Explorations in Latin American economic history

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Chapter 1

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1.1 Preface

This dissertation takes a quest for an empirical exploration of key macro-historical questions in Latin America's economic development. It addresses previous historiographical inquiries of early modern and modern Latin American history. The assortment of these questions is motivated by the economic literature of historical legacies.[1] Various generations of scholars have questioned whether major historical junctures such as the financial decay of *colonialism* in the late eighteenth and early nineteenth century; the emergence of dictatorships and *revolutions* in the mid- nineteenth and early twentieth century; and the rise of *protectionism* in the mid-twentieth century have determined the fate of relative underperformance of the region.[2]

The underlying notion of associating legacies to current underperformance often involves the hypothesis of "path-dependence". Acemoglu and Robinson (2012: 101) argue that a path-dependent process stems from *critical junctures*. These are "major events or a confluence of factors disrupting the existing political and economic balance in one or many societies". Accordingly, these junctures appear typically in periods of crisis that are followed by radical institutional/policy changes influencing permanently the long-term development path (e.g. Mahoney, 2000; David, 2007).[3]

[1] See a broad review of this literature in Nunn (2014) and Spolaore and Wacziarg (2013).

[2] See for e.g. Centeno (2002) on the legacies of civil wars in the nineteenth century. See also, Coatsworth (1993) for a general view on Latin America's relative underperformance since colonial times.

[3] See also, Mahoney and Schensul (2006) for an overview of the historical-institutionalist literature on path-dependence.

Although the periodization of Latin American history is still much debated, various historians have used major economic and political junctures as temporal borderlines to demarcate a broad long-term periodization. Notwithstanding other distinctive periods, this thesis builds on the periodization that is related to the common understanding among economic historians tracing key historical junctures in Latin America in the following periods: *Colonialism* (c.1520-c.1820); *Belle Époque* (c.1870-c.1910); *State-led industrialization* (c.1930-c.1975); *Restructuring and market reforms* (c.1975-2010).[4] Aside from the temporal discontinuities across themes, this periodization may not perfectly match in every single country because of the regional diversity of Latin America. However, although some authors have defined additional sub-periods, this broad periodization captures a global trend in Latin American historiography encompassing key turning points.[5]

This dissertation's empirical exploration draws on a cliometric approach combining the advances of statistical methods and long-term historical data with the aim to provide new empirical evidence on four major topics in Latin American economic history: *fiscal sustainability, real wages, structural change, and productivity catch up.* Yet, it does not intend to analyze these phenomena as continuous historical processes impacting on current outcomes as often is implicit in empirical studies. The analysis follows the inductive methodological tradition of quantitative economic history looking to examine directly the historical junctures by revisiting and testing statistically how well do historical 'facts' travel across time employing theory and a combination of historical datasets.[6]

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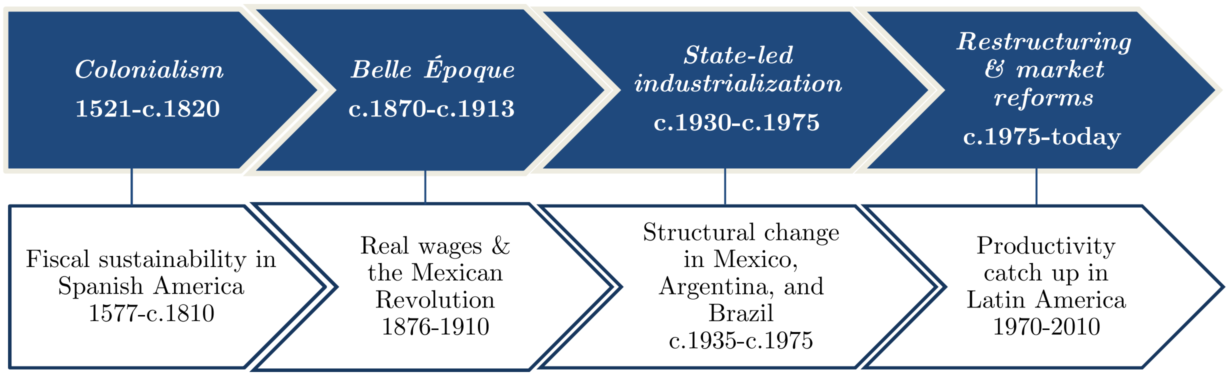
[4] This categorization can be regarded as a conventional periodization linked to the long-term fluctuations of the global economy. There are other approaches that use other historical notions of a 'long-term' process (see for e.g. Adelman, *Latin American longues durées*). The present analysis focuses on the periodization typically mentioned (e.g. Bulmer-Thomas, 2003) in the quantitative historical research that associates major institutional changes and the issue of relative economic backwardness. For instance, in the work of Coatsworth (1993, 2008) and Haber (1997) the 'falling behind' of the region as a whole (in per capita GDP terms) is traced specifically to long periods between the colonial era and the nineteenth century. For a general discussion see, Coatsworth (2005) and Prados de la Escosura (2007). For a survey of arguments locating the origins of the relative backwardness in the mid-twentieth century see, Edwards (2009) and Taylor (1998). On the persistent growth effects from the institutional and market reforms in the last quarter of the twentieth century, see Grilli (2005) and Zettelmeyer (2006).

[5] In the literature of critical junctures, a change (institutional) as such is not the only reason to consider it as an historical juncture because this change may eventually lead to the restoration of the pre-juncture status quo (see, Capoccia and Kelemen 2007). Thus, this periodization holds under the assumption that the depiction in the historiography related to these junctures are permanent (or 'irreversible') processes.

[6] See a recent review on this inductive cliometric approach in Haupert (2016).

Figure 1.1 Historical periods and topics analyzed in the dissertation



Note: Based on the general thesis outline.

Much of the ongoing econometric literature on legacies in Latin America relies on transversal (cross-sectional) evidence, connecting present outcomes (e.g. today's output measures) to a set of historical variables. The economics of colonialism in the Americas has been studied extensively using this empirical methodology.[7] However, although the idea of tracing colonial contexts to explain current outcomes may be well represented with this approach, the nuances of the historical evolution of the economic subjects during colonialism is often unobservable. As the celebrated economist Richard Easterlin (2013) argues, those methods (cross-sections) tend to "register the results of history not insights into likely [historical] experience".[8]

This thesis explores Latin America's historical junctures by examining the fiscal sustainability of the colonial system in the Americas with a longitudinal empirical view. Yet, the topic of colonialism in Latin America offers many macro-historical questions that are not limited to fiscal matters. My choice for the fiscal issue is motivated by the following reasons. It has been generally presumed that the colonial fiscal regime was at one point 'unsustainable' for the local economies of Spanish America. Various historical studies have documented that this phenomenon occurred during periods of economic crises in which the Spanish crown forced its American treasuries to finance the imperial needs (e.g. Stein and Stein, 2003; Marichal, 2007). However, despite the relevance of this feature in colonial economic history and its interrelations with other key topics, the historical literature has not substantiated this conventional wisdom in a systematic and empirical way.

[7] The most influential empirical work is the *Reversal of Fortune* hypothesis (Acemoglu et al. 2002). See a similar approach in Bruhn and Gallego (2012) on the diversity of colonial institutions on current GDP measures.

[8] Easterlin, 'Cross-sections are history', p. 5. See an analogous methodological reflection in Austin (2008).

Whether the colonial system in the Americas was fiscally unsustainable or not is a big, important empirical question in the historiography of colonialism; not only judged by the need to 'validate' distant cross-sections with a more nuanced longitudinal view, but also for a quantitative understanding of the persistence or discontinuity of the colonial 'fiscality' during the colonial period (e.g. Sokoloff and Zolt, 2007). Furthermore, there is an increasing interest in looking at the empires' fiscal capacity to sustain economic growth by tracing eventual turning points through sharper long-run macroeconomic aggregates (e.g. Dincecco, 2015). Thus, through a re-construction of time-series data, the next chapter provides an empirical reassessment of the Spanish American treasuries trying to unveil statistically whether these Spanish American finances followed sustainable long-term paths across time and space.

However, the colonial period has not been the only focal point in the literature of path-dependence. Seminal studies have also attempted to analyze turning points in other periods. The pre-World War I period known as the *Belle Époque* (1870-1913) has received special attention for the unprecedented economic prosperity (e.g. O'Rourke and Williamson, 1999; Daudin et al., 2010). For the case of Latin America this can be exemplified by the contentious decades in Mexico's *Porfiriato* (1877-1910). The Porfiriato has been a controversial issue in the historiography not because the exceptional growth performance was a juncture in itself, but because of the widespread belief that the economic exceptionalism coincided with a decline in the country's living standards paving the way for the revolution (see for e.g. Knight, 1990)

Undoubtedly, the Mexican Revolution in 1910 was a critical juncture because it was a radical change that has shaped permanently the institutions of present Mexico. However, the *regional* economic factors that led to that juncture have been underexplored empirically. While there are some empirical studies using sub-national data looking to uncover the path-dependence outcomes of the Porfiriato (e.g. Dell, 2012), little emphasis has been given to the 'direct' evolution of regional living standards of Mexican worker's during that period. Naturally, focusing on the sub-national trends of living standards during this juncture does not imply that this was the key driver of the revolution, but certainly it is not a trivial one. A quantitative revision of the regional patterns of real wages under the Porfiriato may shed new insights on how relevant regional economic factors were in this critical juncture in Mexican history.

In a similar fashion, for many scholars the post-revolutionary period and in particular the middle decades of the twentieth century are regarded as another turning point in Latin America.[9] The disruption of world trade caused by the Great Depression and Second World War meant the beginning of an era of 'inward-looking' development

[9] For e.g., in the seminal analysis of Collier and Collier (1991) the decades after the Mexican revolution are regarded as a critical juncture for Latin America because of the unprecedented incorporation of the labor movement in the industrialization agenda. See a similar view in Soifer (2012).

in countries like Mexico, Brazil, and Argentina; a period also epitomized as *State-led industrialization* (e.g. Bulmer-Thomas, 2003; Bértola and Ocampo, 2012). The outcomes from autarkic policies based on trade protectionism implemented in this period have been highly controversial in the historiography. Whereas some authors have praised the economic achievements under these policies others have regarded them as the culprit of the subsequent economic underperformance. The present work adds new evidence to this discussion to further understand whether the positive effects of these policies were materialized in key industrial sectors in major Latin American countries.

Moreover, the commitment of Latin American governments to the protectionist paradigm as a vehicle to transform their economies can be regarded as analogous to the 'promise' from the *restructuring and market reforms* framed in the late-1970s and implemented extensively across the region by the 1980s. While catching up to the world's economic frontier was the underlying goal under the protectionist autarky (1930s-1970s), a similar parallel outcome was expected under the restructuring phase and market-oriented reforms (post-1975). Although the reform process is still underway, the initial market reforms in 1980s have been widely regarded as a major turning point influencing today's development policy. The last theme analyzed in this thesis attempts to examine a long-standing question on whether upgrading economic, legal, and political institutions has had an effect on productivity growth and 'catch up' to the frontier.

The selection of these macro-historical questions, evidently, is not the whole story of the turning points related to Latin America's long-run economic backwardness. The questions associated to the deep or 'ultimate' causes like the role of institutions on economic growth have been leading topics.[10] However, the 'proximate' causes assessed here such as the issues of colonial fiscality, real wages, structural change, and productivity catch up are themselves central to understand how ultimate causes can operate and can be readably assessed (Maddison, 1991: 11).

Focusing on such a broad range of economic history questions across different thematic subfields carry a methodological shortcoming: the implausibility of relying on a single and generalized model. Thus, this work draws on a wide toolbox of theoretical and empirical concepts applied to the corresponding sets of historical data; a well-known methodological approach built in the tradition of cliometrics.[11]

[10] See in particular the monograph collection related to these issues in Fukuyama (2008); Ocampo and Ros (2011); and Edwards et al. (2007).

[11] For an historiographical overview and evolution of cliometrics as a discipline see, Greif (1997). See the recent empirical developments in Greasley and Oxley (2011) and Diebolt and Haupert (2016).

1.2. Analytical framework

As will be shown in the ensuing chapters, the four themes' theoretical background frequently touches upon the interactions between economics and institutions. This intersection in quantitative economic history analysis has a vast tradition rooted in the so-called 'New Economic History'. This practice has been also referred to as the 'Cliometric Revolution' because of the unparalleled proliferation in the use of statistical methods among economic historians during the 1960s. The framework evolved within the American scholarship from compiling statistical data and applying neoclassical concepts into a more integral analytical framework placing the link between institutions and long-run economic performance in the center stage.[12] Influenced by the Coase theorem, the work of Douglass North and Robert Fogel allowed cliometrics to go beyond the neoclassical paradigm recognizing the different interactions between institutions and economic performance (Goldin, 1995; Wallis, 2016).

The succeeding scholarship of cliometricians incorporated the neoclassical framework viewing it "as a theory of choice subject to constraints; employing price theory as an essential part of the analysis of institutions; and the change in relative prices as a major force inducing change in institutions" (North, 1995: 2). The 'neo-institutional' approach to history however, expanded and modified the neoclassical paradigm aiming to resolve the problems to explain the market failures of resource allocation. Essentially, this perspective maintains that economic progress (or lack of it) has been the result of productivity increases generated by the efficient (or inefficient) allocation of factors of production through functioning market institutions.[13] The incorporation of institutional mechanisms such as property rights, credible commitments, and various notions of *imperfect competition* into the historical discipline opened new directions for social analysis (Oxley and Greasley, 2010).[14]

According to Oliver Williamson's (2000) seminal classification of social analysis, it is possible to categorize *four* levels: 1) embeddedness and informal rules; 2) institutional

[12] Although decades later and relatively less common, studies following this methodology also emerged within the Latin American's scholarship. For instance, the work of John H. Coatsworth on Mexican railroads and Jeffrey Williamson's research on Latin America's long-run trade and inequality pioneered the agenda in this regard. See Haber (1997) and Love (2005) for a review of the evolution of the historiography in Latin America. Also, see Yáñez (2015) for a recent collection of contributions containing new cliometric data for different Latin American countries.

[13] Institutions understood as laws, rules (formal and informal), and agreements within a society (North 1990).

[14] See for e.g. Alston et al (1996).

environment and social rules; 3) governance and transaction costs; and 4) allocation of resources.

The underlying framework in this thesis focuses mainly on the *fourth level* of analysis (allocation of resources) or what Williamson calls 'getting the marginal conditions right'.[15] The logic followed in each chapter draws on a basic macroeconomic approach, attempting to test empirically some of the core principles of the resource allocation approach against the historical records of Latin American economies. This 'standard' theory encompasses the subfields of public finance and income distribution to find the conditions that lead to 'socially efficient' outcomes. Accordingly, in a regime of market failure, economic resources under weak institutions (i.e. poorly specified property rights, credible commitments, etc.) may generate allocative inefficiency, and hence the need for corrective policies and the promotion of 'good' institutions.[16]

Through this standard background, the chapters aim to describe and interpret different historical junctures using the following principles separately and respectively:[17] a) *Government budget constraint;* b) *Factor-price equalization;* c) *Factor reallocation;* and d) *Productivity catch up.*

a) *Government budget constraint.* - Various studies using the framework of the efficiency of resource allocation in public finance have pointed out the relevance in understanding the relationship between the sustainability of government finance and concrete historical turning points (e.g. Sargent and Velde, 1995; Dempster, 2006). This standard macroeconomic approach suggests that there is an intertemporal budget constraint that limits the ability of governments to finance deficits. The government spending is financed through a combination of tax revenues, money supply, and debt financing. Thus, if there are restrictions (across time) on these aggregates then the government's budget can be binding. The relevance of binding to this constraint is key for the institutional principle of a 'credible commitment' to a long-term fiscal sustainability.[18] The depiction of the financial weakening of Spanish American economies in different time intervals has been common in the historical literature. Those descriptions pose questions on whether the

[15] Williamson (2000; 597)

[16] In the sense that institutions and policies would promote a movement towards a *Pareto frontier*. Evidently the idealization of the (constrained) Pareto optimality is merely a normative theoretical tool to understand the counterfactuals and derive testable hypotheses. See for e.g. Bates (1995) for a critical assessment of these assumptions within the 'New Institutional Economics' and its applicability to history.

[17] These principles are applied 'separately and respectively' because they are not employed altogether on each historical juncture analyzed. Instead, these are assorted accordingly; one theoretical principle on one particular juncture.

[18] The most common example of the vital role of credible commitments to fiscal sustainability is the seminal work of North and Weingast (1989). In broad terms, they argued that the English Parliament after the Glorious Revolution provided a solid credible commitment not to default on its debt in the future which allegedly became a precondition for the Industrial Revolution.

local treasuries where near or over these theoretical budget restrictions in the long-run and whether these potential fiscal imbalances are linked to the political tensions between the Crown and the local authorities in the onset of the eighteenth and start of the nineteenth century.

b) *Factor-price equalization.* – Another standard macroeconomic principle dealing with resource allocation efficiency is the factor-price equalization model in international trade. This model suggests that an uninterrupted trade across nations will lead to the equalization of goods prices and factor prices. In the case of labor, the specialization in factor-abundant production combined with free interregional trade results in equal wages across regions for workers with similar skills. However, the equalization process is not immediate but a long run process of convergence. This framework has helped economic historians to explain the price adjustments of goods and services in the global market over long periods of time. O'Rourke and Williamson (2001) found that during the *Belle Époque* a process of convergence occurred with prices of commodities and wages among the most open economies. This was driven in particular by the early process of globalization characterized by mass migration and a decline in transportation costs. The theoretical notion of wage convergence has been applied at the regional level across countries in recent time-periods (e.g. Rodriguez-Pose 2012) but to a much lesser degree on historical case-studies in the developing world.

c) *Factor reallocation.* - According to Kuznets (1973) one of the main features in the process of economic growth is structural transformation, defined as the reallocation of economic activity across the broad sectors agriculture, manufacturing and services. This general notion emanates typically from the standard neoclassical growth model (Solow 1956), where production factors (capital and labor) move to more efficient uses within the economic space. Accordingly, the differences in marginal productivity and differentials in productivity growth generate movements of input factors from sectors with lower productivity to those with higher productivity (Jorgenson 1998). While this neoclassical view focuses on the growth process of industries within sectors, other approaches like the dual-economy model of Lewis (1954) focuses on inter-sectoral interrelationships. Empirical studies have considered these notions (neoclassical and dual-economy) as complementary, quantifying both channels of growth 'within' and 'across sectors' (Herrendorf et al 2013; Rodrik 2013).

d) *Productivity catch up.* – A well-known notion in the neoclassical growth model is that catch up (or *convergence*) is driven by diminishing returns to aggregate capital, and in the long-run the growth of output per capita is determined only by the rate of exogenously determined technological progress (after accounting for the effect of capital accumulation). Conditional catch up occurs when output per capita levels of countries far removed from the leader's output per capita levels converge towards the 'steady-state' of the leader if they have similar savings rates for both physical capital and human capital as a share of output (if these parameters are not similar then these will reach to different steady-states). In this, catch up is conditional on savings, depreciation, population growth, and human capital (Mankiw et al., 1992). Similarly, the so-called Schumpeterian growth models predict a process of conditional catch up as in neoclassical models, where the driving factors are 'imitation' and technology 'transfer' that can be shaped by policies and institutions (Aghion and Howitt, 2006). Empirically, although there is an emerging growth literature on the underlying forces driving the catch up patterns, evidence is still not definitive, varying according to the dimension of analysis (aggregate, sectoral, or industry level), countries, and periodization considered.

1.3. Outline of the dissertation

Chapter 2: The fiscal sustainability of colonialism: a new exploration to the Spanish American treasuries, c.1577-c.1810

The opening topic addressed in this thesis concerns the following question: Is the argument of the historiography regarding colonial fiscal sustainability consistent with standard public finance theory and can it also be empirically verified employing long-span data over the entire colonial period (c.1570-c.1810)? A typical argument used to answer the issue of fiscal sustainability in this period is to determine if there were more economic costs than benefits during and after colonialism. Various studies (e.g. Prados de la Escosura & Amaral, 1993) have already shown that the economic benefits from independence were low and proportional to the ones under the colonial regime.[19] However, the underlying empirical question that precedes the issue on the burden of colonialism is whether the colonial fiscal system was in itself economically self-sufficient before independence.

For various economic historians the management of the economies of Spanish America shaped the evolution of institutions, tax structures, and the growth performance during and after colonialism (e.g. Engerman and Zolt, 2007; Marichal and Carmagnani, 2001). Empirical studies have been chiefly attentive to the long-term fiscal dynamics of the Spanish American treasuries (cajas reales) because in the absence of other reliable statistics of economic activity, the records on public finance have helped to reveal indirectly the growth performance of the region (see for e.g. TePaske and Klein 1986; Garner 1988).[20]

Scholars have reconstructed the colonial treasuries with relative success unveiling the complexity of the imperial mechanisms to manage the fiscal resources of the colonial Spanish America. However, they have not yet provided a clear picture of the 'real' long-

[19] For a discussion on the economic effects of independence see, Prados de la Escosura and Amaral (1993), and Prados De La Escosura (2009).

[20] Also, Ponzio (2005), TePaske (1988), Klein (1994), and Marichal (2008).

run fiscal dynamics of the colonies. For instance, the colonial historian Kenneth Andrien (1995: 190) argues: "...colonial officials were successful in raising [imperial] revenue... but in the 'long run' predatory policies, disrupted business, trade, and capital accumulation". The Mexican historian Carlos Marichal (2007, 249) argues: "In summary, the Crown's fiscal policy weighed unequally on New Spain's population [...]. At the end of the century the finances of Spanish American viceroyalties were crumbling, slowly but surely".

On the other hand, according to Grafe and Irigoin (2006), the imperial fiscal system "...aimed at making the colonies [fiscally] self-sufficient, with intra-colonial transfers covering the needs of regions that either could not or would not raise sufficient revenue".[21] Under the latter logic, it would be difficult to portray the colonial regime in the Americas as a purely 'extractive' fiscal system since the intra-regional income transfers may have promoted growth across the regions, making the finances of the Spanish American colonies sustainable. In general, most of existing quantitative analysis have employed sound data for the mid-eighteen centuries and the primary concern has been to look solely at the mechanisms of the fiscal apparatus during that period; yet, a systematic examination over different colonial periods on whether those mechanisms made the imperial system fiscally sustainable has been overlooked so far. Furthermore, most of these studies analyzing the long-term performance of colonial public finance have neglected a fundamental financial problem: the changing value of money across time.

Chapter 2 of this thesis aims to fill these historiographical gaps examining empirically the long-run fiscal sustainability of the colonial treasuries of Spanish America. It introduces the basic macroeconomic framework of the government budget constraint into the historical case of the Spanish American finances to show statistical evidence on how these macroeconomic conditions changed over time in different colonies. Furthermore, it provides new estimates by adjusting the fiscal series of major colonial treasuries for inflation.

Findings suggest the long-run fiscal performance of the treasuries can be misleading when inflation is not taken into account; the colonial finances of the largest caja for the Spanish empire, Mexico City, can be misrepresented for the period of 1760-1813. Also, for Peru when inflation is not considered, total revenues and expenditures in Lima's caja are undervalued for most of the seventeenth century.

Moreover, there was a shifting process of fiscal sustainability between the colonial treasuries across centuries. While the treasuries of New Spain were unsustainable during the 'Habsburg reign', Peru's treasuries experienced a sustainable fiscal pattern. During the period of 'succession and transition', New Spain's treasuries restored their sustainability in contrast to Peru and Buenos Aires. And finally, in the period of the 'reformism and Napoleonic wars', the treasuries of New Spain deteriorated vastly reaching to an unsustainable position, contrary to their counterparts in Peru and Rio de la Plata.

[21] Grafe and Irigoin (2006: 263).

Chapter 3: Real wages and the Mexican Revolution: a quantitative reappraisal, 1876-1910

The second historical turning point addressed in this work is a rather different historical context; the period following the post-independence decades, that is, the *Belle Époque* (c.1870-1913). The global buoyancy of those years has sparked the attention of numerous economists mostly for the integration of the world economy as a result of the globalization of trade. However, global economic prosperity carried an unprecedented rise in income inequality, an issue that has motived the emergence of new quantitative studies particularly on peripheral regions like Latin America.[22]

This period of high economic growth and income inequality coincide with a contentious period in the economic history of Mexico, the so-called *Porfiriato* (1876-1910). Despite the great economic achievements, this era is considered infamous owing to the political authoritarianism and social segregation which culminated in the world's first armed uprising of the twentieth century: The Mexican Revolution. Various scholars have claimed that the economic and social inequality and in particular a deterioration of the Mexican worker's living standards in those years inspired the popular support for the revolutionary forces that overthrew the dictatorial regime in 1910.[23]

Did worker's living standards really decline during this period in Mexico? **Chapter 3** examines this question by addressing in depth the assumption of a relationship of a declining trend of real wages and the Mexican Revolution. The findings based on regional data show that estimated lower-bound regionally-adjusted wages remained relatively stable in most of the Mexican regions throughout the period. Although these wages followed divergent within-country patterns and there was a slight declining trend in wages of the industrial sector of the Pacific South region, from a broader quantitative perspective there was no dramatic decline as the conventional literature argues. The present estimates indicate that the interpretation of a secular decline in workers' living standards in Mexico from 1877-1910 does not have strong quantitative foundations.

However, a pattern of real wage divergence across regions was a salient feature. The regions in the Center and Pacific South of the country experienced slower real wage growth relative to the North, Pacific-North, and Gulf generating wide sectoral wage gaps. A tension between the forces of regional convergence and divergence emerged in which prevalent labor market institutions in Mexico tended to promote regional divergence,

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[22] Williamson (2015); Frankema (2009); and Bértola and Williamson (2003).

[23] See for instance, Knight (1990). Also in Nickel, H. J. (1988). Agricultural Labourers in the Mexican Revolution (1910–40): Some Hypotheses and Facts about Participation and Restraint in the Highlands of Puebla-Tlaxcala. In *Riot, Rebellion and Revolution. Rural Social Conflict in Mexico,* Princeton.

keeping structural labor market barriers that prevented inter-regional labor mobility and income convergence within the country.

Chapter 4: Did import substitution promote structural change? A comparative study of manufacturing productivity in Mexico, Argentina, and Brazil, 1935-1975

The decades after the Mexican Revolution are regarded as the years of state-led industrialization not only for Mexico but also for other major countries like Brazil and Argentina. In general, the period spanning the decades of the 1930s to the 1970s has been seen as an era of remarkable economic success for the majority of Latin American countries. According to prevalent literature there was an overall improvement in the population's living standards, particularly after the Second World War.[24] As a result this period is considered as the 'Golden Age' of Latin America.[25] Allegedly, the economic achievements took place under a regime of strong state intervention characterized by an economic strategy of industrial protection also known as 'import substitution'. Paradoxically, in the international comparisons of per capita GDP (Gross Domestic Product) by Prados de la Escosura (2007) it is suggested that it was precisely during these years when Latin America fell behind to a set of high-income countries.

In light of this paradox, the subject matter examined in **chapter 4** is centered on one of the ultimate objectives of industrial policy, "reallocation" labor and capital from traditional to modern economic activities in order to increase overall productivity, a feature known as *structural change.* Many authors have also implied that the fast pace of productivity growth may have stemmed from this process. Rodrik (2008), and McMillan *et al.* (2014) using aggregated data have found that in relative terms, structural change in Latin America was higher during the years of protectionism (import substitution) than during the post-liberalization period. Did the policies of import substitution really generate structural change?

Using a higher degree of data disaggregation, this chapter tackles empirically the competing views on productivity and structural change during the period of 1935-1975 in three Latin American countries: Mexico, Argentina, and Brazil. It tests the existence of a *structural bonus/burden* within manufacturing industries by analyzing whether there were significant labor input shifts from less to more productive manufacturing branches induced by tariff policies. The analysis employs disaggregated data from official industrial censuses and produces new estimates of labor productivity for 1935/39, 1950, and 1975.

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[24] e.g. Thorp (1998). See also in Astorga et al. (2005).

[25] For instance, Ocampo and Ros (2011: 10) paraphrased the prominent economist Albert Hirschman for his expression on the period of 1950-1980 as 'les trente glorieuses'.

Next, it decomposes the components of productivity growth in manufacturing industries by applying a shift-share analysis to this newly compiled data.

Estimates from the analysis are unable to find significant evidence of structural change within manufacturing in these countries over the period. The reallocation of labor within the sector did not provide an extra bonus to aggregate productivity growth in addition to growth within individual branches. Most of these branches (food and beverages; textiles and wearing apparel) were by nature labor-intensive and contributed the most to overall productivity growth. Needless to say, one of the broad accomplishments of import substitution was the development of a productive 'light' industry; however, despite the government incentives in protecting other more relatively sophisticated sectors (machinery, transport equipment, and chemicals) with capital-intensive technologies, manufacturing remained 'stuck' into traditional industrial activities.

Chapter 5: Catching up, falling behind, and the role of institutions: Explaining productivity growth in Latin America and Asia from a sectoral perspective

Lastly, earlier and new generations of economic historians have examined the nature of institutions and their impact on long-term performance taking Latin America as a 'natural experiment'. From the celebrated economic historian Alexander Gerschenkron (1962) whose 'catch-up' theory is based on developing regions like Latin America and Eastern Europe's economic characteristics, to seminal works of political economy such as North *et al.* (2000), institutions have been a central part to explain the region's underdevelopment.[26]

However, the existing empirical literature has been unclear in answering which institutions matter the most for long-term growth. **Chapter 5** investigates the role of a set of different institutions in the process of catching up at the sectoral level. Employing various indicators of institutional quality, it examines through a panel dataset the partial effects of a set of institutions on sectoral productivity growth. Drawing on the range of sectoral data from 1970 to 2010, the empirical analysis is based on nineteen 'catch up' economies and taking the United States as the technology leader.

The empirical approach relies on a re-arranged version of the Nelson-Phelps catch up model of technology diffusion. The analysis points out different channels in which institutional quality impacts sectoral productivity growth. Controlling for other growth factors, institutions which interacted with the distance to the frontier affected positively and significantly the growth of labor productivity at the sectoral level. This indicates

[26] See also in P. Gootenberg, 'Hijos of Dr. Gerschenkron'.

that backward sectors in countries endowed with higher institutional quality grow faster than in sectors of countries with lower institutional quality.

Following the empirical specification, I analyzed the different effects that the same institutions have on sectors far-removed from the frontier. The results point to different channels through which institutional quality impacts on sectoral productivity growth. Greater freedom in the legal structure and property rights, freedom from tight market regulations, greater access to sound money, and a small and more efficient government, all in a different magnitude affected positively the growth of sectoral productivity.

In hindsight the results are in line with the body of literature of the so-called 'New Institutional Economics' regarding the prominence of 'market-friendly' institutions in enhancing productivity growth in the long-run. However, in spite of controlling for country and time-invariant factors, estimates are sensitive to the sample selection. The model predictions apply to the majority of the sectors in the Asian sample. On the other hand, sectoral productivity growth in Latin America is not statistically associated with the quality of property rights and market regulations; only in the mining and construction sectors, productivity is statistically associated with the reduction in the size of government and with a better access to sound money. The lessons that this last chapter provides are fundamental for understanding the long-standing debate on the quality of institutions and the appropriateness of transplanting 'good' institutions into underdeveloped regions.

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