the contemporary per capita income would improve in six out of nine countries. For instance, Argentina's per capita income would reach the same level as Puerto Rico, and its comparative development level would reach parity with Portugal. In Brazil, the Portuguese de jure and de facto institutional design would yield 16 percent increase in per capita income which is the nearest country equivalent of Turkey. Chile and Colombia would lose the most from the Portuguese-style institutional design which its per capita income dipping by 19 percent, and 5 percent respectively making their income levels similar to Armenia and Serbia. In essence, the counterfactual scenario under Portuguese-style de jure and de facto political institutions would yield small economic payoff, moving the per capita income of most countries, except for Argentina, Uruguay and Mexico, into the ranks of North Africa, Middle East, and Eastern Europe.

TABLE 13 [INSERT HERE]

In Panel G, replacing the U.S with the Spain as a benchmark country would yield substantially smaller long-run economic payoff from the Spanish-style institutional design compared to the U.S and Australia although the payoff would be much larger than the one embodied in the Portuguese institutional design. The comparison of Latin America with Spain is perhaps the most relevant one since Spain colonized most of the region and transplanted its institutional framework during the colonial times. In spite of the large swings in per capita income over time, reflecting the institutional instability in Spain, the long-run counterfactual income would improve substantially and uniformly throughout the region. Under the Spanish de jure and de facto institutional makeup, Argentina's per capita income would move up by 89 percent in the long run, making it similar to Israel. Additionally, Argentina would end up richer than Spain by 11 percent if it adopted the Spanish de jure and de facto institutional modernization since independence whereas Bolivia and Brazil would gain 180 percent and 49 percent in terms of per capita income and reach the income levels of Russia and Bulgaria, respectively. Chile's gain is equivalent to 4 percent which would bridge the income gap behind Spain from 84 percent to 89 percent whereas Mexico and Peru would gain 70 percent and 77 percent in terms of per capita income, making Mexico as rich as Czech Republic and Peru as rich as Thailand. Uruguay's 25 percent gain from the Spanish-style de jure and de facto institutional design parallels a decrease in the development gap behind Spain from 71 percent to 89 percent. Apart from Argentina, Mexico would gain most in terms of comparative development under Spanish-style de jure and de facto institutional modernization with the income gap behind Spain shrinking from 45 percent to 80 percent. In addition, Venezuela would gain 34 percent in terms of per capita income, moving from one half of the Spanish income level to 72 percent, respectively.

Counterfactual scenarios for type of institutional design are presented in Figure A1 through A6 in the Appendix. The evolution of the per capita income gap behind the Western Offshoots and Western Europe clearly suggests that Latin American countries would be

substantially richer initially under the alternative institutional. However, its per capita gap behind the benchmark countries would to widen over time, especially after 1950s. As an additional check on the counterfactual scenario, two scenarios are computed. First, what would Latin America's long-run development look like if the countries in the region adopted the U.S-style de jure and de facto political institutions upon the abolition of the slavery, and (second) upon the initial suffrage extension. The two counterfactual scenarios are presented in Figure A7 and Figure A8 in the Appendix. Surprisingly, the Latin American countries would reach parity with the U.S per capita income soon after independence from Spain and Portugal, and generally maintain it until early 1900s but would critically start falling behind the U.S. after 1930s which parallels the aftermath of the Great Depression. If the de jure and de facto political institutions on parallel with the U.S were enshrined upon the initial suffrage extension, the counterfactual path of long-run development is similar. Apart from Peru, Bolivia, Brazil, and Venezuela, per capita income of Latin American countries (Argentina, Uruguay, Colombia) would soon after attaining the U.S de jure and de facto institutional parallel converge to the U.S level or even exceed as indicated by the Chile's counterfactual scenario. Starting in 1940s, the per capita income gap behind the U.S would start to widen in an almost uniform fashion throughout the region. In spite of the downward gap spiral, the contemporary per income gap of each Latin American country behind the U.S would be much lower if they managed to enshrine the U.S-style de jure and de facto institutional development upon the initial suffrage extension. The set of counterfactual scenarios succinctly suggests that inclusive, broad-based and participatory de jure and de facto political institutions developed independently or transplanted from other countries would not prevent Latin America's falling behind the Western Offshoots and Western Europe but would render the gap behind the U.S much smaller testifying to the beneficial economic payoff in terms of long-run development. Latin America's great divergence from the U.S and the critical institutional and non-institutional factors stacking against sustained comparative long-run development and critically shaping the gap behind the West essentially remains an unknown.

From the normative perspective, the counterfactual scenario clearly implies that Latin America's long-run development path would differ substantially from the actual one had the countries across the region built the de jure and de facto political institutions on equal terms as the United States, Western Offshoots or Western Europe. Such an institutional transformation should have established real checks and balances on the abuse of executive power, latent constitutional constraints on the abuse of executive power, competitive polities, high rates of political participation, and an independent and well-functioning Supreme Court to enforce the sets of inclusive political institutions. In contrast, post-independence Latin American republics had been characterized by the periodic exclusion of large fraction on non-property owners from the legal standing to vote and maintained such institutions for more than one hundred years after the independence from Spain and Portugal. Concurrent to Rosenn (1990), the absence of real revolutionary changes towards the rule of law, secure property rights for the non-elites and accountable governments, critically contributed to the absence of institutional underpinnings of sustained economic growth possibly leading to the reversal of fortune (Acemoglu et. al. 2002), pushing the Latin American development path way behind the U.S frontier. The notion that the absence of inclusive de jure and de facto political institutions led to the fundamental inability to sustain long-run growth would be implausible since numerous factors, both institutional and non-institutional, are omitted from the counterfactual scenario such as factor endowments, human capital formation, physical capital accumulation, demographic changes, income inequality, transaction costs, trade and specialization, economic freedom, and legal institutions among others. In spite of the potentially confounding effects of omitted factors, the counterfactual scenario clearly suggest Latin America's long-run

development would improve substantially if the countries across the region managed to establish de jure and de facto institutional development on equal terms with the frontier countries, and its development gap would shrink considerably.

## 7. Conclusion

This paper exploits the timing of electoral law enforcement to answer why Latin American economies fell behind the United States and never achieved parity with the U.S. in the post-independence period, and examines the contribution of de jure and de facto political institutions to comparative paths of long-run economic growth and development in nine Latin American countries for the period 1800-2012.

The existing literature clearly suggests that Latin America experienced periodic violations of property rights and lacked institutions capable of generating trust in the existence of the rule of law to protect long-term investments as a prerequisite for sustained economic growth but tends to neglect the role of de jure and de facto political institutions. To this end, this paper exploits the timing of suffrage extension laws, abolition of wealth- and literacy-based qualifications and abolition of slavery across Latin America to consistently estimate the effect of de jure and de facto political institutions using the Polity2 index of electoral democracy (Marshall et. al. 2013) and the Vanhanen index of liberal democracy from Polyarchy Dataset (Vanhanen 2000, 2003).

The evidence clearly suggests the utmost importance of de jure and de facto political institutions for the long-run development of Latin America from 1800 onwards. The contribution of de jure and de facto political institutions is robust across multiple subsamples and to a variety of exclusion restrictions. A closer inspection highlights the fundamental importance of inclusive, broad-based and pluralist political institutions for Latin America's long-run development path where the effect is especially profound and significant in pre-1850 period when arguably not a single Latin American country had undergone the institutional transformation as a prerequisite for sustained long-run growth and development. The absence of inclusive de jure and de facto institutions led to the path-breaking comparative decline of Latin America behind the United States.

The onset of institutional changes towards the introduction of general suffrage and abolition of wealth- and literacy-based voting qualifications through a series of electoral laws made the existing de jure and de facto political institutions more inclusive, encouraged open access (North et. al. 2013) and subsequently improved the path of long-run economic development. Not every provision in the electoral law mattered to the extent. We build a simple difference-in-differences model of institutional change to test whether suffrage extension and removal of arbitrary voting qualifications changed the course of Latin America's de jure and de facto institutional development. The introduction of general suffrage was perhaps the single most important type of institutional change shaping Latin America's de jure institutional development. On the other hand, the introduction of female suffrage and abolition of arbitrary wealth- and literacy-based voting restrictions, ending of electoral fraud and oppression appear to have been the most important elements of institutional change sweeping across Latin America that mattered the most in shaping the paths of de facto institutional development whereas no such effect is found for the abolition of slavery. This perhaps reflects the general tendency of post-independence Latin American republics to establish numerous restrictions on political competition and participation in the constitutional framework, and to preserve the institutions inherited from the colonial era which rendered the abolition of slavery factually

irrelevant in changing the course of de jure and de facto institutional development. Robust post-treatment effects of suffrage extension and abolition of voting restrictions are confirmed across multiple subsamples and remain stable at extreme bounds of the coefficient distribution. The effects of electoral provisions, especially the effects of suffrage extension, on de jure and de facto institutional development appear to be causal across difference-in-differences specification checks, and does not seem to be driven by the country-specific time trends.

In the baseline specification, each additional improvement in the index of de jure political institutions is associated with the improvement in long-run development between 14 percent and 25 percent which highlights arguably large effects of de jure political institutions on the path of long-run development. The effects of de facto political institutions are slightly weaker. Each additional point increase in the de facto index of political institutions tends to improve the long-run path of growth and development between 8.5 percent and 11.2 percent, respectively. The effects of de jure and de facto political institutions are standardized to gauge their relative importance for the long-run development where the evidence advocates both types of institutions exhibit strong effects on long-run development although the de jure institutions appear to be relatively more important in explaining long-run development routes of post-independence Latin American than de facto institutions.

In the counterfactual scenario, the alternative long-run development scenario is presented to examine the path of Latin America's long run development since independence if the countries across the region had an alternative institutional design by establishing and sustaining the de jure and de facto political institutions of Western Offshoots and the United States to the present. The counterfactual evidence strikingly suggests eight out of nine Latin American republics would be initially richer than the United States except for Bolivia, perhaps reflecting abundant and accessible natural resources across the region. More pluralist and inclusive institutions in the initial equilibrium would turn Latin America's factor endowments into wealth more easily than the extractive institutions established during the colonial period. In a sharp contrast to the United States, Latin American republics after independence preserved the inefficient and rent-extracting de jure and de facto political institutions by denying access to political organization to a large cross-section of society and, by doing so, large amounts of land and natural resources per person led to high inequality and excessive concentration of landholding (Engerman and Sokoloff 1997) established during the Spanish and Portuguese reign. In a sharp contrast to the United States, Latin America's climate and soil favored the production with economies of scale on large plantations which paved way for unequal distribution of wealth and non-pluralist and extractive de jure and de facto political institutions. Such institutional equilibrium proved detrimental to the long-run and development over time as every Latin American country fell further behind the United States after independence. Extractive de jure and de facto political institutions further restricted access to the economic and political markets for a large cross-section of society and the resistance of elites to introduce general suffrage, and remove wealth- and literacy-based voting qualifications reflects the general tendency of a slow move towards inclusive political institutions relative to the dates of independence. Once the underlying institutional changes occurred, Latin America's de jure and de facto political institutions gradually became more open-access and inclusive, but by this time, countries across the region already fell strongly behind the United States. Our results imply that having the de jure and de facto political institutions similar to the United States from 1800 onwards would fundamentally change the path of Latin America's long-run development since every country would experience higher income level whereas the contemporary development gap behind the United States would vanish by 20 percentage points.

This paper suggests three future research venues. First, the evidence based on the counterfactual scenario clearly indicates the relative decline of Latin America behind the United States since 1800 in spite of the U.S- and Western European style de jure and de facto political institutions. In this respect, the future research should establish the ultimate causes of Latin America's failure behind the United States by focusing on different layers of institutions and proximate growth factors. Second, the expansion of general suffrage and removal of arbitrary wealth- and literacy-based qualifications which made the existing de jure and de facto political institutions more inclusive varied greatly across the countries. What explains the diffusion of institutional changes and why some countries were early movers and others late comers remains an open question. And third, the presented evidence advocates strong responses of de jure and de facto political institutions to the four types of institutional changes discussed above. The importance of timing in explaining the differential paths of institutional development should not be neglected and it remains to be seen what the alternative paths of Latin America's institutional development would be if the suffrage extension, removal of arbitrary voting restrictions and abolition of slavery were introduced earlier. And finally, since the de jure and de facto political institutions of either the U.S, Australia or France would obviously not prevent Latin American from falling behind the frontier countries, the identification of the critical institutional mechanism shaping Latin America's great divergence remains an open and potentially fruitful future research venue.

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**Table 1**: Evolution of Suffrage and Institutional Change in Latin America

| | Year of Independence | Abolition of Slavery | Constitutional Suffrage Guarantee | | Restricted Suffrage | | Female Suffrage | Full Suffrage with Free and Fair Elections |
|---|---|---|---|---|---|---|---|---|
| | | | De Jure | De Facto | Income, Literacy, Property | Electoral Fraud and Oppression | | |
| Argentina | 1816 | 1853 | From 1853 | From 1912 | 1816-1912 | 1930-1943, 1946-1955, 1958-1961, 1966-1973, 1975-1983 | From 1951 | From 1983 |
| Bolivia | 1825 | 1826 | From 1939 | From 1952 | 1825-1982 | 1964-1965, 1969-1981 | From 1956 | From 1982 |
| Brazil | 1822 | 1888 | From 1889 | From 1933 | 1822-1988 | 1889-1946, 1964-1987 | From 1932 | From 1988 |
| Chile | 1810 | 1823 | From 1833 | From 1970 | 1810-1989 | 1974-1989 | From 1949 | From 1989 |
| Colombia | 1810 | 1851 | 1853-1881, from 1914 | From 1959 | 1810-1936 | 1881-1914, 1933-1958 | From 1932 | From 1959 |
| Mexico | 1810 | 1829 | From 1917 | From 1917 | 1810-1953 | 1917-1992 | From 1958 | From 1993 |
| Peru | 1825 | 1854 | From 1858 | 1931-1932, 1939-1947, 1950-1961, 1963-1967 1968-1979 | 1860-1979 | 1893-1895, 1929-1979 | From 1955 | From 1980 |
| Uruguay | 1825 | 1830 | From 1918 | From 1918 | 1825-1918 | 1931-1932, 1973-1983 | From 1934 | From 1983 |
| Venezuela | 1811 | 1821 | From 1947 | From 1959 | 1811-1946 | 1948-1957 | From 1947 | From 1958 |

**Table 2**: Descriptive Statistics

| | Obs | Mean | | | | Min | Max |
|---|---|---|---|---|---|---|---|
| | | | Within | Between | Overall | | |
| *Panel A: Outcomes of Interest* | | | | | | | |
| Real GDP Per Capita | 1,917 | 2,577 | 948.37 | 2391.05 | 2552.84 | 375 | 15,204 |
| *Panel B: De Jure and De Facto Political Institutions* | | | | | | | |
| Polity2 Index | **1,917** | **-1.232** | **1.633** | **5.472** | **5.685** | **-10** | **10** |
| Vanhanen Index of Democracy | **1,917** | **4.470** | **1.870** | **8.292** | **8.478** | **0** | **42.5** |
| *Panel C: Electoral Laws* | | | | | | | |
| Abolition of Slavery | 1,917 | .799 | .389 | .098 | .400 | 0 | 1 |
| De Jure Constitutional Suffrage | 1,917 | .546 | .432 | .262 | .432 | 0 | 1 |
| De Facto Suffrage Extension | 1,917 | .343 | .465 | .099 | .475 | 0 | 1 |
| Suffrage Restricted by Income, Literacy and Property Requirement | 1,917 | .619 | .441 | .214 | .285 | 0 | 1 |
| Suffrage Restricted by Fraud and Oppression | 1,917 | .194 | .376 | .130 | .395 | 0 | 1 |
| Female Suffrage | 1,917 | .299 | .456 | .044 | .458 | 0 | 1 |
| Universal Suffrage with Free and Fair Elections | 1,917 | .157 | .359 | .060 | .363 | 0 | 1 |
| *Panel D: Structural Covariates* | | | | | | | |
| Armed Conflict | 1,917 | .138 | .106 | .330 | .345 | 0 | 1 |
| War of Independence | 1,917 | .060 | .022 | .237 | .238 | 0 | 1 |
| Post-War of Independence | 1,917 | .885 | .012 | .318 | .318 | 0 | 1 |
| World War 1 | 1,917 | .023 | 0 | .151 | .151 | 0 | 1 |
| World War 2 | 1,917 | .032 | 0 | .178 | .178 | 0 | 1 |
| Military Coup | 1,917 | .042 | .045 | .196 | .201 | 0 | 1 |

**Table 3**: Descriptive Statistics on Electoral Laws

| | Argentina | Bolivia | Brazil | Chile | Colombia | Mexico | Peru | Uruguay | Venezuela |
|---|---|---|---|---|---|---|---|---|---|
| Abolition of Slavery | .751 | .877 | .586 | .892 | .760 | .863 | .746 | .859 | .859 |
| | (.433) | (.328) | (.493) | (.311) | (.427) | (.343) | (.436) | (.348) | (.348) |
| De Jure Constitutional Suffrage | .746 | .070 | .582 | .845 | .591 | .446 | .882 | .441 | .309 |
| | (.436) | (.256) | (.494) | (.362) | (.492) | (.498) | (.322) | (.497) | (.463) |
| De Facto Suffrage Extension | .464 | .281 | .375 | .197 | .253 | .446 | .380 | .441 | .253 |
| | (.499) | (.450) | (.485) | (.398) | (.436) | (.498) | (.486) | (.497) | (.436) |
| Suffrage Restricted by Income, Literacy and Property Requirement | .455 | .737 | .779 | .948 | .234 | .615 | .732 | .441 | .633 |
| | (.499) | (.441) | (.415) | (.221) | (.424) | (.487) | (.443) | (.497) | (.482) |
| Suffrage Restricted by Fraud and Oppression | .197 | .084 | .384 | .079 | .276 | .361 | .244 | .061 | .056 |
| | (.398) | (.278) | (.487) | (.271) | (.448) | (.481) | (.430) | (.239) | (.231) |
| Female Suffrage | .291 | .262 | .375 | .295 | .272 | .276 | .248 | .366 | .305 |
| | (.455) | (.441) | (.485) | (.457) | (.446) | (.448) | (.433) | (.482) | (.461) |
| Universal Suffrage with Free and Fair Elections | .173 | .140 | .112 | .103 | .253 | .084 | .154 | .136 | .253 |
| | (.379) | (.348) | (.316) | (.305) | (.436) | (.278) | (.362) | (.343) | (.436) |

Notes: the table reports the mean values and standard deviation of electoral law. The mean value corresponds to the fraction of time in the sample with the specific type of electoral law whereas the standard deviation captures the dispersion of electoral law over time.

**Table 4**: Instrumental Variables and Difference-in-Differences Estimated Model of Long-Run Development and Institutional Change in Latin America, 1800-2012

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | De Jure Political Institutions | | | | De Facto Political Institutions | | | |
| *Panel A: Structural Setup with Endogenous Political Institutions* | | | | | | | | |
| Polity2 Score | .254*** | .151*** | .146*** | .144*** | | | | |
| | (.034) | (.012) | (.013) | (.013) | | | | |
| Vanhanen Democracy Index | | | | | .112*** | .104*** | .085*** | .086*** |
| | | | | | (.018) | (.015) | (.013) | (.013) |
| Armed Conflict | -.151 | -.092 | -.088 | -.087 | -.021 | -.018 | -.012 | -.012 |
| | (.191) | (.178) | (.178) | (.179) | (.166) | (.169) | (.179) | (.178) |
| War of Independence | -.643*** | -.425*** | -.412*** | -.409*** | -.062 | -.064 | -.070 | -.070 |
| | (.184) | (.100) | (.106) | (.107) | (.039) | (.040) | (.041) | (.041) |
| Post-Independence | -1.284*** | -.384** | -.330* | -.319** | .400*** | .331*** | .535*** | .531*** |
| | (.393) | (.188) | (.182) | (.172) | (.105) | (.090) | (.100) | (.095) |
| Military Coup | 1.200*** | .769** | .743** | .738*** | .567*** | .538** | .470* | .473* |
| | (.379) | (.332) | (.335) | (.340) | (.239) | (.247) | (.255) | (.254) |
| *Panel B: First-Stage OLS Difference-in-Differences Model of De Jure and De Facto Institutional Change* | | | | | | | | |
| Abolition of Slavery | -.265 | | | -.877 | -1.143 | | | .074 |
| (Post-Treatment Effect) | (1.017) | | | (1.384) | (1.173) | | | (.766) |
| De Jure Constitutional Suffrage | 2.686** | 3.573** | 3.199*** | 2.733* | 1.892 | .404 | 2.508* | 1.685 |
| (Post-Treatment Effect) | (1.049) | (1.443) | (1.067) | (1.309) | (1.279) | (1.062) | (1.362) | (1.413) |
| De Facto Suffrage Extension | 1.068 | 4.694*** | .603 | .520 | 2.888** | 6.801*** | 3.231* | .496 |
| (Post-Treatment Effect) | (.939) | (.794) | (.887) | (1.204) | (1.225) | (1.483) | (1.478) | (1.300) |
| Suffrage Restricted by Income, Literacy and Property Requirement | | -5.889*** | | -1.101 | | -7.851*** | | -2.228* |
| (Post-Treatment Effect) | | (1.432) | | (1.330) | | (2.322) | | (1.041) |
| Suffrage Restricted by Fraud and Oppression | | | -2.817* | -2.850* | | | -1.357 | -1.497 |
| (Post-Treatment Effect) | | | (1.364) | (1.519) | | | (2.187) | (1.995) |
| Female Suffrage | 3.224*** | | | -.342 | 9.763*** | | | 3.762** |
| (Post-Treatment Effect) | (.670) | | | (.976) | (1.450) | | | (1.358) |
| Universal Suffrage with Free and Fair Elections | | | 7.095*** | 6.713*** | | | 15.065*** | 12.771*** |
| (Post-Treatment Effect) | | | (1.077) | (.954) | | | (1.071) | (.965) |
| Treatment Effects | Y | Y | Y | Y | Y | Y | Y | Y |
| F-Test on Joint Significance of Post-Treatment Effects | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| (p-value) | | | | | | | | |
| Country-Fixed Effects | Y | Y | Y | Y | Y | Y | Y | Y |
| Observations | 1,917 | 1,917 | 1,917 | 1,917 | 1,917 | 1,917 | 1,917 | 1,917 |
| R2 | 0.51 | 0.05 | 0.30 | 0.30 | 0.36 | 0.27 | 0.52 | 0.52 |
| Hansen J-Test of Overidentifying Restrictions (p-value) | 0.67 | 0.25 | 0.28 | 0.27 | 0.11 | 0.27 | 0.11 | 0.32 |
| Cragg-Donald Weak Identification Test (p-value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Notes*: the table presents IV-2SLS and DiD estimates of institutional changes and the effects on long-run economic growth and development of Latin America. Treatment effects of institutional changes are estimated but not reported. Standard errors in the parentheses are clustered across and within countries over time using Cameron-Gelbach-Miller non-nested multi-way clustering scheme for finite-sample adjustment of the empirical distribution function and cluster-robust coefficient inference to remove the inconsistencies arising from arbitrary heteroskedasticity and serially correlated disturbances. Asterisks denote statistically significant coefficients at 10% (*), 5% (**), and 1% (***) respectively.

**Table 5**: Instrumental Variables and Difference-in-Difference Estimated Model of Long-Run Economic Growth and Institutional Change in Latin America Across Subsamples, 1800-2012

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Excluding Pre-1820 Period | | Excluding Pre-1830 Period | | Excluding Pre-1850 Period | | Excluding Pre-1870 Period | |
| *Panel C::Endogenous (Structural) Long-Run Growth Model Setup* | | | | | | | | |
| Polity2 Score | .144*** | | .139*** | | .125*** | | .112*** | |
| | (.013) | | (.012) | | (.012) | | (.012) | |
| Vanhanen Index of Democracy | | .085*** | | .083*** | | .078*** | | .070*** |
| | | (.013) | | (.012) | | (.012) | | (.011) |
| *Panel D: First-Stage Difference-in-Differences (DiD) OLS Regression for Polity2 Score and Vanhanen Index of Democracy* | | | | | | | | |
| Abolition of Slavery | .794 | -.018 | 1.553 | -.310 | 3.579** | -.037 | 4.339** | .028 |
| (Post-Treatment Effect) | (1.259) | (1.013) | (.668) | (1.416) | (1.404) | (1.901) | (1.672) | (2.156) |
| De Jure Constitutional Suffrage | 2.548* | 1.715 | 2.098 | 1.929 | 2.055 | 2.070 | 2.219 | 2.102 |
| (Post-Treatment Effect) | (1.246) | (1.676) | (1.247) | (1.900) | (1.367) | (2.128) | (1.666) | (2.149) |
| De Facto Suffrage Extension | .467 | .141 | .543 | .003 | .622 | -.198 | .529 | -.446 |
| (Post-Treatment Effect) | (1.147) | (1.391) | (1.147) | (1.419) | (1.254) | (1.423) | (1.314) | (1.369) |
| Suffrage Restricted by Income, Literacy and Property Requirement | -1.713 | -2.538* | -2.267 | -2.522* | -2.370 | -2.220 | -2.629 | -1.851 |
| (Post-Treatment Effect) | (1.322) | (1.241) | (1.493) | (1.375) | (1.382) | (1.484) | (1.672) | (1.569) |
| Suffrage Restricted by Fraud and Oppression | -2.803* | -1.157 | -2.832* | -1.076 | -2.836* | -.910 | -2.994* | -.696 |
| (Post-Treatment Effect) | (1.416) | (2.021) | (1.369) | (2.028) | (1.477) | (2.032) | (1.459) | (2.045) |
| Female Suffrage | -.419 | 3.669** | -.573 | 3.668** | -.984 | 3.645** | -1.235 | 3.613** |
| (Post-Treatment Effect) | (1.016) | (1.372) | (1.042) | (1.398) | (.919) | (1.380) | (.967) | (1.340) |
| Universal Suffrage with Free and Fair Elections | 6.464*** | 13.035*** | 6.238*** | 13.141*** | 6.381*** | 13.508*** | 6.147*** | 14.015*** |
| (Post-Treatment Effect) | (.905) | (.937) | (.913) | (.946) | (.987) | (.949) | (1.069) | (.971) |
| Observations | 1,728 | 1,728 | 1,638 | 1,638 | 1,467 | 1,467 | 1,287 | 1,287 |
| Country-Fixed Effects | YES | YES | YES | YES | YES | YES | YES | YES |
| First-Stage F-Test on Joint Significance of Post-Treatment Effects (p-value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Hansen J-Test of Overidentifying Restrictions (p-value) | 0.27 | 0.32 | 0.26 | 0.27 | 0.26 | 0.44 | 0.28 | 0.41 |
| Cragg-Donald Weak Identitifcation Wald Test (p-value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Notes*: the table presents IV-2SLS and DiD estimates of institutional changes and the effects on long-run economic growth and development of Latin America using temporal exclusion criteria to test the robustness of the underlying estimates from Table 5. Treatment effects of institutional changes are estimated but not reported. Standard errors in the parentheses are clustered across countries and within countries over time using Cameron-Gelbach-Miller non-nested multi-way clustering scheme for finite-sample adjustment of the empirical distribution function and cluster-robust coefficient inference to remove the inconsistencies arising from arbitrary heteroskedasticity and serially correlated residuals. Asterisks denote statistically significant coefficients at 10% (*), 5% (**), and 1% (***) respectively.

**Table 6**: Instrumental Variables and Difference-in-Difference Estimated Model of Long-Run Economic Growth and Institutional Change in Latin America, 1800-2000 (Exclusion Restrictions)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| *Excluded Subset:* | Argentina | Bolivia | Brazil | Chile | Colombia | Mexico | Peru | Uruguay | Venezuela |
| *Panel E: Structural Long-Run Growth Model Setup* | | | | | | | | | |
| Polity2 Index | .149*** | .149*** | .144*** | .147*** | .131*** | .144*** | .141*** | .151*** | .131*** |
| | (.014) | (.013) | (.014) | (.013) | (.013) | (.013) | (.014) | (.014) | (.012) |
| Vanhanen Index of Democracy | .088*** | .087*** | .088*** | .085*** | .076*** | .083*** | .085*** | .094*** | .078*** |
| | (.014) | (.014) | (.015) | (.014) | (.011) | (.013) | (.014) | (.011) | (.013) |
| *Panel F: Reduced-Form (First-Stage) Difference-in-Differences OLS Regression for Polity2 Index* | | | | | | | | | |
| Abolition of Slavery | .927 | .302 | -.394 | .855 | .948 | 1.102 | 1.677 | .879 | 1.615 |
| (Post-Treatment Effect) | (1.677) | (1.136) | (.906) | (1.464) | (1.300) | (1.663) | (1.686) | (1.495) | (1.488) |
| De Jure Constitutional Suffrage | 2.478 | 3.874*** | 2.518* | 2.528* | 3.696** | 2.655 | 2.430 | 2.515 | 2.058 |
| (Post-Treatment Effect) | (1.456) | (1.193) | (1.194) | (1.303) | (1.460) | (1.518) | (1.574) | (1.411) | (1.292) |
| De Facto Suffrage Extension | .559 | .473 | .094 | 1.143 | 1.533 | .539 | -.368 | .038 | .719 |
| (Post-Treatment Effect) | (1.321) | (1.312) | (1.481) | (1.098) | (1.113) | (1.486) | (1.057) | (1.262) | (1.356) |
| Suffrage Restricted by Income, Literacy and Property Requirement | -1.536 | -.873 | -1.277 | -1.237 | .484 | -1.204 | -1.721 | -1.025 | -1.431 |
| (Post-Treatment Effect) | (1.602) | (1.403) | (1.299) | (1.476) | (.618) | (1.535) | (1.307) | (1.372) | (1.452) |
| Suffrage Restricted by Fraud and Oppression | -2.612 | -3.025 | -2.008 | 2.509 | -4.394*** | -2.756 | -3.343* | -2.221 | -3.057* |
| (Post-Treatment Effect) | (1.632) | (1.737) | (1.769) | (1.498) | (1.153) | (1.586) | (1.617) | (1.546) | (1.504) |
| Female Suffrage | -.338 | -.473 | -.702 | -1.085 | .061 | -.277 | .341 | -.317 | -.508 |
| (Post-Treatment Effect) | (1.299) | (.983) | (1.132) | (.804) | (1.050) | (1.274) | (1.004) | (1.131) | (1.007) |
| Universal Suffrage with Free and Fair Elections | 6.579 | 6.262*** | 7.528*** | 6.855*** | 6.633*** | 6.589*** | 6.612*** | 7.337*** | 6.320*** |
| (Post-Treatment Effect) | (1.048) | (.869) | (1.305) | (1.068) | (.917) | (.980) | (1.030) | (1.312) | (.861) |
| *Panel G: Reduced-Form (First-Stage) Difference-in-Differences OLS Regression for Vanhanen Index of Democracy* | | | | | | | | | |
| Abolition of Slavery | .058 | .116 | -.133 | .059 | .004 | -.191 | .017 | .883 | -.163 |
| (Post-Treatment Effect) | (.715) | (.840) | (.578) | (.944) | (.760) | (1.024) | (1.085) | (.574) | (1.123) |
| De Jure Constitutional Suffrage | 2.247 | 1.264 | 1.820 | 1.815 | 2.515 | 1.804 | 1.693 | .250 | 1.911 |
| (Post-Treatment Effect) | (1.433) | (1.461) | (1.389) | (1.536) | (1.714) | (1.567) | (1.682) | (.722) | (1.774) |
| De Facto Suffrage Extension | .583 | .333 | .562 | .746 | 1.994* | .239 | -.049 | -.014 | -.122 |
| (Post-Treatment Effect) | (1.418) | (1.437) | (1.652) | (1.295) | (.928) | (1.424) | (1.289) | (1.168) | (1.361) |
| Suffrage Restricted by Income, Literacy and Property Requirement | -1.733 | -2.680** | -1.555 | -2.703*** | -1.466 | -2.601** | -2.450* | -1.964 | -2.486** |
| (Post-Treatment Effect) | (1.192) | (1.111) | (.952) | (.871) | (1.370) | (1.111) | (1.241) | (1.125) | (1.089) |
| Suffrage Restricted by Fraud and Oppression | -2.110 | -1.189 | -.925 | -1.072 | -3.649* | -1.130 | -1.678 | -.317 | -1.057 |
| (Post-Treatment Effect) | (2.127) | (2.020) | (2.506) | (2.011) | (1.817) | (2.023) | (2.192) | (1.599) | (1.953) |
| Female Suffrage | 3.549* | 3.735** | 4.380*** | 2.778* | 4.160** | 4.143** | 4.171** | 3.143** | 4.098** |
| (Post-Treatment Effect) | (1.729) | (1.439) | (1.363) | (1.373) | (1.425) | (1.497) | (1.474) | (1.396) | (1.360) |
| Universal Suffrage with Free and Fair Elections | 12.521*** | 13.297*** | 12.285*** | 12.909*** | 13.032*** | 12.514*** | 12.986*** | 13.156*** | 13.153*** |
| (Post-Treatment Effect) | (.963) | (.967) | (.871) | (.967) | (1.384) | (1.063) | (1.044) | (.895) | (1.269) |
| Observations | 1,696 | 1,696 | 1,696 | 1,696 | 1,696 | 1,696 | 1,696 | 1,696 | 1,696 |
| R2 (Polity2) | 0.33 | 0.38 | 0.38 | 0.28 | 0.37 | 0.33 | 0.36 | 0.28 | 0.29 |
| R2 (Vanhanen ID) | 0.53 | 0.52 | 0.52 | 0.75 | 0.56 | 0.53 | 0.53 | 0.57 | 0.52 |
| Country-Fixed Effects | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Hansen J-Test of Overidentifying Restrictions (p-value) | 0.31 | 0.31 | 0.34 | 0.35 | 0.35 | 0.32 | 0.33 | 0.33 | 0.35 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Polity2 | | | | | | | | | |
| Hansen J-Test of Overidentifying Restrictions (p-value) | 0.35 | 0.35 | 0.34 | 0.36 | 0.41 | 0.36 | 0.40 | 0.35 | 0.40 |
| Vanhanen ID | | | | | | | | | |
| Cragg-Donald Weak Identitifcation Test (p-value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Notes*: the table presents IV-2SLS and DiD estimates of institutional changes and the effects on long-run economic growth and development of Latin America using multiple exclusion criteria to test the robustness of the underlying estimates from Table 4. Treatment effects of institutional changes are estimated but not reported. Standard errors in the parentheses are clustered across countries and within countries over time using Cameron-Gelbach-Miller non-nested multi-way clustering scheme for finite-sample adjustment of the empirical distribution function and cluster-robust coefficient inference to remove the inconsistencies arising from arbitrary heteroskedasticity and serially correlated residuals. Asterisks denote statistically significant coefficients at 10% (*), 5% (**), and 1% (***) respectively.

**Table 7**: Extreme Bounds Analysis of De Jure and De Facto Political Institutions

| | βweighted | βmin | βmax | 95% Confidence Interval for βmin σ | Pr(β>0, α = .05) | 95% Confidence Interval for βmax CDF(β>0 Normal | CDF(β>0) Generic | Verdict |
|---|---|---|---|---|---|---|---|---|
| *Panel A: Difference-in-Differences Model Setup for Institutional Changes (Polity2)* | | | | | | | | |
| *Treatment Effects* | | | | | | | | |
| Universal Suffrage with Free and Fair Elections | 2.988 | -1.124 | 5.881 | 1.291 | 66.414 | .989 | .842 | Robust |
| De Facto Suffrage Extension | 2.230 | -0.212 | 5.640 | 2.230 | 19.236 | .917 | .886 | Robust |
| De Jure Constitutional Suffrage | .390 | -2.888 | 2.723 | 1.433 | 0.379 | .606 | .590 | Moderate |
| Female Suffrage | -.105 | -3.213 | 2.973 | 1.405 | 0.275 | .470 | .489 | Fragile |
| Abolition of Slavery | -.019 | -3.764 | 1.385 | 1.488 | 0.000 | .449 | .467 | Fragile |
| Suffrage Restricted by Income, Literacy and Property Requirement | -.046 | -5.667 | 1.681 | 1.479 | 0.000 | .378 | .436 | Fragile |
| Suffrage Restricted by Fraud and Oppression | -1.101 | -3.782 | 0.734 | 1.085 | 0.000 | .156 | .223 | Fragile |
| *Post-Treatment Effects* | | | | | | | | |
| Universal Suffrage with Free and Fair Elections | 9.040 | 7.088 | 11.182 | .335 | 100.00 | 1.000 | 1.000 | Robust |
| Abolition of Slavery | 4.225 | 2.427 | 7.776 | .276 | 100 | 1.000 | 1.000 | Robust |
| De Jure Constitutional Suffrage | 3.881 | 2.409 | 6.725 | .229 | 100 | 1.000 | 1.000 | Robust |
| Female Suffrage | 2.795 | -1.088 | 6.996 | .326 | 76.78 | 1.000 | .901 | Robust |
| De Facto Suffrage Extension | 1.855 | -1.629 | 7.141 | .321 | 64.19 | 1.000 | .754 | Robust |
| Suffrage Restricted by Income, Literacy and Property Requirement | -0.482 | -3.945 | 1.609 | .239 | 28.97 | .021 | .435 | Moderate |
| Suffrage Restricted by Fraud and Oppression | -3.854 | -6.623 | -0.256 | .276 | 0.000 | .000 | .002 | Robust |
| *Panel B: Difference-in-Differences Model Setup for Institutional Changes (Vanhanen Index of Democracy)* | | | | | | | | |
| *Treatment Effects* | | | | | | | | |
| Female Suffrage | 2.683 | -2.374 | 14.238 | .391 | 5.334 | .929 | .843 | Robust |
| Universal Suffrage with Free and Fair Elections | 14.397 | 10.418 | 18.867 | .398 | 100.00 | 1.000 | .813 | Robust |
| De Facto Suffrage Extension | 1.316 | -3.096 | 6.318 | 1.830 | 7.571 | .737 | .708 | Robust |
| De Jure Constitutional Suffrage | 1.830 | -4.845 | 2.414 | 1.898 | 0.000 | .528 | .548 | Fragile |
| Suffrage Restricted by Fraud and Oppression | -4.417 | -9.066 | 1.301 | .352 | 0.000 | .000 | .540 | Fragile |
| Suffrage Restricted by Income, Literacy and Property Requirement | -1.314 | -9.915 | 1.088 | 1.888 | 0.000 | .246 | .325 | Fragile |
| Abolition of Slavery | -1.067 | -6.618 | 10.162 | .255 | 0.000 | .290 | .321 | Fragile |
| *Post-Treatment Effects* | | | | | | | | |
| Female Suffrage | 8.339 | 3.397 | 14.238 | .391 | 100.00 | 1.000 | 1.000 | Robust |
| Universal Suffrage with Free and Fair Elections | 14.397 | 10.418 | 18.867 | .398 | 100.00 | 1.000 | 1.000 | Robust |
| Abolition of Slavery | 2.151 | -.071 | 8.375 | .361 | 79.07 | 1.000 | .949 | Robust |
| De Jure Constitutional Suffrage | 2.578 | .656 | 8.225 | .300 | 100.00 | 1.000 | .999 | Robust |
| De Facto Suffrage Extension | 6.050 | .391 | 13.959 | .391 | 99.69 | 1.000 | .999 | Robust |
| Suffrage Restricted by Income, Literacy and Property Requirement | -3.606 | -9.575 | -.871 | .297 | 0.000 | .000 | .000 | Robust |
| Suffrage Restricted by Fraud and Oppression | -4.417 | -9.066 | 1.301 | .352 | 5.334 | .000 | .074 | Robust |
| Total Number of Regressions | 1,319,892 | | | | | | | |

*Notes*: Asterisks denote statistically significant extreme bounds of regression coefficients at 10% (*), 5% (**), and 1% (***) respectively.

**Table 8**: Standardized Effects of Political Institutions on Long-Run Development

| | De Jure | | De Facto | |
|---|---|---|---|---|
| | Polity2 Index | | Vanhanen Index of Democracy | |
| | Within-Country | Between-Country | Within-Country | Between-Country |
| **Full Sample** | **0.12** | **0.81** | **0.09** | **0.56** |
| *Panel A: Excluded Subset* | | | | |
| Argentina | 0.12 | 1.74 | 0.12 | 0.66 |
| Bolivia | 0.11 | 1.74 | 0.11 | 1.14 |
| Brazil | 0.11 | 0.81 | 0.07 | 0.39 |
| Chile | 0.13 | 1.64 | 0.10 | 0.99 |
| Colombia | 0.11 | 0.73 | 0.09 | 0.47 |
| Mexico | 0.12 | 0.66 | 0.09 | 0.47 |
| Peru | 0.12 | 0.85 | 0.11 | 0.58 |
| Uruguay | 0.12 | 0.83 | 0.10 | 0.34 |
| Venezuela | 0.12 | 1.71 | 0.11 | 1.18 |
| *Panel B: Excluded Period* | | | | |
| Pre-1820 | 0.10 | 0.91 | 0.07 | 0.41 |
| Pre-1830 | 0.10 | 0.96 | 0.07 | 0.43 |
| Pre-1850 | 0.08 | 0.81 | 0.05 | 0.36 |
| Pre-1870 | 0.03 | 0.31 | 0.03 | 0.28 |

Notes: the table presents the standardized effects of de jure and de facto political institutions on the paths of long-run development within and across Latin American countries. The baseline standardized effects is decomposed into "within-country" and "between-country" component. Panel A presents the standardized effects on the subsamples with a single excluded country per subsample based on Table 7. Panel B presents the standardized effects on time-specific subsamples by specifically excluding each period from the full sample based on the underlying estimates in Table 5.

**Table 9**: Standardized Effects of Electoral Laws on Political Institutions

| | De Jure | | De Facto | |
|---|---|---|---|---|
| | Polity2 Index | | Vanhanen Index of Democracy | |
| | Within-Country | Between-Country | Within-Country | Between-Country |
| *Panel A: Treatment Effects* | | | | |
| Abolition of Slavery | 0.05 | 0.18 | -0.01 | 0.00 |
| De Jure Constitutional Suffrage) | 0.01 | 0.02 | 0.02 | 0.00 |
| De Facto Suffrage Extension | 0.03 | 0.09 | 0.01 | 0.00 |
| Suffrage Restricted by Income, Literacy and Property Requirement | 0.00 | 0.00 | -0.01 | 0.00 |
| Suffrage Restricted by Fraud and Oppression | -0.02 | -0.06 | -0.05 | -0.02 |
| Female Suffrage | 0.00 | 0.00 | 0.02 | 0.00 |
| Universal Suffrage with Free and Fair Elections | 0.04 | 0.14 | 0.14 | 0.03 |
| *Panel B: Post-Treatment Effects* | | | | |
| Abolition of Slavery | 0.30 | 0.25 | 0.10 | 0.11 |
| De Jure Constitutional Suffrage) | 0.31 | 0.62 | 0.13 | 0.36 |
| De Facto Suffrage Extension | 0.16 | 0.11 | 0.34 | 0.32 |
| Suffrage Restricted by Income, Literacy and Property Requirement | -0.04 | -0.06 | -0.19 | -0.41 |
| Suffrage Restricted by Fraud and Oppression | -0.26 | -0.31 | -0.20 | -0.31 |
| Female Suffrage | 0.23 | 0.08 | 0.46 | 0.20 |
| Universal Suffrage with Free and Fair Elections | 0.59 | 0.33 | 0.62 | 0.46 |

Notes: the table presents the standardized effects of electoral laws on de jure and de facto political institutions within and across countries. The set of standardized effects is decomposed into "within-country" and "between-country" component. Panel A presents the standardized treatment effects while Panel B displays the standardized post-treatment effects of electoral laws.

**Table 10**: Causal Effects of Electoral Provisions on Institutional Development of Latin America, 1800-2012

| | Abolition of Slavery | | Constitution De Jure Suffrage Guarantee | | De Facto Suffrage Extension | | Female Suffrage | | Suffrage Restricted by Income, Literacy Req. | | Suffrage Restricted by Electoral Fraud and Oppresion | | Full Suffrage with Free and Fair Elections | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre- | Post- | Pre- | Post- | Pre- | Post- | Pre- | Post- | Pre- | Post- | Pre- | Post- | Pre- | Post- |
| *Panel A: Causal Effects of Electoral Law on Long-Run Development via De Jure Political Institutions* | | | | | | | | | | | | | | |
| Full Sample | 0.00 | 0.00 | 0.33 | 0.01 | 0.06 | 0.00 | 0.76 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| Excluded Subset: | | | | | | | | | | | | | | |
| Argentina | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.70 | 0.00 | 0.01 | 0.07 | 0.00 | 0.01 | 0.00 | 0.00 |
| Bolivia | 0.01 | 0.07 | 0.02 | 0.00 | 0.05 | 0.00 | 0.10 | 0.00 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 | 0.00 |
| Brazil | 0.19 | 0.00 | 0.28 | 0.00 | 0.00 | 0.00 | 0.66 | 0.00 | 0.00 | 0.40 | 0.00 | 0.01 | 0.00 | 0.00 |
| Chile | 0.03 | 0.01 | 0.00 | 0.00 | 0.06 | 0.00 | 0.59 | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| Colombia | 0.09 | 0.01 | 0.09 | 0.01 | 0.06 | 0.01 | 0.14 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Mexico | 0.10 | 0.00 | 0.09 | 0.01 | 0.01 | 0.03 | 0.65 | 0.00 | 0.01 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| Peru | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.03 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| Uruguay | 0.19 | 0.01 | 0.15 | 0.01 | 0.03 | 0.00 | 0.01 | 0.00 | 0.03 | 0.04 | 0.00 | 0.06 | 0.00 | 0.00 |
| Venezuela | 0.18 | 0.01 | 0.02 | 0.00 | 0.09 | 0.00 | 0.24 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| *Panel B: Causal Effects of Electoral Law on Long-Run Development via De Facto Political Institutions* | | | | | | | | | | | | | | |
| Full Sample | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.05 | 0.00 | 0.00 |
| Excluded Subset: | | | | | | | | | | | | | | |
| Argentina | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.05 | 0.00 | 0.00 |
| Bolivia | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.05 | 0.13 | 0.00 | 0.00 |
| Brazil | 0.10 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.09 | 0.00 | 0.00 |
| Chile | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.09 | 0.00 | 0.00 |
| Colombia | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.01 | 0.00 | 0.00 | 0.00 |
| Mexico | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 | 0.18 | 0.02 | 0.00 | 0.00 |
| Peru | 0.01 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.04 | 0.00 | 0.00 |
| Uruguay | 0.06 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.03 | 0.00 | 0.00 |
| Venezuela | 0.01 | 0.00 | 0.01 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 | 0.03 | 0.05 | 0.00 | 0.00 |
| # Observations | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 | 1,544 |

Notes: the table reports the p-values on the joint significance of pre-electoral law and post-electoral law effects on the paths of de jure and de facto institutional development using Granger (1969) causality test. Each specification features the vector of control variables from the baseline model setup, country-fixed effects, and time-fixed effects to account for the unobserved heterogeneity bias in the underlying parameter estimates. Standard errors are clustered at the country level using Huber-Eickner-White robust variance-covariance matrix estimator to allow for serially correlated stochastic disturbances and heteroskedastic distribution of error variance.

**Table 11**: DiD Specification Check with Country-Specific Time Trends

| | (1) Abolition of Slavery | (2) Constitutional De Jure Suffrage Guarantee | (3) De Facto Suffrage Extension | (4) Female Suffrage Extension | (5) Suffrage Restricted by Income, Literacy or Property Requirement | (6) Suffrage Restricted by Electoral Fraud and Oppression | (7) Full Suffrage with Free and Fair Elections |
|---|---|---|---|---|---|---|---|
| *Panel A: Effects of Electoral Laws on De Jure Institutional Development* | | | | | | | |
| Full-Sample Effect | 3.296*** | 4.208*** | 4.364*** | 5.147*** | -6.177*** | -3.426*** | 9.525*** |
| without Trends | (1.490) | (1.244) | (1.116) | (.762) | (.795) | (.691) | (.633) |
| Full-Sample Effect | 3.421*** | 5.203*** | 5.020*** | 5.321*** | -5.110*** | -3.146*** | 9.563*** |
| with Trends | (1.280) | (1.162) | (.985) | (1.056) | (1.053) | (.630) | (.685) |
| Excluded Subset: | | | | | | | |
| Argentina | 2.856* | 5.121*** | 5.165*** | 5.417*** | -6.762*** | -2.986*** | 9.717*** |
| | (1.654) | (1.251) | (1.087) | (.856) | (.774) | (.702) | (.783) |
| Bolivia | 3.405*** | 5.868*** | 5.230*** | 5.480*** | -6.103*** | -3.000*** | 9.440*** |
| | (1.354) | (1.008) | (1.087) | (.880) | (.874) | (.660) | (.762) |
| Brazil | 2.076 | 5.091*** | 4.838*** | 5.184*** | -5.765*** | -3.100*** | 9.295*** |
| | (1.324) | (1.364) | (1.095) | (.899) | (.692) | (.782) | (.700) |
| Chile | -1.590 | 1.858 | 2.014 | 2.566* | -4.047*** | -5.157*** | 8.775*** |
| | (1.297) | (1.512) | (1.987) | (1.548) | (.990) | (.801) | (.938) |
| Colombia | 3.681*** | 5.310*** | 4.825*** | 5.187*** | -6.119*** | -3.149*** | 9.903*** |
| | (1.336) | (1.414) | (1.133) | (.927) | (.949) | (.740) | (.756) |
| Mexico | 3.755*** | 5.704*** | 5.385*** | 5.518*** | -6.505*** | -3.468*** | 9.469*** |
| | (1.241) | (1.258) | (1.070) | (.890) | (.881) | (.683) | (.712) |
| Peru | 4.075*** | 5.195*** | 5.262*** | 5.522*** | -6.313*** | -3.517*** | 9.906*** |
| | (1.168) | (1.181) | (1.097) | (.866) | (.878) | (.646) | (.685) |
| Uruguay | 3.448*** | 4.978*** | 4.834*** | 5.268*** | -6.223*** | -2.937*** | 9.553*** |
| | (1.298) | (1.396) | (1.105) | (.904) | (.955) | (.620) | (.770) |
| Venezuela | 3.569*** | 4.244*** | 4.254*** | 4.657*** | -5.735*** | -3.315*** | 9.122*** |
| | (1.267) | (.924) | (.711) | (.515) | (.794) | (.652) | (.611) |
| *Panel B: Effects of Electoral Laws on De Facto Institutional Development* | | | | | | | |
| Full-Sample Effect | 5.476*** | 6.427*** | 11.286*** | 12.927*** | -10.477*** | -3.113*** | 18.749*** |
| without Trends | (-.755) | (1.906) | (1.687) | (1.590) | (2.618) | (1.220) | (2.128) |
| Full-Sample Effect | 5.645*** | 9.015*** | 11.479*** | 12.777*** | -12.642*** | -2.737** | 18.924*** |
| with Trends | (.754) | (2.214) | (1.548) | (1.497) | (1.941) | (1.169) | (2.045) |
| Excluded Subset: | | | | | | | |
| Argentina | 4.932*** | 9.019*** | 11.162*** | 12.142*** | -12.690*** | -3.315*** | 18.618*** |
| | (.872) | (2.430) | (1.673) | (1.471) | (2.358) | (1.189) | (2.329) |
| Bolivia | 5.734*** | 9.663*** | 11.694*** | 13.094*** | -12.759*** | -2.972** | 19.357*** |
| | (.778) | (2.210) | (1.747) | (1.668) | (2.196) | (1.224) | (2.244) |
| Brazil | 5.273*** | 9.475*** | 11.726*** | 13.242*** | -11.801*** | -1.734** | 18.367*** |
| | (1.204) | (2.537) | (1.750) | (1.642) | (1.809) | (.840) | (2.153) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chile | -5.920*** | .321 | 3.823 | 7.671*** | -7.610*** | -7.460*** | 15.091*** |
| | (1.224) | (2.417) | (2.639) | (1.583) | (1.671) | (1.694) | (1.760) |
| Colombia | 5.970*** | 9.762*** | 11.839*** | 13.339*** | -14.198*** | -2.696** | 20.588*** |
| | (.627) | (2.509) | (1.745) | (1.582) | (1.396) | (1.369) | (1.730) |
| Mexico | 5.801*** | 9.559*** | 12.225*** | 13.217*** | -13.205*** | -3.139** | 18.914*** |
| | (.860) | (2.554) | (1.565) | (1.642) | (2.185) | (1.349) | (2.189) |
| Peru | 5.874*** | 9.176*** | 11.943*** | 12.926*** | -12.546*** | -2.875** | 19.249*** |
| | (.779) | (2.282) | (1.702) | (1.665) | (2.183) | (1.349) | (2.308) |
| Uruguay | 5.573*** | 7.282*** | 10.507*** | 11.777*** | -11.779*** | -2.317** | 17.585*** |
| | (.794) | (1.867) | (1.364) | (1.280) | (2.081) | (1.184) | (1.685) |
| Venezuela | 5.615*** | 7.780*** | 10.656*** | 12.302*** | -12.223*** | -2.825** | 18.897*** |
| | (.626) | (2.320) | (1.458) | (1.586) | (2.211) | (1.195) | (2.384) |

Notes: the table presents the effects of electoral laws on the paths of de jure and de facto institutional development with the country-specific time trends to control for different rates of institutional changes following the enforcement of electoral laws. Panel A demonstrates the effects on de jure institutional development whilst Panel B presents the effects on de facto institutional development using the full sample and country-specific sub-samples where each individual country is piecewise excluded from the full sample. Each specification features the set of core explanatory variables, country-fixed effects and time-fixed effects. Standard errors are adjusted for arbitrary heteroskedastic distrbution of error variance and serially correlated stochastic disturbances across and within countriey using the Cameron et. al. (2011) multiway clustering scheme and finite-sample empirical distributional function to overcome the distributional weaknesses of Huber-Eickner-White robust variance-covariance matrix estimator to address the potential over-rejection of the null hypothesis in the absence of country- and time-clustered standard errors. The standard errors are denoted in the parentheses. Asterisks denote statistically significant effects of electoral laws on de jure and de facto institutional development at 10% (*), 5% (**), and 1% (***), respectively.

**Table 12**: Summary of the Counterfactual Scenario

| Country | Real GDP Per Capita in 2012 | | | Implicit Gain | Ratio of GDP Per Capita to the U.S GDP Per Capita | | Implicit Gain |
|---|---|---|---|---|---|---|---|
| | Observed | Counterfactual | Country Equivalent | | Observed | Counterfactual | |
| Argentina | 10,875 | 20,561 | Germany | 89% | 34% | 65% | 31 p.p. |
| Bolivia | 3,280 | 9,482 | Thailand | 189% | 10% | 30% | 20 p.p. |
| Brazil | 7,015 | 10,787 | Poland | 53% | 22% | 34% | 12 p.p |
| Chile | 15,204 | 16,451 | Spain | 8% | 48% | 52% | 4 p.p |
| Colombia | 7,625 | 9,520 | Hungary | 24% | 24% | 30% | 6 p.p. |
| Mexico | 8,142 | 14,871 | Czech Republic | 82% | 26% | 47% | 21 p.p. |
| Peru | 6,354 | 11,172 | Armenia | 75% | 20% | 35% | 15 p.p |
| Uruguay | 12,738 | 16,534 | Spain | 29% | 40% | 52% | 12 p.p |
| Venezuela | 9,644 | 13,352 | Czech Republic | 38% | 30% | 42% | 22 p.p. |

**Table 13**: Counterfactual Scenario Benchmark

| | Argentina | Bolivia | Brazil | Chile | Colombia | Mexico | Peru | Uruguay | Venezuela |
|---|---|---|---|---|---|---|---|---|---|
| Observed Real GDP Per Capita in 2012 ($1990 Geary-Khamis) | 10,875 | 3,280 | 7,015 | 15,204 | 7,625 | 8,142 | 6,354 | 12,738 | 9,644 |
| *Panel A: Counterfactual Benchmark Country: United States* | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 20,561 | 9,482 | 10,787 | 16,451 | 9,520 | 14,871 | 11,172 | 16,534 | 13,352 |
| Nearest Country Equivalent | Germany | Thailand | Poland | Spain | Hungary | Czech Rep. | Armenia | Spain | Czech Rep. |
| Implicit Gain/Loss | 89% | 189% | 53% | 8% | 24% | 82% | 75% | 29% | 38% |
| Ratio of GDP Per Capita to the U.S GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.34 | 0.10 | 0.22 | 0.48 | 0.24 | 0.26 | 0.20 | 0.40 | 0.30 |
| - Counterfactual | 0.65 | 0.30 | 0.34 | 0.52 | 0.30 | 0.47 | 0.35 | 0.52 | 0.45 |
| Implicit Gain/Loss | 31 p.p. | 20 p.p. | 12 p.p. | 4 p.p. | 6 p.p. | 21 p.p. | 15 p.p. | 12 p.p. | 22 p.p. |
| *Panel B: Counterfactual Benchmark Country: Australia* | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 23,372 | 10,811 | 12,312 | 18,719 | 10,843 | 16,989 | 12,725 | 18,719 | 15,204 |
| Nearest Country Equivalent | Belgium | Malaysia | Poland | Spain | Thailand | Greece | Armenia | Italy | Portugal |
| Implicit Gain/Loss | 114% | 229% | 75% | 23% | 42% | 108% | 100% | 46% | 57% |
| Ratio of GDP Per Capita to the Australian GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.40 | 0.12 | 0.26 | 0.56 | 0.28 | 0.30 | 0.23 | 0.47 | 0.35 |
| - Counterfactual | 0.87 | 0.40 | 0.45 | 0.69 | 0.40 | 0.63 | 0.47 | 0.69 | 0.56 |
| Implicit Gain | 47 p.p. | 28 p.p. | 19 p.p. | 13 p.p. | 12 p.p. | 33 p.p. | 24 p.p. | 22 p.p. | 21 p.p. |
| *Panel C: Counterfactual Benchmark Country: Canada* | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 15,161 | 7,012 | 7,986 | 12,143 | 7,034 | 11,020 | 8,254 | 12,143 | 9,862 |
| Nearest Country Equivalent | Czech Rep. | Iran | China | Poland | Jordan | Croatia | Serbia | Portugal | Hungary |
| Implicit Gain/Loss | 39% | 113% | 13% | -20% | -8% | 35% | 29% | -5% | 2% |
| Ratio of GDP Per Capita to the Canadian GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.41 | 0.12 | 0.26 | 0.58 | 0.29 | 0.31 | 0.24 | 0.48 | 0.37 |
| - Counterfactual | 0.58 | 0.26 | 0.30 | 0.46 | 0.27 | 0.42 | 0.31 | 0.46 | 0.37 |
| Implicit Gain/Loss | 17 p.p. | 14 p.p. | 4 p.p. | -12 p.p | -2 p.p. | 11 p.p | 7 p.p. | -2 p.p. | None |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Panel D: Counterfactual Benchmark Country: United Kingdom* | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 19,890 | 9,200 | 10,477 | 15,930 | 9,227 | 14,457 | 10,829 | 15,930 | 12,938 |
| Nearest Country Equivalent | Slovenia | Hungary | Malaysia | Czech Rep. | Russia | Kuwait | Thailand | South Korea | Croatia |
| Implicit Gain/Loss | 82% | 180% | 49% | 4.7% | 21% | 77% | 70% | 25% | 34% |
| Ratio of GDP Per Capita to the UK GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.42 | 0.12 | 0.27 | 0.59 | 0.29 | 0.32 | 0.24 | 0.50 | 0.37 |
| - Counterfactual | 0.78 | 0.36 | 0.41 | 0.62 | 0.36 | 0.56 | 0.42 | 0.62 | 0.50 |
| Implicit Gain/Loss | 36 p.p. | 24 p.p. | 14 p.p | 3 p.p. | 7 p.p. | 24 p.p. | 18 p.p. | 12 p.p. | 13 p.p. |
| *Panel E: Counterfactual Benchmark Country: France* | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 13,814 | 6,389 | 7,277 | 11,064 | 6,409 | 10,041 | 7,521 | 11,064 | 8,968 |
| Nearest Country Equivalent | Portugal | Tunisia | Iran | Malaysia | Macedonia | Bulgaria | China | Poland | Oman |
| Implicit Gain | 27% | 94% | 3% | -28% | -16% | 23% | 18% | -13% | -7% |
| Ratio of GDP Per Capita to the French GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.47 | 0.14 | 0.30 | 0.66 | 0.33 | 0.35 | 0.27 | 0.56 | 0.42 |
| - Counterfactual | 0.60 | 0.28 | 0.32 | 0.48 | 0.28 | 0.44 | 0.33 | 0.48 | 0.39 |
| Implicit Gain/Loss | 13 p.p. | 14 p.p. | 2 p.p. | -18 p.p. | -5 p.p. | 9 p.p. | 6 p.p. | -8 p.p. | -3 p.p. |
| *Panel F: Counterfactual Benchmark Country: Portugal* | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 15,487 | 7,163 | 8,158 | 12,404 | 7,185 | 11,257 | 8,431 | 12,404 | 10,074 |
| Nearest Country Equivalent | Puerto Rico | Tunisia | Turkey | Armenia | Serbia | Croatia | Costa Rica | Poland | Bulgaria |
| Implicit Gain | 42% | 118% | 16% | -19% | -5% | 38% | 32% | -2% | 4% |
| Ratio of GDP Per Capita to the Portuguese GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.74 | 0.22 | 0.48 | 1.04 | 0.52 | 0.56 | 0.43 | 0.87 | 0.66 |
| - Counterfactual | 1.06 | 0.49 | 0.56 | 0.85 | 0.49 | 0.77 | 0.58 | 0.85 | 0.69 |
| Implicit Gain | 32 p.p. | 27 p.p. | 8 p.p. | -19 p.p. | -3 p.p. | 21 p.p. | 15 p.p. | -2 p.p. | 3 p.p. |
| *Panel G: Counterfactual Benchmark Country: Spain* | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 19,888 | 9,199 | 10,476 | 15,928 | 9,226 | 14,456 | 10,827 | 15,928 | 12,937 |
| Nearest Country Equivalent | Israel | Russia | Bulgaria | Greece | Hungary | Czech Rep. | Thailand | Mauritius | Kazakhstan |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Implicit Gain | 82% | 180% | 49% | 4% | 20% | 77% | 70% | 25% | 34% |
| Ratio of GDP Per Capita to the Spanish GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.60 | 0.18 | 0.39 | 0.84 | 0.42 | 0.45 | 0.35 | 0.71 | 0.53 |
| - Counterfactual | 1.11 | 0.51 | 0.58 | 0.89 | 0.51 | 0.80 | 0.60 | 0.89 | 0.72 |
| Implicit Gain | 51 p.p. | 33 p.p. | 19 p.p. | 5 p.p. | 9 p.p. | 35 p.p. | 25 p.p. | 18 p.p. | 19 p.p. |
| Panel H: Counterfactual Scenario #1: Adoption of US-Style De Jure and De Facto Political Institutions Upon the Abolition of Slavery | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 21,100 | 9,760 | 11,115 | 16,899 | 9,789 | 15,337 | 11,487 | 16,899 | 13,726 |
| Nearest Country Equivalent | France | Hungary | Poland | Greece | Russia | Mauritius | Croatia | Puerto Rico | Portugal |
| Implicit Gain | 194% | 197% | 58% | 11% | 28% | 88% | 80% | 32% | 42% |
| Ratio of GDP Per Capita to the US GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.34 | 0.10 | 0.22 | 0.48 | 0.24 | 0.26 | 0.20 | 0.40 | 0.30 |
| - Counterfactual | 0.67 | 0.31 | 0.35 | 0.54 | 0.31 | 0.49 | 0.36 | 0.54 | 0.43 |
| Implicit Gain | 33 p.p. | 21 p.p. | 13 p.p. | 6 p.p. | 7 p.p. | 23 p.p. | 16 p.p. | 14 p.p. | 13 p.p. |
| Panel I: Counterfactual Scenario #2: Adoption of US-Style De Jure and De Facto Political Institutions upon Initial Suffrage Extension Laws | | | | | | | | | |
| Counterfactual Real GDP Per Capita in 2012 | 21,100 | 9,760 | 6,310 | 16,899 | 9,789 | 15,356 | 11,487 | 16,899 | 13,726 |
| Nearest Country Equivalent | France | Hungary | Albania | Greece | Russia | Slovakia | Croatia | Puerto Rico | Portugal |
| Implicit Gain | 194% | 197% | -11% | 11% | 28% | 88% | 80% | 32% | 42% |
| Ratio of GDP Per Capita to the US GDP Per Capita in 2012 | | | | | | | | | |
| - Observed | 0.34 | 0.10 | 0.22 | 0.48 | 0.24 | 0.26 | 0.20 | 0.40 | 0.30 |
| - Counterfactual | 0.67 | 0.31 | 0.20 | 0.54 | 0.31 | 0.49 | 0.56 | 0.34 | 0.43 |
| Implicit Gain | 33 p.p. | 21 p.p. | -2 p.p. | 6 p.p. | 7 p.p. | 23 p.p. | 16 p.p. | 14 p.p. | 13 p.p. |

**Figure 1**: The Persistence of Suffrage Violation and Weakness of Electoral Law Enforcement Across Latin America, 1800-2012

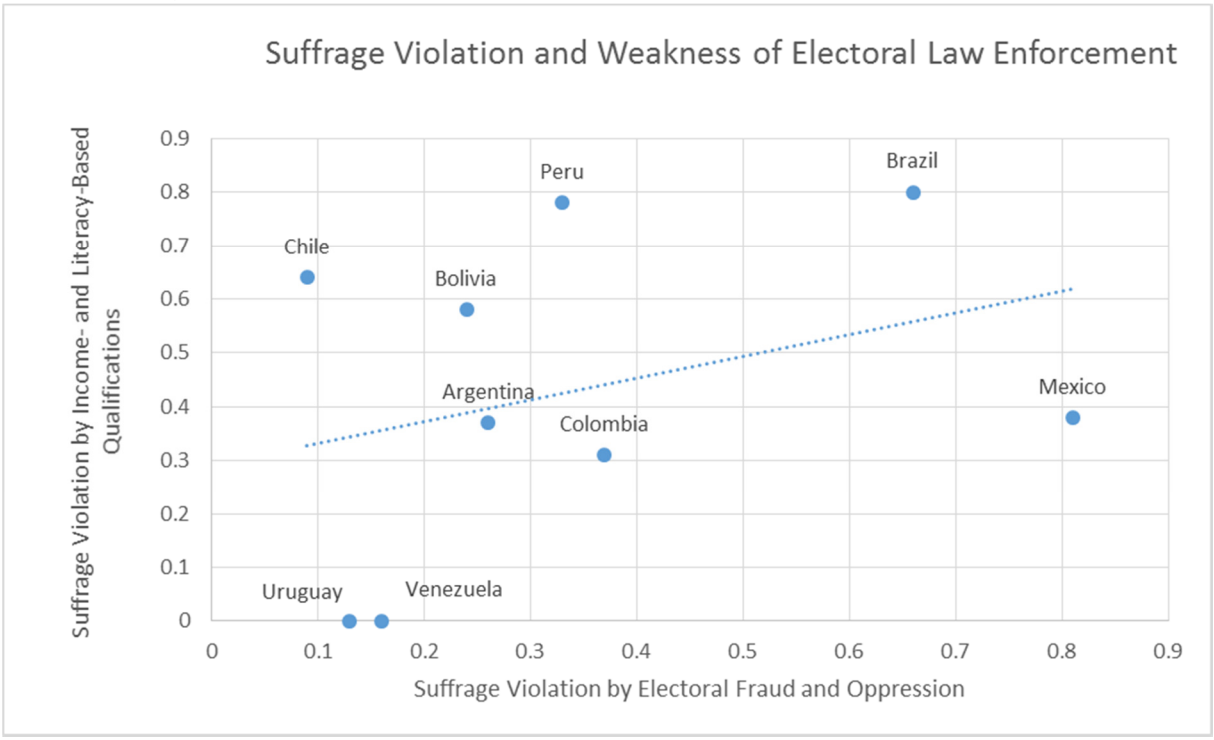


**Figure 2**: Comparative Long-Run Development of Latin America, 1800-2012.

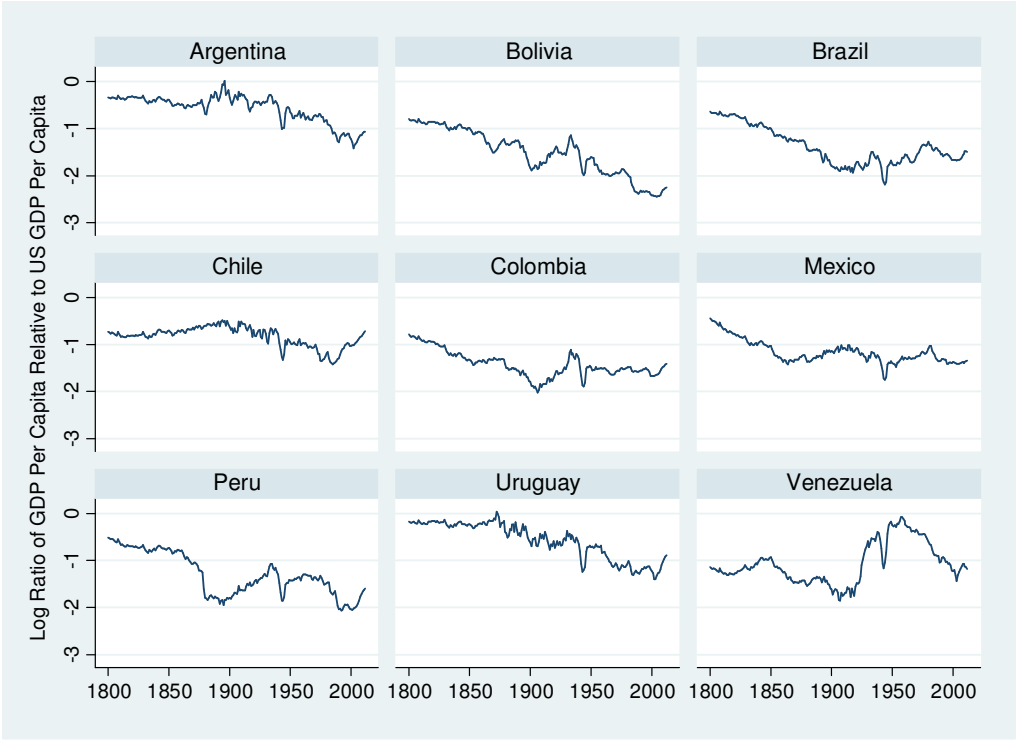
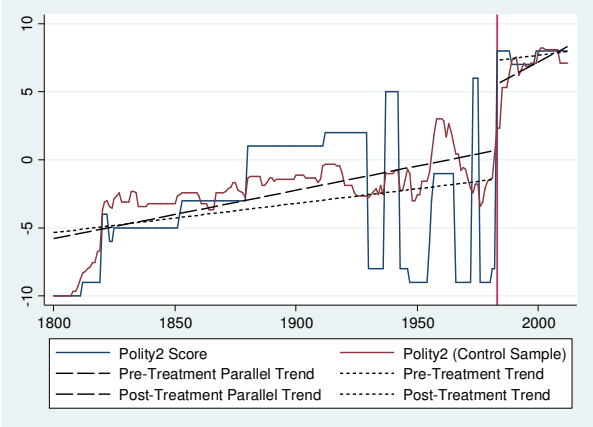


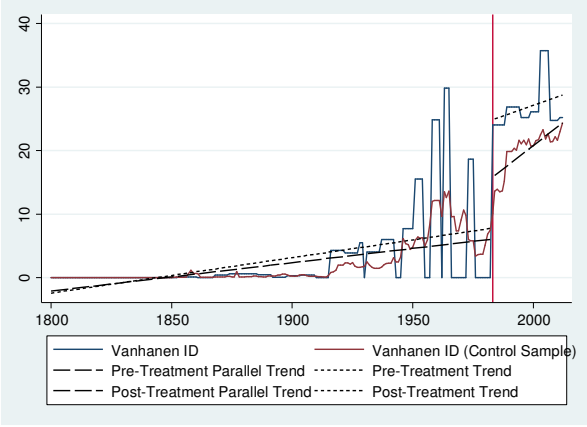
**Figure 3**: Parallel Paths of De Jure and De Facto Institutional Development

Argentina

(a) De Jure Institutional Development

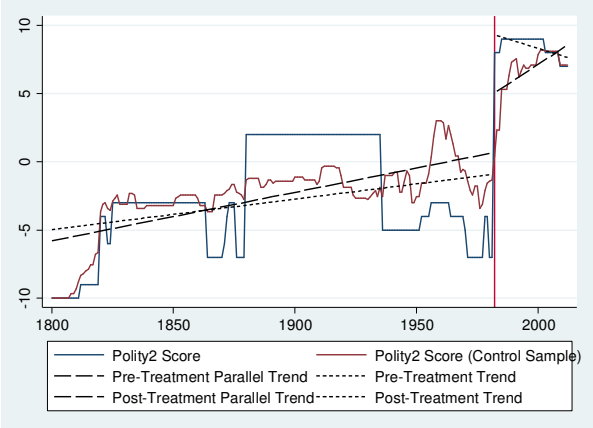



(b) De Facto Institutional Development

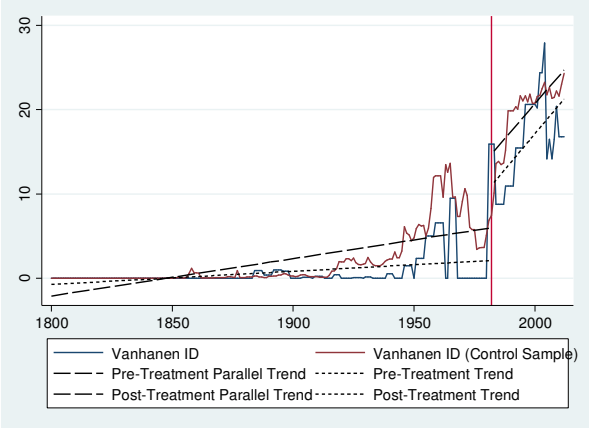



Bolivia

(a) De Jure Institutional Development

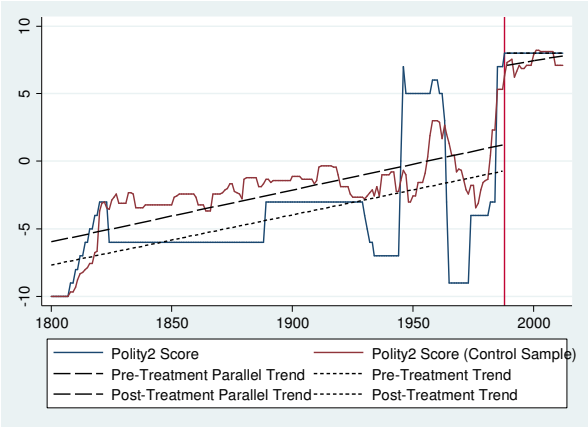



(b) De Facto Institutional Development

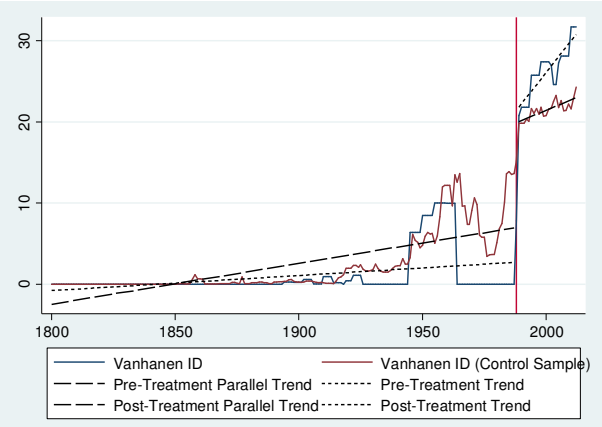



Brazil

(a) De Jure Institutional Development



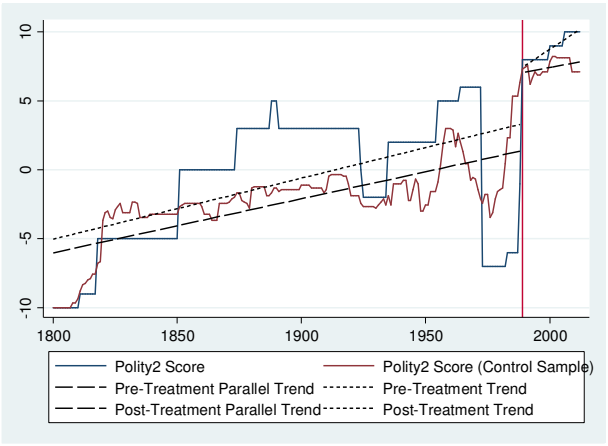

(b) De Facto Institutional Development

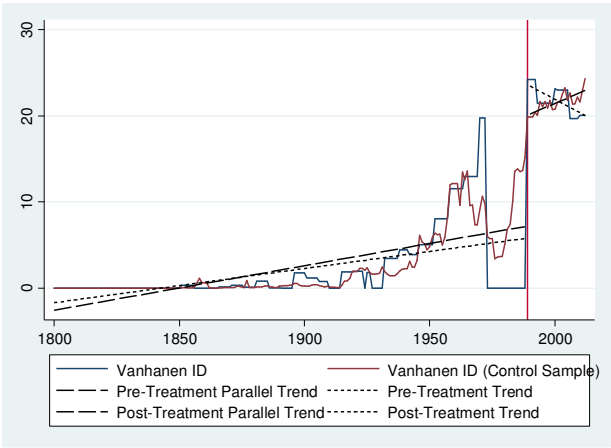



Chile

(a) De Jure Institutional Development

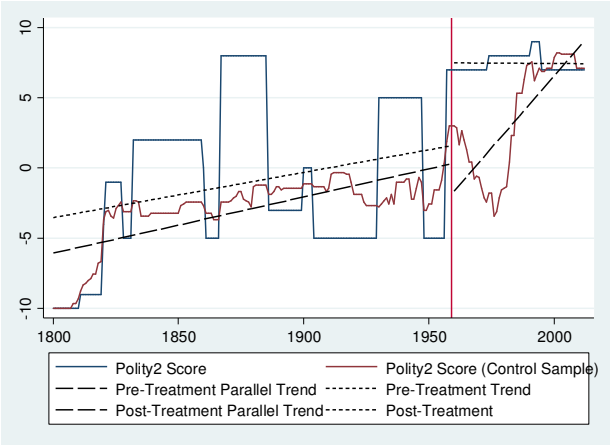
(b) De Facto Institutional Development

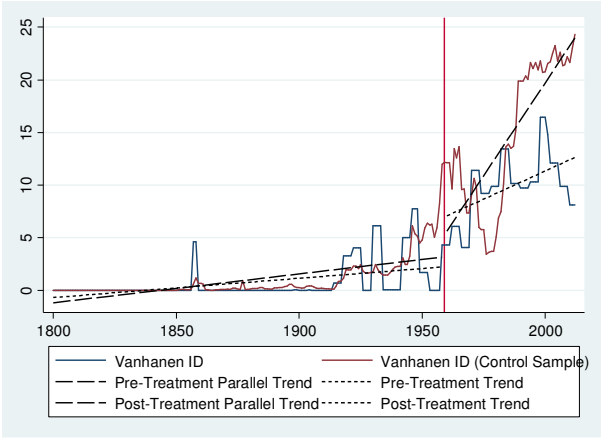



Colombia

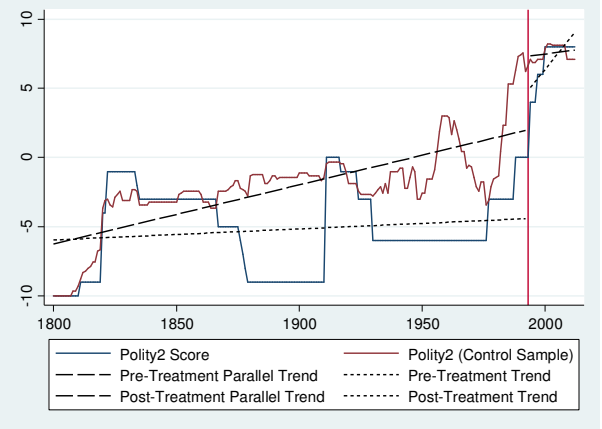
(a) De Jure Institutional Development (b) De Facto Institutional Development

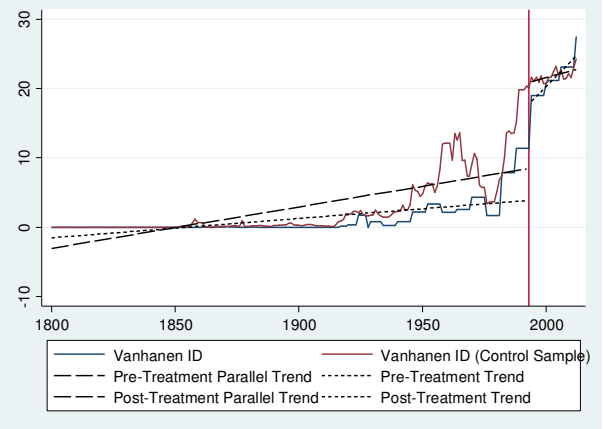



Mexico

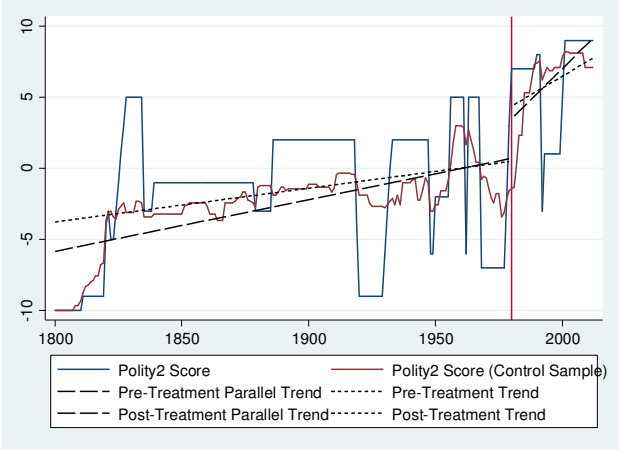
(a) De Jure Institutional Development (b) De Facto Institutional Development

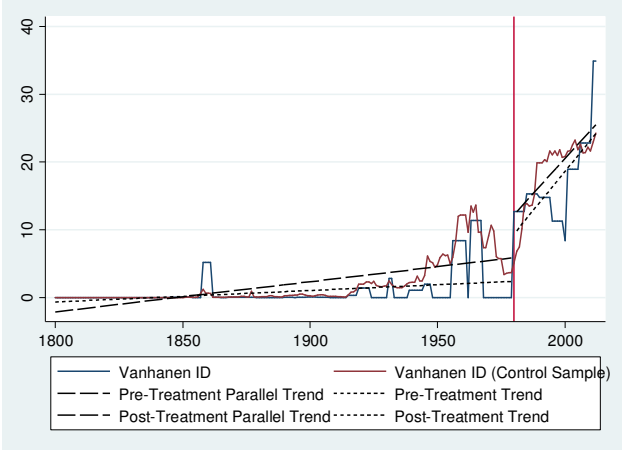



Peru

(a) De Jure Institutional Development (b) De Facto Institutional Development

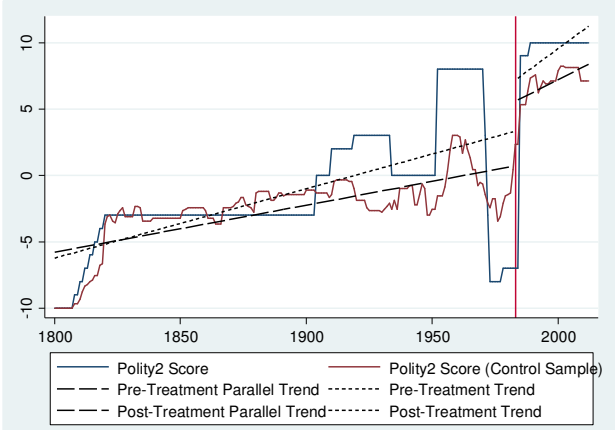


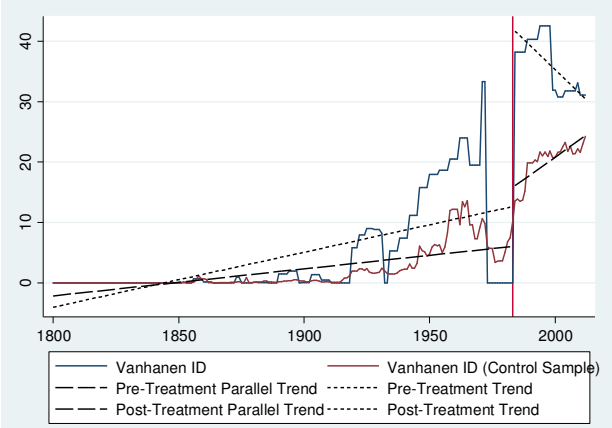




Uruguay

(a) De Jure Institutional Development

(b) De Facto Institutional Development

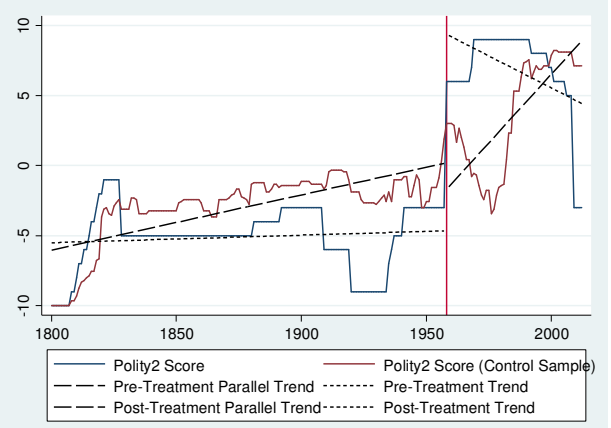



Venezuela

(a) De Jure Institutional Development

(b) De Facto Institutional Development



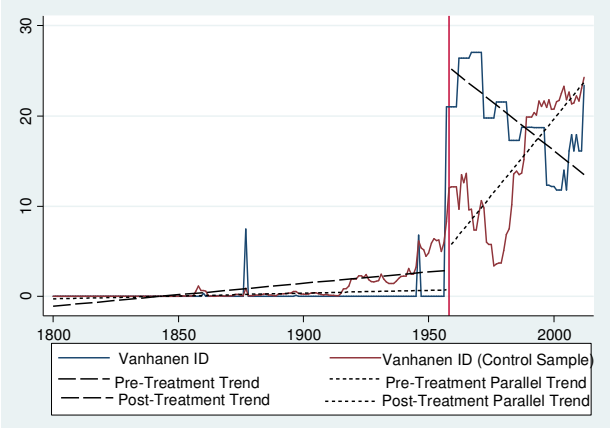
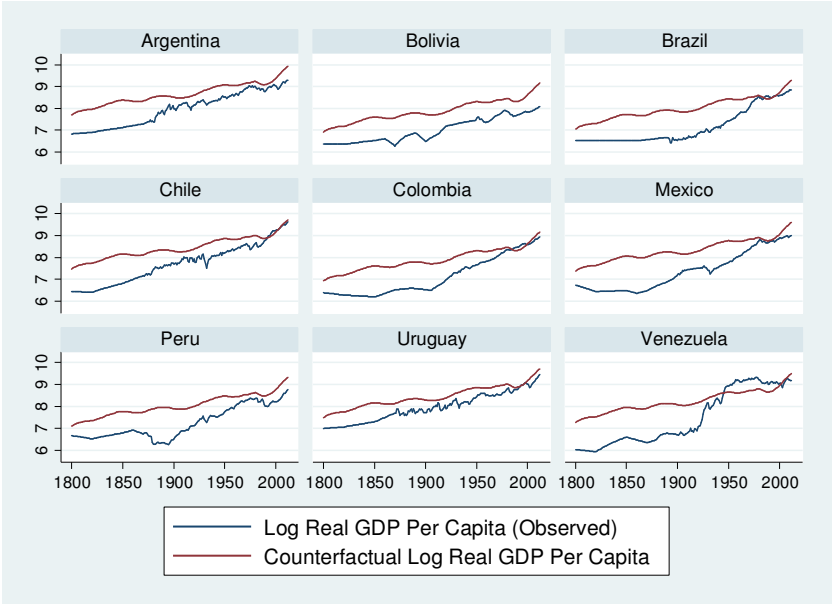
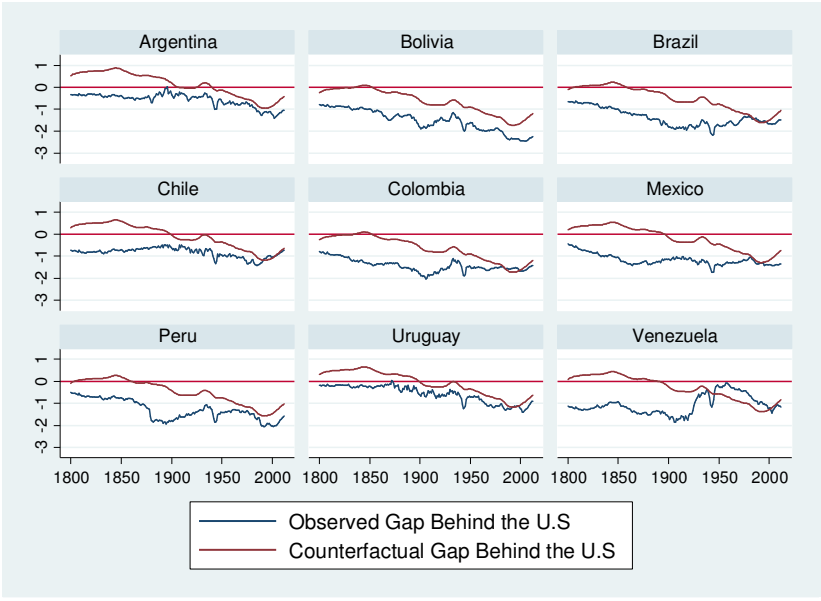



**Figure 2**: Counterfactual Path of Latin America's Long-Run Development, 1800-2012

*(a) Observed. Vs. Counterfactual GDP Per Capita, 1800-2012*




*(b) Observed vs. Counterfactual Development Gap Behind the U.S.*



**Appendix**: Latin America's Long-Run Development in the Counterfactual Scenario under Alternative Institutional Design

**Figure A1**: Counterfactual Scenario with Australian De Jure and De Facto Institutions

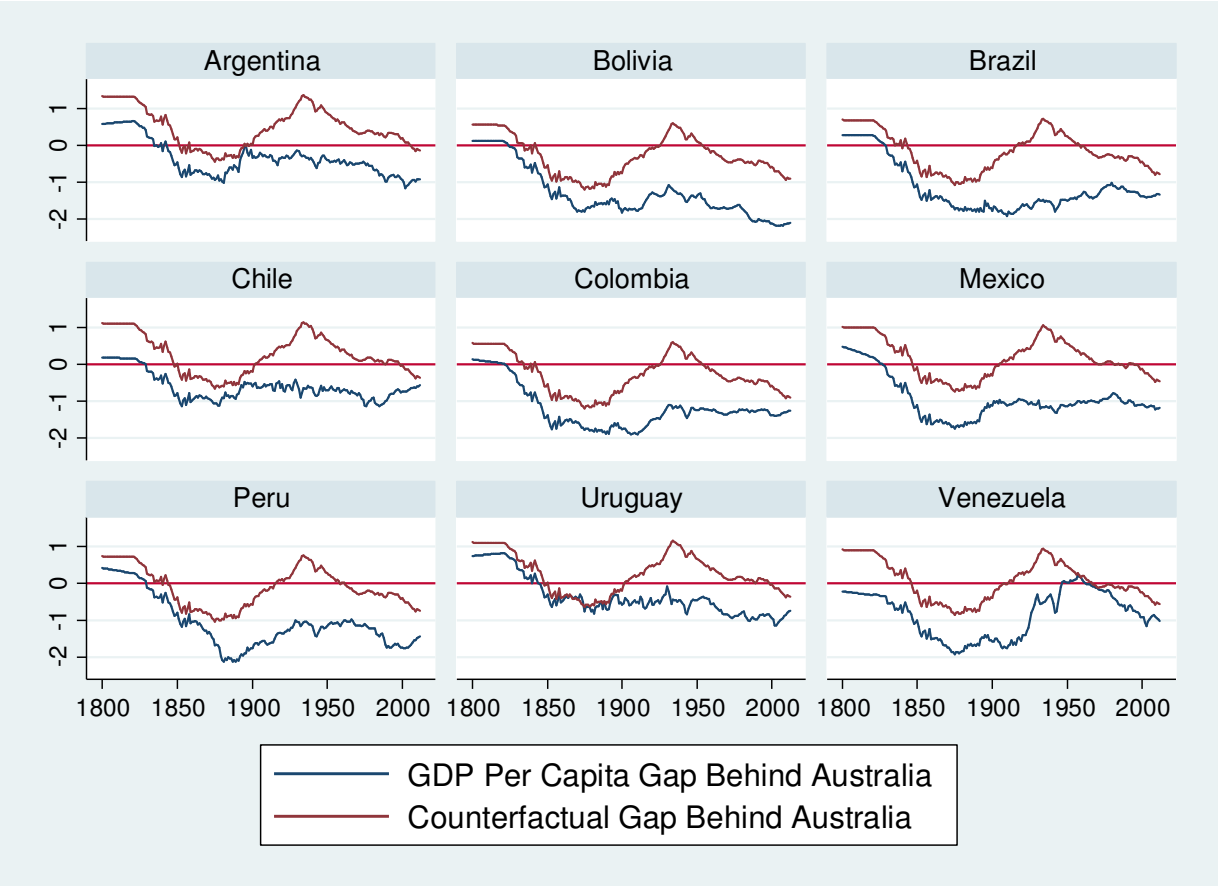


**Figure A2**: Counterfactual Scenario with Canadian De Jure and De Facto Political Institutions

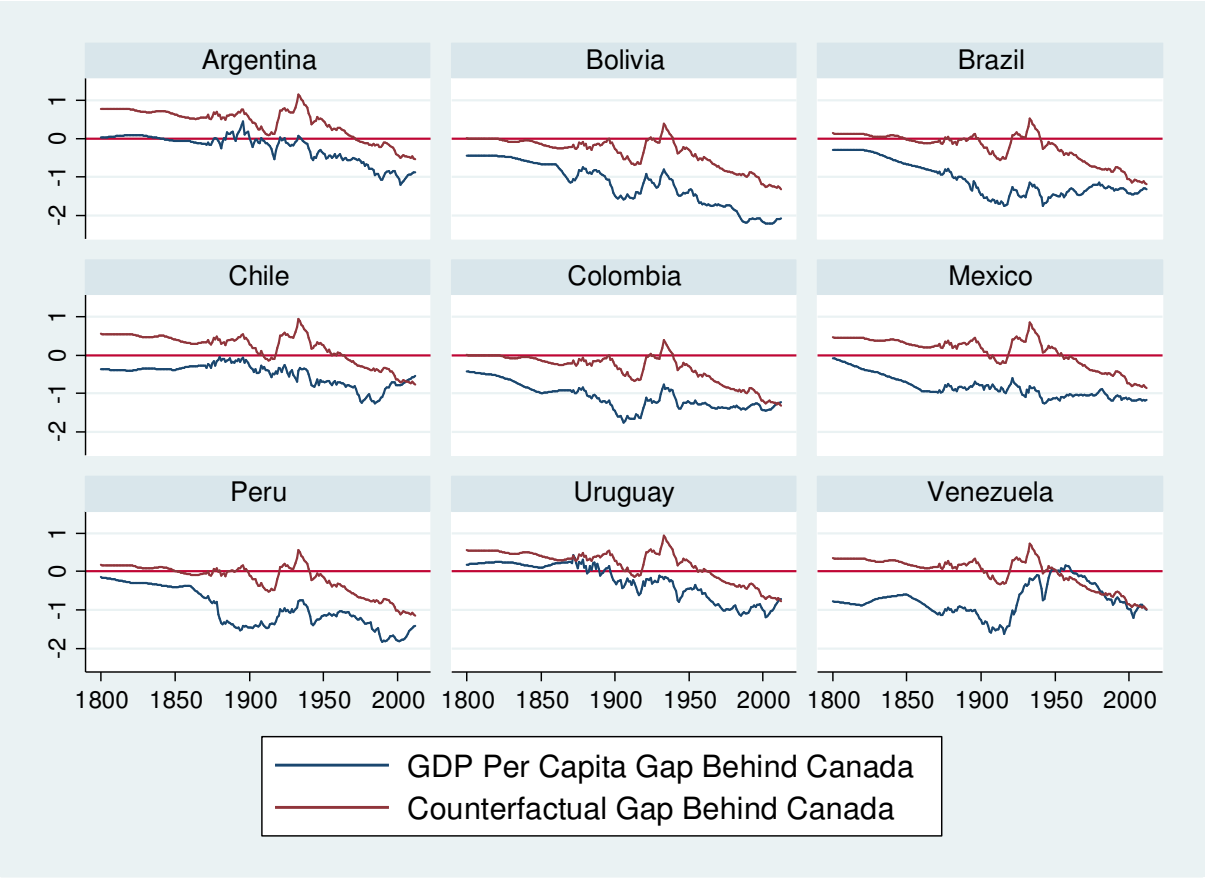


**Figure A3**: Counterfactual Scenario with British De Jure and De Facto Political Institutions

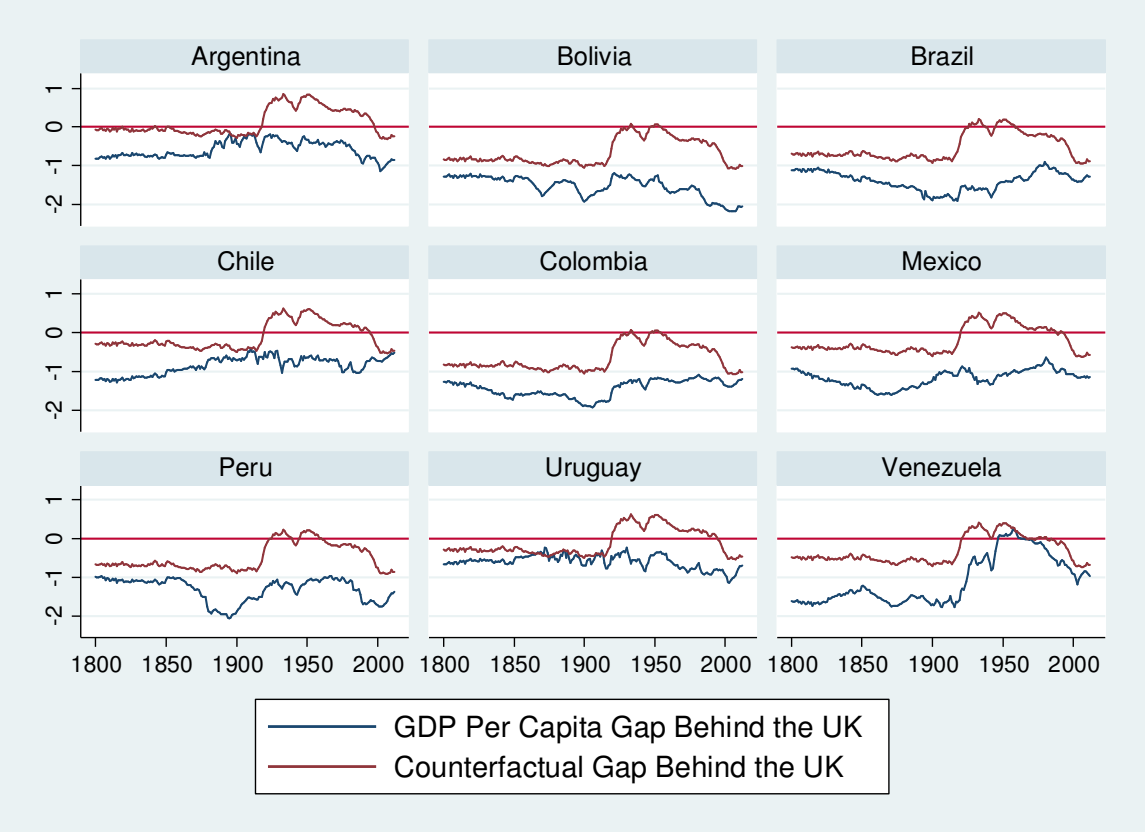


**Figure A4**: Counterfactual Scenario with French De Jure and De Facto Political Institutions

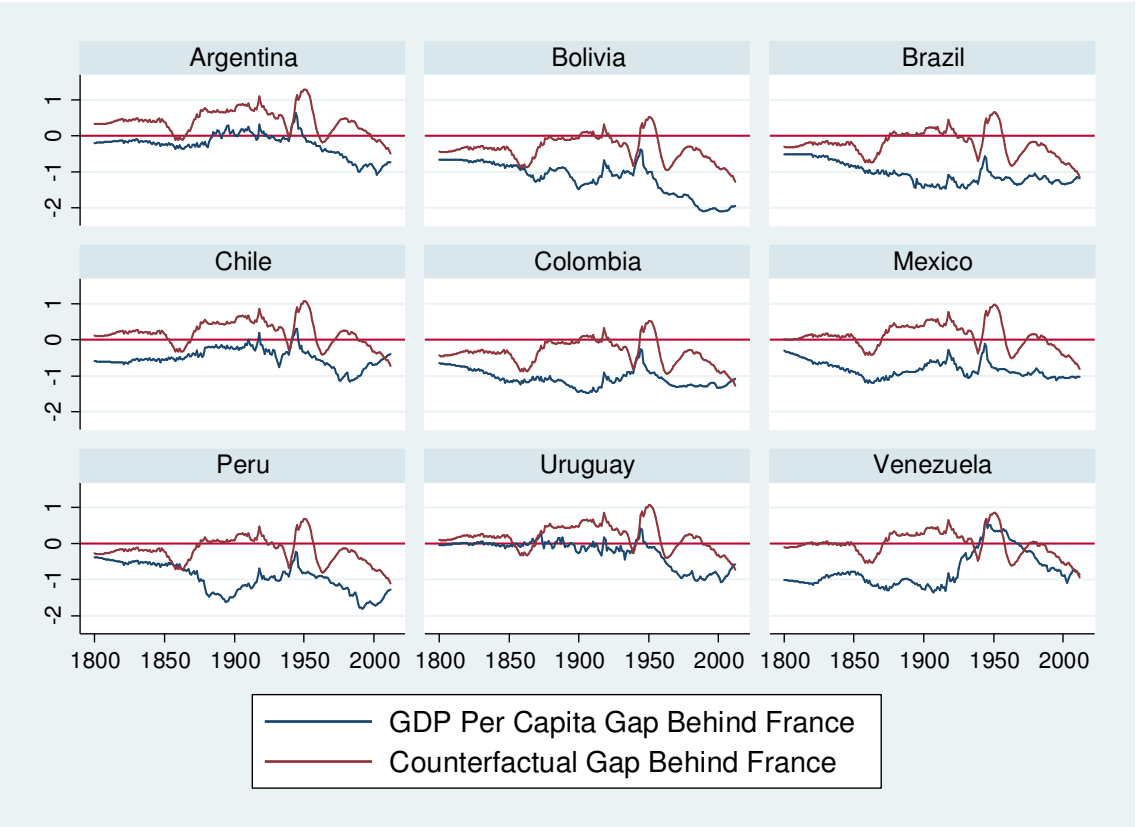


**Figure A5**: Counterfactual Scenario with Portuguese De Jure and De Facto Political Institutions

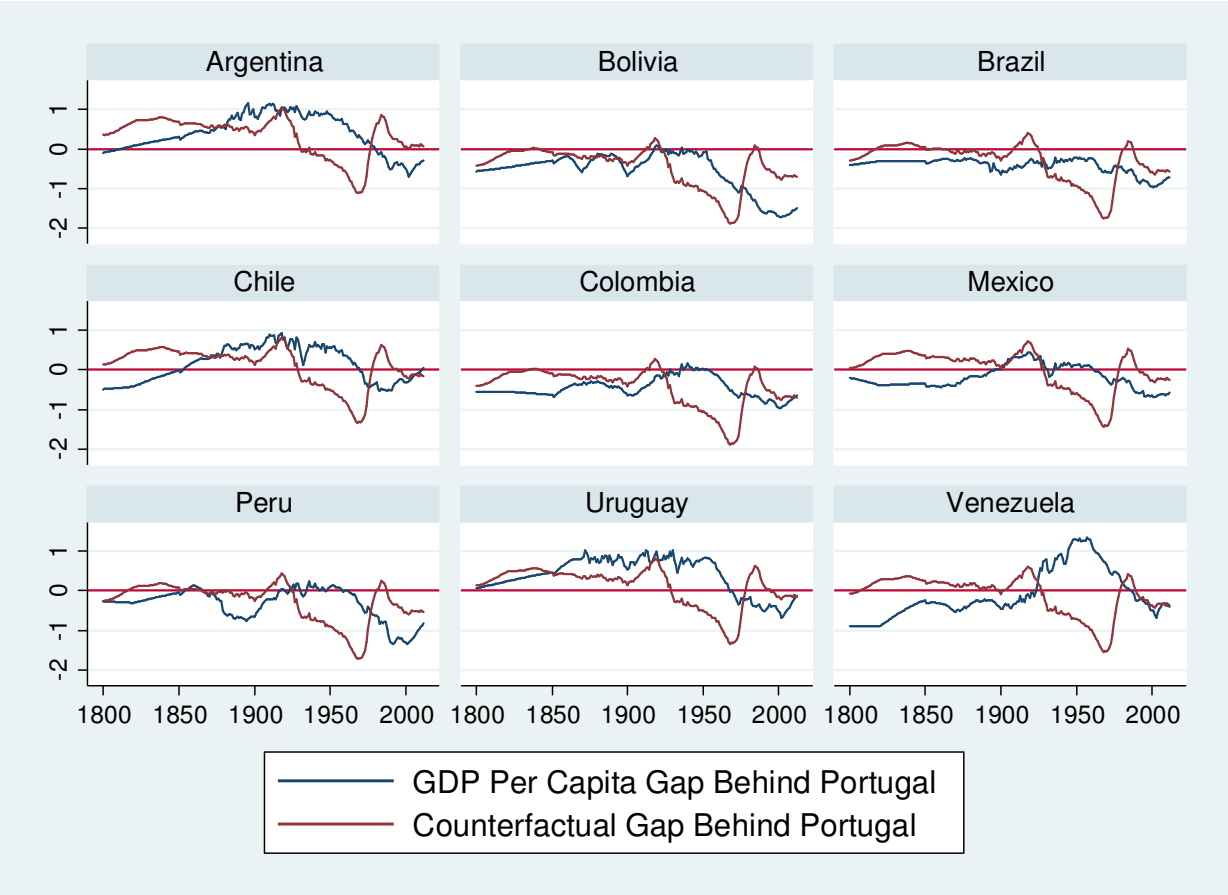


**Figure A6**: Counterfactual Scenario with Spanish De Jure and De Facto Political Institutions

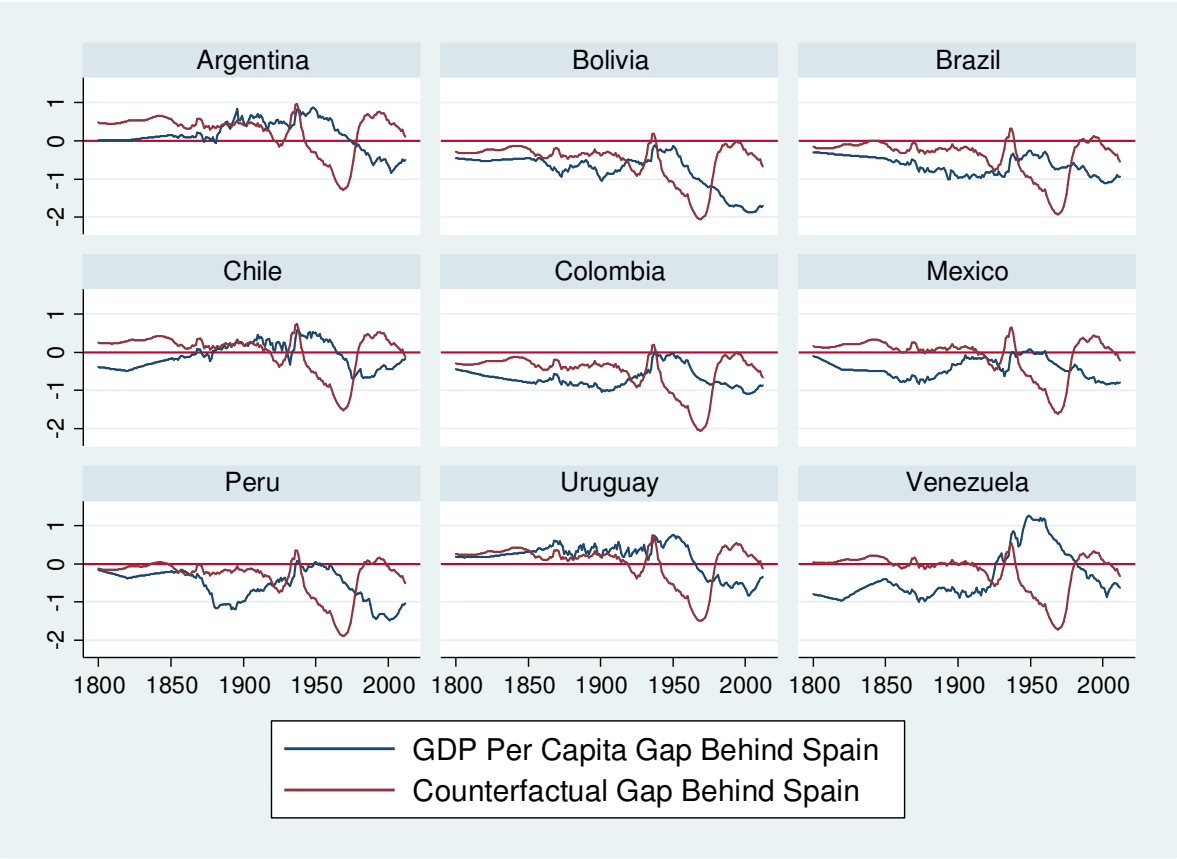


**Figure A7**: Counterfactual Scenario with the Adoption of U.S-style De Jure and De Facto Political Institutions Upon the Abolition of Slavery

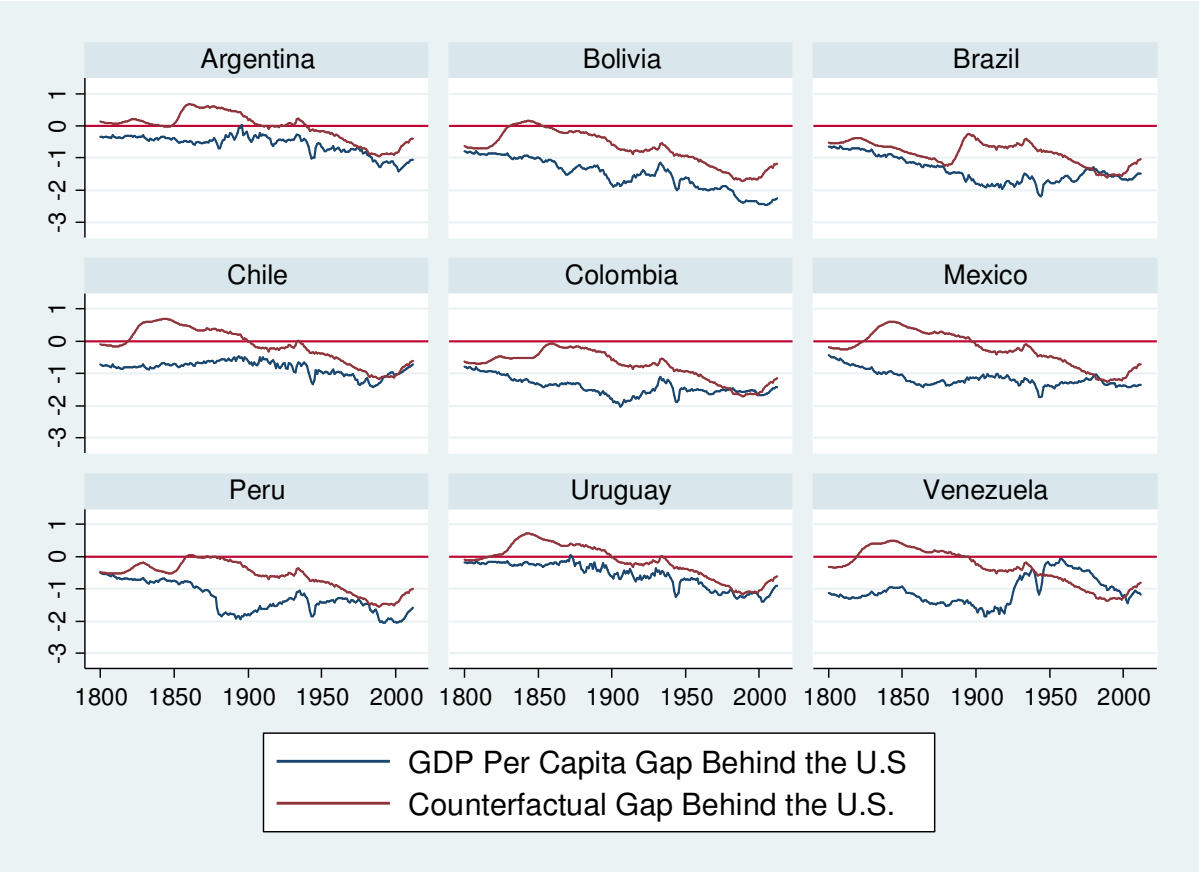


**Figure A8**: Counterfactual Scenario with the Adoption of U.S-style De Jure and De Facto Political Institutions Upon the Initial Suffrage Extension Law