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FOUNDATIONS FOR ECONOMIC DEVELOPMENT IN LATIN AMERICA

by

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Theory attempting to explain poverty and development is vast, varied, and, in many ways, inconclusive. In this thesis, I review core literature on the Industrial Revolution and the rise of Western Europe and the Asian Tigers, finding that their economic development rested on a cycle of three fundamental principles: rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. With an emphasis on Latin America, I then conduct a two-step analysis to determine the universal applicability of these factors. First, I analyze the implementation and outcomes of import substitution industrialization, finding an ambiguous correlation between this landmark set of economic policies and economic outcomes. Second, I develop a case study of Mexico that demonstrates a strong correlation between economic development and the three underpinnings of rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. The thesis concludes that these three factors are universally crucial for sustained growth and development. This research also finds that the institutions that provide for these principles can take vastly different forms, and, in doing so, it joins a growing body of scholarship that emphasizes the significance of institutional function over institutional form.

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FOUNDATIONS FOR ECONOMIC DEVELOPMENT IN LATIN AMERICA

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LIST OF ACRONYMS AND ABBREVIATIONS

CEPAL	United Nations economic commission of Latin America and the Caribbean, in Spanish
EP	Export promotion strategy
GDP	Gross domestic product
ISI	Import substitution industrialization
NYSE	New York stock exchange
PRI	Institutional revolutionary party, in Spanish
RDI	Research, development, and innovation
SOE	State-owned enterprise

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They say it takes a village to raise a child. In my case, it has taken several villages to raise me, which makes me a very fortunate individual. I'm painfully aware that my fortune makes me an exception, and not the norm, which was the driving motivation behind this research on poverty and development in Latin America. A special thank you to Dr. Barma, the Naval Postgraduate School, and the rest of the Monterey Bay village for providing me the tools, guidance, mentorship, and support to conduct this study.

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I. INTRODUCTION

Prior to the Industrial Revolution, most people were abjectly poor and lived perpetually on the brink of starvation.[1] Around 1820, however, standards of living began increasing in specific parts of the world, where the next hundred years of economic growth brought about a modern abundant society.[2] Along with this unprecedented abundance, however, came the phenomenon whereby a handful of countries experienced unprecedented economic growth while the rest of the world stagnated. Also known as *The Great Divergence*, this selective explosion of growth essentially divided the world in two: advanced, industrialized countries and the poor, underdeveloped world. With the exception of a handful of countries that were subsequently able to make the leap across the divide, this economic divergence has largely persisted into the contemporary era. Persistent poverty and inequality between countries, therefore, prominently feature in the modern global economy.[3]

Literature attempting to explain these features is vast, varied, and inconclusive; further, economic theories designed to promote development are abundant and contradictory.[4] There is also little agreement on how to measure or even define poverty;

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[1] Joel Mokyr and Hans-Joachim Voth, "Understanding Growth in Europe, 1700–1870: Theory and Evidence," in *The Cambridge Economic History of Modern Europe*, eds. Stephen Broadberry and Kevin H. O'Rourke (London: Cambridge University Press, 2010), 7–42.

[2] Angus Deaton, *The Great Escape: Health, Wealth, and the Origins of Inequality* (Princeton, NJ: Princeton University Press, 2013), 167.

[3] Lant Pritchett, "Divergence, Big Time," *The Journal of Economic Perspectives* 11, no. 3 (1997): 3–17; Deaton. *The Great Escape*; the same case can be made about inequality within countries, but that discussion is beyond the scope of this thesis.

[4] For an example theory attributing developmental divergences to geography see: Jared M. Diamond, *Guns, Germs, and Steel: The Fates of Human Societies* (New York: Norton, 2005); for an example theory attributing developmental divergences to culture see: David S. Landes, *Wealth and Poverty of Nations*. (UK: Hachette, 2015); for an example theory attributing developmental divergences to crops and their colonial legacies see Kenneth L. Sokoloff and Stanley L. Engerman, "Institutions, Factor Endowments, and Paths of Development in the New World," *Journal of Economic perspectives* 14, no. 3 (2000): 217–232; for an example theory attributing developmental divergences to the European monarchy colonies belonged to, see: Robin M. Grier, "Colonial Legacies and Economic Growth," *Public choice* 98, no. 3–4 (1999): 317–335; for an example theory attributing developmental divergences to economic institutions see: Daron Acemoglu, Simon Johnson, and James A. Robinson, "Institutions as a Fundamental Cause of Long-Run Growth," *Handbook Of Economic Growth* 1 (2005): 385–472; this thesis will review various of these development theories, such as the Modernization, Dependency, and Neoclassical theories.

and some have argued that inequality is not, within reason, necessarily negative. Yet poverty and inequality are problematic when they hinder human development—and understanding why countries have different development rates is the foundational context by which we can understand inequality and address poverty. This lack of clarity on the causes for development and poverty has contributed to decades of well-intentioned yet inadequate developmental solutions for emerging economies.

With an emphasis on developing countries in Latin America, this research advances the discussion on development by analyzing factors that influenced economic outcomes during the 19th and 20th centuries. In this research, I find that economic development rests on three fundamental factors: rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. Without attributing causation *per se*, I find that these three factors correlate with various periods of economic growth, operating as a virtuous cycle and strengthening each other with each rotation. Another major finding of this research is that the institutions that provide for these factors can take vastly different forms. That is to say, these fundamental factors are a common denominator across various periods of extraordinary economic growth, more so than systems of governance, or economic prescriptions and policies. The implication of these observations is that the ability of institutions to provide the fundamental factors listed above has a greater impact on economic outcomes than the form of said institutions. This concept of prioritizing institutional function over institutional form argues against a large body of literature and research, most of which commonly advocates for democracy and industrialization as vehicles for development.

A. STRUCTURE OF THE THESIS

I present my research and its findings in four chapters. This first chapter observes the origins of The Great Divergence, reviews the most prominent 20th century developmental theories designed to close the developmental gap, then studies the underlying causes of the Industrial Revolution. It establishes the theoretical and historical foundations to assert that economic development rests on a cycle of rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. The second chapter focuses on

Latin America and its aggressive attempt to replicate the Industrial Revolution through an economic prescription known as *import substitution industrialization* (ISI). I find that ISI delivered vastly inconsistent results in the region, proving the existence of outside factors that influence economic outcomes more so than economic policy. Chapter II thus diminishes the role of economic policies in explaining economic outcomes, increases the importance of other factors, and poses the question: *what are these other factors?* In Chapter III, I make the case that these other factors are, in fact, the fundamental factors outlined in Chapter I. By studying two independent thirty-year periods in Mexico, Chapter III correlates the emergence of rule of law, access to capital, and strong, yet restrained, bureaucratic capacity with extraordinary economic development. Importantly, both of these thirty-year periods occurred under vastly different economic and political systems, diminishing, once again, the importance of institutional form in development, and highlighting the fundamental factors as the common denominator.

Finally, in Chapter IV, I provide concluding remarks for the thesis. In this conclusion, I discuss both the implications and limitations of this study. I suggest that there are more fundamental factors to development than the ones I outlined and call for further research to validate and expand the conclusions. Overall, I contend that this research provides enough theoretical and empirical evidence to suggest that current developmental programs continue to put too much focus on institutional form, while ignoring the functions that truly matter in development.

B. LITERATURE REVIEW

I divide this literature review into four sections. First, since economic divergence and convergence are the central theme of my analysis, I start with the most pronounced historical example of this phenomenon: The Great Divergence. The context provided by this section is important because overcoming this divergence is the driving force behind this research. Second, I review some of the most influential developmental theories of the 20th century, focusing on their main tenets. Third, I provide a brief historical account of the British-led Industrial Revolution, highlighting it as the onset of The Great Divergence and underlining the political economic, social, and institutional environments in which this revolution evolved.[5] This section provides the initial framework that underlines the rule of law, access to capital, and strong, yet restrained, bureaucratic capacity as fundamental factors for development. And fourth, in my concluding remarks I contrast my observations of the Industrial Revolution with the developmental theories of the 20th century. In this final section. I underline that common developmental theories overemphasize institutional forms whilst ignoring their functions.

1. The Great Divergence

For the early industrializers in particular, the Industrial Revolution produced unprecedented growth and—since inequality is often a byproduct of growth—this came with unprecedented inequality. The term the "Great Divergence" is commonly used to describe the developmental gap between countries that grew at an ever-increasing pace from about 1820 to 1950. Gross domestic product (GDP) data prior to the 20th century is scarce and imperfect; nonetheless, this section uses existing literature to illustrate The Great Divergence as experienced in Asia and the Americas, the two regions of the world that were thriving economically before the Industrial Revolution took hold in Europe and then fell behind as a result of it.

For millennia, most significant human activity in the arts, science, and technology was concentrated in Asia.[6] After all, China is credited with inventing the compass, gunpowder, and print. Similarly, the Arabian Peninsula flourished in math, astronomy, and commerce during the Islamic Golden Age.[7] Leading up to the 19th century, Asia accounted

[5] In reference to the Industrial Revolution, I work with the following assumptions and definitions: First, industry or industrialization refers to the application of machinery, fossil fuels, and large enterprises in the production of economic output. The Industrial Revolution refers to the first large-scale integration of these elements in economic outputs, indicating the transition to an industrial economy. It began in the early 1800s in England, with London being the first city to show widespread characteristics of industrialization, and later spread through the rest of Great Britain and to Europe. British raw cotton imports, for example, grew by a factor of twenty from 25 thousand pounds in 1800 to 500 thousand pounds in 1860, indicating an economic transformation was underway. For more information on this topic see Larry Neal and Rondo E. Cameron, *A Concise Economic History of the World: From Paleolithic Times to the Present* (New York: Oxford University Press, 2016), 167, 184.

[6] Asia in this context includes what is commonly referred to as the Middle East.

[7] Amira K. Bennison, *The Great Caliphs: The Golden Age of the 'Abbasid Empire* (New Haven, CT: Yale University Press, 2014).

for two-thirds of the world's GDP and was considered a global hegemon.[8] Per-capita GDP in Asia, however, was still comparable to the rest of the world: pre-industrial economies were mostly agrarian, which meant economic output was mostly a function of population size. While agricultural innovations and practices can certainly improve productivity, this type of economy has inherent limits on attainable per-capita output.[9] Asia's economic hegemony, therefore, was driven by population size and not necessarily by a superior employment of economic factors of production.[10] With the onset of industrialization in the 19th century, Britain led a small number of countries to surpass Asian hegemony by increasing their productivity rates and thereby embarking into an astonishing and unprecedented economic breakout. Prior to this event, per-capita GDP was essentially a flat line with little dips and spikes at key events in history, followed by a slight uptrend beginning in 1670.[11]

Per-capita GDP comparisons in the Americas are more challenging to make because of the radical transformations endured in the three centuries immediately prior to the Industrial Revolution. Specifically, these transformations included a forceful introduction into the world economy; the importation of European technology and institutions; and what Coatsworth calls a demographic catastrophe, which describes the decimation of indigenous people and the introduction of enslaved Africans. Nonetheless, it is possible to determine, without minimizing the disruptive nature of these transformations, that per-capita economic output in South America from the 1700s until the 19th century was comparable to the rest of the world during the same timeframe.[12]

The divergence within the American Continent parallels the Asian one, in that long-standing thriving economies were rapidly subjugated by what were previously weaker economies. Prior to the 19th century, for example, the economies of Mexico and the United

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[8] Richard Baldwin, *The Great Convergence* (Cambridge, MA: Harvard University Press, 2016), 37.

[9] Walt Whitman Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (London: Cambridge University Press, 1990).

[10] Baldwin, 37.

[11] For GDP per capita graph from 1270 to 1870 see Baldwin, 36.

[12] John H. Coatsworth, "Inequality, institutions and economic growth in Latin America," *Journal of Latin American Studies* 40, no. 3 (2008): 545–569.

States were on par with each other, and both were considerably behind those of Barbados, Haiti, and Cuba.[13] But, as history shows, the superior South American economies of the 18th century suffered the same fate as their Asian counterparts.

2. Major Developmental Theories to Close the Gap

Early industrializers gained worldwide first-mover advantages, allowing them to achieve efficiency gains, corner entire industries, and set the terms of trade for non-industrializers. These early industrialization advantages tended to erect natural market entry barriers and create monopolies, minimizing competition from non-industrialized countries and contributing to the global divergence. As the benefits of industrializing became widely evident, the pursuit of economic development became a major goal of all countries, often guided by various developmental theories that continue to spark debate to this day. In this section, I build on the work of John Rapley, reviewing four sets of theory that embody the core debates in the literature and exploring their application in the 20th century. Capturing the strengths and weakness of each of these theories and their application further supports the assertion that the three developmental factors highlighted in the introduction were, and continue to be, the underpinnings of successful industrialization and rapid economic growth.

First, I present modernization theory, a linear development theory that emphasizes the role of capital requirements and entrepreneurship in economic development.[14] Second, I present Alexander Gerschenkron's 1962 non-linear development model, which emphasizes the advantages of late industrialization. Gerschenkron's model is particularly useful because it highlights the different developmental paths of countries and illustrates the importance of institutional function over form. Third, I present the main tenets of structuralism and how it paved the way for import substitution industrialization (ISI) in Latin America. This section also includes dependency theory: a radical version of

[13] For more on information on the strength of the colonial economies of modern-day Barbados, Haiti, and Cuba see: Kenneth L. Sokoloff and Stanley L. Engerman, "Institutions, Factor Endowments, and Paths of Development in the New World," *Journal of Economic perspectives* 14, no. 3 (2000): 217–232.

[14] John Rapley, Understanding Development: Theory and Practice in the Third World (London: Psychology Press, 1997), 24.

structuralism, which emphasizes the disadvantages of the “periphery” and the predatory behavior by the “core.”[15] Fourth, I examine the most salient features of the turn to neoliberalism in the 1980s, resting on neoclassical economics, by studying the application of the structural adjustment reforms in Latin America after the 1982 debt crisis. Finally, I capture a new strand of thinking on how modern technologies are removing barriers to development and enabling world economies to converge.

a. Modernization Theory

Representative of modernization theory, Rostow’s 1960 “The Stages of Economic Growth,” is a five-stage linear growth theory that finds that economies mature and modernize once certain political, economic, social preconditions are met.[16] He narrates that countries follow a discrete trajectory that he describes as follows: 1) traditional society, 2) meeting precondition for takeoff, 3) takeoff, 4) drive to maturity, and 5) the age of high mass consumption. By studying early industrializers, Rostow concluded that undeveloped countries would reach the end of the economic maturity cycle, alongside the early industrializers, once they meet his observed preconditions and progress through each of the remaining economic stages. Britain, Rostow adds, was the first to achieve these preconditions and blazed the trail to maturity. As such, the path is now clearly marked for others to follow. Rostow’s preconditions are much more technical than those I outlined for the Industrial Revolution, focusing instead on the modernization of economic factors, capital accumulation, and extending commercial and trade ties. The conclusion derived from this theory is that underdeveloped countries simply have not developed *yet* and that a convergence is naturally inevitable. Importantly, modernization theory is also congruent with structuralists insofar as they agree on the importance of Western “capital and know-how, to bring [developing] countries into the modern age of capitalism.”[17]

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[15] Paul A. Baran, *Political Economy of Growth*, vol. 76 (New York: NYU Press, 1968), 186.

[16] Rostow; Naazneen H. Barma and Steven Kent Vogel, *The Political Economy Reader: Markets as Institutions* (Abingdon, UK: Routledge, 2007).

[17] Rapley, 25.

b. Gerschenkron Model

Gerschenkron countered Rostow's linear development theory with a comparative study of countries that industrialized circa 1870. He found that these late industrializers had advantages that allowed them to overcome the developmental gap, postulating that these advantages provided for a different, quicker, and non-linear developmental path. Gerschenkron highlighted three advantages in particular. First, late industrializers were able to "*free-ride*" on early industrializers' research, development, and innovation (RDI).[18] By thus adopting technologies instead of innovating them, late industrializers entered competitive markets with the latest technologies. Second, over the course of the century, early industrializers made heavy investments in fixed-assets, which locked them into predetermined courses of action.[19] This *inertia*—or resistance to change—gave late industrializers a competitive advantage because they could pursue a wider range of investments. Germany, for example, "free-rode" on British RDI and quickly became the global iron and steel industry leader because Britain was unwilling, or unable, to modernize its own equipment. Germany would remain uncontested until the beginning of the 19th century, when Russia, a less developed country, combined the same advantages and used them against Germany. This example illustrates how dynamic and powerful the positions of advantage and disadvantage can be.[20]

Third, late industrializers had the opportunity to study the challenges associated with industrialization and deliberately structure themselves accordingly. Britain, as the pioneer, was not afforded this opportunity, while the German banking system was able to combine attributes from both the British and French systems and could specifically adapt to overcome capital scarcity challenges.[21] Since the Bank of England did not have this feature, British industries spent centuries accumulating capital through traditional

[18] This section applies modern-day market terms to Gerschenkron's model. For more on these market terms see Marvin B. Lieberman and David B. Montgomery, "First-Mover Advantages," *Strategic Management Journal* 9, no. S1 (1988): 41–58.

[19] Lieberman and Montgomery.

[20] Alexander Gerschenkron, *Economic Backwardness in Historical Perspective: A Book of Essays*. No. 330.947 G381 (Cambridge, MA: Belknap Press of Harvard University Press, 1962), 5–30.

[21] Ibid.

commercial profits before they were in a position to engage in extraordinary enterprises. German industries, on the contrary, quickly gained access to centuries-worth of capital, a benefit which resulted in more explosive growth.[22] Russia recognized the importance of the function provided by the German banks, but replicated this function via strong state involvement and even militarism.[23] Gerschenkron's key contribution was to underscore that different institutional forms could lead to the same key functions of industrialization being served.[24] In other words, late industrializers did not have to directly follow the path of the pioneers; they could chart their own course as long as certain key ingredients of industrialization were being provided.

Gerschenkron's observations were reinforced in the 20th century by the Asian Tigers, whose economies caught up to the early developers within three decades.[25] These countries took full advantage of being late-movers and excelled in adopting existing technologies and improving upon them to become global industrial competitors. These countries also highlighted, to a greater degree than the original set of late industrializers, the importance of specific political, economic, social, and institutional functions regardless of form. That is to say, the political and economic features of the Asian Tigers differ a great deal from those of the early industrializers but achieved comparable results and produced impressive economic development.[26]

c. Structuralism and Dependency Theory

The end of the Second World War brought with it a new world order, codified in the 1944 Bretton Woods conference and regulated by the newly formed International Monetary Fund and the World Bank. In this new order, Western economies embraced the

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[22] As a byproduct, this feature gave German banks a vested interest in enterprises, this proved to be a stabilizing force because investors, closely resembling the modern corporate world, had little tolerance for personal of family quarrels in the businesses. British enterprises, without comparable oversight, were susceptible to family feuds over lines of succession. See Alexander Gerschenkron, *Economic Backwardness*, 5–30.

[23] Gerschenkron, 5–30.

[24] Barma and Vogel, 196–198.

[25] Ibid.

[26] Kevin Hjortshøj O'Rourke and Jeffrey Gale Williamson, eds, *The Spread of Modern Industry to the Periphery Since 1871* (London: Oxford University Press, 2017).

Keynesian consensus—a combination of free-market principles and state involvement to "improve" said market, especially via government spending.[27] In practice, countries embraced the principles of specialization and comparative advantages as the foundation for trade and economic growth, but called for the government to nationalize, regulate, and spend as required. In this world, low-income countries found themselves subjugated to exporting raw and primary foods and materials: their only competitive advantage.[28] As the living standards for low-income, commodity-exporting countries failed to improve, a new wave questioning the role of the emerging world in the global economy began, bringing with it new debates on the size and role of the state in the economy. The theme of this new wave of theories found that the current world economic order had "structural obstacles" and called for the state to remove them.[29] These calls for state action and heavy involvement in the economy were generally congruent with the Keynesian consensus, likely contributing to the spread of these theories.

Taking a structural view of the global economy, Raul Prebisch concluded in 1950 that commodity exporting countries were experiencing *declining terms of trade*: that is to say, the purchasing power of Latin American primary goods was declining in relation to the finished goods they were importing.[30] In his work, Prebisch recognizes the theoretical value of comparative advantage but highlights that Latin America simply had not had the opportunity to industrialize and, if given the opportunity, could also achieve new competitive advantages.[31] The natural conclusion for Prebisch was to call for protectionism and state-led industrialization.[32] This theory gained considerable influence when Prebisch became the Executive Director of the UN's Economic Commission of Latin America (CEPAL, in Spanish) in 1950: a platform from which he strongly prescribed import

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[27] Rapley, 13–18.

[28] Raúl Prebisch and G.M. Cabañas, "El desarrollo económico de la América Latina y algunos de sus principales problemas," *El trimestre económico* 16 no. 63(3) (1949): 347–431, 1.

[29] Rapley, 3, 28.

[30] Raúl Prebisch, "Crecimiento, desequilibrio y disparidades: Interpretación del proceso de desarrollo económico." *En: Estudio económico de América Latina 1949* E/CN. 12/164/Rev. 1 (New York: UN Publications, 1951), 34.

[31] Prebisch and Cabañas, "El desarrollo económico," 347–431, 1.

[32] Prebisch, "Crecimiento, desequilibrio y disparidades," 82–84.

substitution industrialization (ISI) strategies in Latin America.[33] In short, the ISI model called for a restriction of imports via protectionism and promoted rapid growth via state-owned enterprises. Proponents claimed this approach would diversify Latin American economies and make their economies more resilient to international cycles.[34]

Dependency theorists drew on similar observations as the structuralists but were considerably more radical in their view, emphasizing the role of the first world in repressing development. Andre Gunder Frank encapsulated the sentiment in 1966 when he stated that the "present underdevelopment of Latin America is the result of its centuries-long participation in the process of world capitalist development."[35] By this, he meant that the growth of the Western, industrialized core depended heavily on the depredation of the global periphery in the Third World. Frank found that the relationship between the two areas was one of oppressed and oppressor, designed to suck the economic worth from the periphery to further develop and enrich existing ruling classes.[36]

Frank supported this argument with two case studies: Chile and Brazil. Chile was once fully integrated into the world economy but remained underdeveloped as of 1966. Similarly, Brazil was a fully developed export economy but never became self-sufficient. Frank noted that capitalist-export economies design their political, economic, and social structures around international markets. Inevitably, these markets will someday fail and country are left with anti-sufficiency structures.[37] This combination, Frank asserts, leaves countries with "no alternative but to turn in upon themselves and to degenerate into… ultra-

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[33] James M. Cypher and James L. Dietz, *The Process of Economic Development* (Abingdon, UK: Routledge, 2008), 169.

[34] Victor Bulmer-Thomas, *The Economic History of Latin America Since Independence* (London: Cambridge University Press, 2003), 257, 268.

[35] Andre Gunder Frank, *The Development of Underdevelopment* (Boston, MA: New England Free Press, 1966), 7.

[36] Ibid.

[37] The author provides *Latifundios* as an example of the type of economic institutions that arise in capital-export economies. According to Frank, latifundios are a commercial response to meet international market demands for primary goods, but they remain as large monopolies long after the market demand disappears, limiting conventional wealth distribution and stifling opportunities. This position is vastly different from other authors who claim latifundios are inherited institutions from colonial pasts. For more on this see: Andre Gunder Frank, *The Development of Underdevelopment.*

underdevelopment."[38] Validating dependency theory, Latin America seemingly performed better economically when the international community was in crisis and, by extension, less interactive with Latin America. Latin American economies, Frank asserted, were more likely to industrialize and become self-sufficient during the Napoleonic Wars, the World Wars, and the Great Depression. He found that several regions became commercial centers during these periods and then devolved economically once the crises ended.

While the application of ISI in Latin America initially produced favorable results, history has been unkind to ISI strategies in Latin America, drawing a wide-range of criticism by many of its initial proponents, to include Prebisch himself.[39] By 1970, the OECD went even further and concluded that ISI policies in Brazil, Argentina, and Mexico were damaging economies more than they were helping.[40] Lack of productivity, poor quality products, inequality, dualism, squandering, and corruption were highly characteristic of ISI policies in Latin America and contributed to their demise. Dependency theorists also became critics of the ISI model and called for isolation from the international community as a mechanism to become self-sufficient.[41] Latin America's performance during isolation seemingly validated this prescription. But an alternative explanation to the superior economic performance during isolationist periods is that states did not have access to customs revenues and were forced to delve into society in the quest for revenues, thereby providing concessions and services and strengthening their bureaucratic capacity in the

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[38] Gunder Frank, *The Development of Underdevelopment*, 13.

[39] For criticism by Prebisch himself see: Cristóbal Kay, *Latin American Theories of Development and Underdevelopment*. vol. 102 (Abingdon, UK: Routledge, 2010), 45, and Albert O. Hirschman, "The Political Economy of Import-Substituting Industrialization in Latin America." *The Quarterly Journal of Economics* 82, no. 1 (1968): 2. For other examples by authors who helped develop ISI theories while working at the ECLA see: Aníbal Pinto Santa Cruz, "Concentración del Progreso Técnico y de sus Frutos en el Desarrollo Latinoamericano" (1965); M. da C. Tavares and José Serra. "Beyond Stagnation: A Discussion on the Nature of Recent Development in Brazil,'" *Latin America: From Dependence to Revolution* (New York: John Wiley 1973); Celso Furtado, *Teoría y Política del Desarrollo Económico*, Siglo xxi (1999), 250–281. This topic will be studied more in depth in Chapter II.

[40] For a review of a 1970 Organization for Economic Co-operation and Development (OECD) study that concluded that ISI was detrimental for Brazil, Mexico, and Argentina see, Paul Streeten, *The Economic Journal* 81, no. 321 (1971): 144–48.

[41] Rapley, 28.

process.[42] By the late 1970s, however, the inefficiencies and abuses of both the ISI and the *dependista* experiments heavily discredited the role of the state in economic development and instead created an environment for right-wing free-market parties to gain influence.[43] Additionally, the beginning of the debt crisis in 1982 essentially put an end to the ISI experiment in the region and—as part of the global right-wing shift—paved the way for neoliberal developmental policies in Latin America.[44]

d. Neoclassical Turn

The neoclassical turn in Latin America was the result of many converging factors both within and outside the region. The elections of Margaret Thatcher and Ronald Reagan in 1979 and 1980, respectively, signaled a new era of right-wing influence and neoclassical economics.[45] Neoclassical economists such as Milton Friedman built on the principles of Adam Smith, contending that government should limit itself to providing the right environment for individuals to drive the economy forward. Friedman also advocated for monetary policy as a way to fight inflation, a widespread affliction of the 1970s—this increased the appeal of neoclassical policies in developed economies and, naturally, the IMF and the World Bank began exporting this approach.

The timing of this shift converged with a major debt crisis in Latin America, marking ISI as the antithesis to neoclassical theory. The debt crisis in Latin America gave the IMF and the World Bank considerable influence over economic policy in the region as they promised financial relief to countries in exchange for domestic structural reform. The

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[42] This argument is a variation of Miguel Centeno's research study that found that the explanatory power of the European experience in which war yielded institutional capacity—Tilly's "the war made the state, and the state made war"—does not hold for Latin America, due in part to alternate sources of funding, such as custom taxes. For more on the Centeno research see: Miguel Angel Centeno, "Blood and Debt: War and Taxation in Nineteenth-Century Latin America." *American Journal of Sociology* 102, no. 6 (1997): 1565–1605; for more on the War yielding institutional capacity in Europe see: Charles Tilly and Gabriel Ardant, *The Formation of National States in Western Europe* Vol. 8 (Princeton, NJ: Princeton University Press, 1975).

[43] Rapley, 28; Importantly, I largely ignore the Asian ISI experience, which was considerably different than it was in Latin America.

[44] Manuel Pastor, Jr., "Latin America, the Debt Crisis, and the International Monetary Fund," *Latin American Perspectives* 16, no. 1 (1989): 79–110.

[45] Rapley, 63.

recipe for development prescribed by the IMF was stark: deregulation, privatization, austerity, trade liberalization, and free exchange rates.[46] The results of these structural reforms have been the source of major criticism, as they seemingly worsened the living standards of the poor by way of higher food prices, unemployment, educational cutbacks, etc. Perhaps one of the most extreme examples of the unintended consequences of structural reforms were the water wars in Bolivia, where violent protests erupted after the government privatized the water supply system and prohibited marginalized indigenous communities from even collecting rain water.[47] Lackluster neoclassical performance also paved the way for a "left turn" in Latin America, a trend that continues to date.

e. Convergence Theories in the Digital Age

The transformative technologies of the Digital Age bear resemblance to the technologies of the Industrial Revolution. The leapfrogging potential offered in the Digital Age is enormously encouraging, such that a number of analysts claim that economic convergence is on the horizon. The central theme of this line of thinking is that innovations in communications, energy, and transportation industries have neutralized the competitive advantage of current global hegemons, such that worldwide economic development will converge. Baldwin, for example, highlights the drop in communication costs circa 1990 as the major driver for convergence. He contends that major corporations, in pursuit of cheaper wages, started a knowledge-flight from developed countries to developing countries. As a result, emerging economies are now equipped with the same tools and knowledge as developed economies and this combination will yield widespread convergence.[48]

Likewise, Friedman finds that new digital tools have integrated individuals into the global economy and that these individuals are now able compete with corporations. He describes these digital tools acting as flatteners because they enable access to the global

[46] Michael M. Weinstein, ed., *Globalization: What's New?* (New York: Columbia University Press, 2005): 228–261.

[47] Oscar Olivera and Tom Lewis, *¡Cochabamba!: Water War in Bolivia* (Boston: South End Press, 2000), 9.

[48] Baldwin, 8.

economy, create horizontal connections, and shift innovation and processes from a hierarchical vertical structure to a horizontal collaborative one.[49] These authors rely more on stylized narratives than on empirical evidence to support their arguments, narrating a process whereby technological advancements will overcome developmental challenges for emerging economies. These narratives have a striking resemblance to modernization theory, while doing little to address the more structural critiques of the global economy.

3. The Industrial Revolution

The term "Industrial Revolution" is actually slightly misleading because it suggests a violent change. In actuality, the Industrial Revolution was centuries in the making and was largely accidental, in the sense that Britain did not make a concerted effort to transition into an industrial economy, let alone pioneer it. The term also obscures the supporting roles of the Reformation, the Scientific Revolution, the Enlightenment, the Glorious Revolution, and many other influences that are too vast in terms of scope and too complex in terms of interaction for this thesis to capture. Nonetheless, this section summarizes the main political, economic, and legal–institutional factors that advanced political and economic pluralism, individual and intellectual freedoms, the rule of law, and enforceable private property and contract laws.[50] These features, while not sufficient individually, were the necessary preconditions that gave Britain the tools to start the Industrial Revolution.

a. Political Economy and Institutional Factors

Political innovations in 17th century England were as impressive as the technological innovations the country would create in the 19th century.[51] Prior to the Industrial Revolution, as described extensively by Acemoglu and Robinson, serfdom was a thriving practice in Eastern Europe and Western European monarchies ruled with near absolute power. These unrestrained ruling classes placed heavy restrictions on economic

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[49] Thomas L. Friedman, *The World is Flat: The Globalized World in the Twenty-First Century* (London: Penguin, 2006).

[50] Acemoglu and Robinson study the role of these features in modern economies in *Why Nations Fail.*

[51] Daron Acemoglu and James A. Robinson, *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* (New York: Crown Publishing, 2012), 102.

activities, had arbitrary tax codes, and monopolized profitable industries. In short, the entire economic apparatus in Europe was designed to channel power and wealth to the elite. England broke this tradition with a political revolution in the 17th century that severely restrained the power of the English monarchy; eliminated monopolies; and solidified the tax code under Parliament.[52] In effect, profits could be distributed across broader sections of society and the monarchy could only receive income via Parliament-approved taxes. This relationship marked the beginning of an accountable state-society contract, one in which the bureaucratic capacity of the state grew by providing value to its citizens and was pushed towards business-friendly policies—putting England on the path to the Industrial Revolution.[53]

b. Sparking the Industrial Revolution

The political revolution in England provided the institutional foundation for market-enhancing policies—such as an enforceable rule of law, broader distribution of profits, and a growing social contract—to provide merchants with an economic environment oriented towards productive economic behavior. The first of its kind, the resulting market became the engine that would drive the Industrial Revolution.[54] As Adam Smith illustrated empirically in his seminal work, *The Wealth of Nations*, this combination of factors optimized capital allocation and, through a combination of mostly unintended beneficial consequences, contributed to rapid increases in economic surplus or rapid economic growth.[55] What followed was a natural progression to the Industrial Revolution. Inventors and entrepreneurs found a market in which they could access capital and, under the protection of the law, develop technologies such as the steam engine, the locomotive, and the telegraph. These are the key technologies that reduce trading costs and expanded

[52] For more information on the role the 1642, English Civil War and the 1651 Glorious Revolution in these accomplishments see Acemoglu and Robinson, 102.

[53] Acemoglu and Robinson, 105.

[54] Neal and Cameron, *A Concise Economic History of the World*, 165; Acemoglu and Robinson, 103.

[55] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Edwin Cannan, ed. (London: Methuen & Co., Ltd. 1904), Library of Economics and Liberty [Online] available from http://www.econlib.org/library/Smith/smWN.html.

factories, allowing British firms to expand consumer bases, achieve efficiency gains, and corner industrial markets.[56]

c. Fueling the Great Divergence

The strength and focus of central states played a pivotal role in fueling The Great Divergence. As the political environment in Britain became more permissive the political environment in the rest of Europe, with minor exceptions such as France and Germany, remained largely unchanged in their absolutism until WWI.[57] Weak and narrow-focused states existed for centuries prior to the Industrial Revolution; however, this trait proved to be an economic catastrophe for countries afflicted with it at the onset of the Industrial Revolution. As the early industrializers flooded the markets with inexpensive goods and increased demand for commodity goods, many countries found it irresistible to de-industrialize.[58] Elites that controlled the factors of production were seduced by the commodity boom and destroyed local industries in the process. Some elites, particularly in the feudalist economies of Eastern Europe, outright opposed or outlawed industrious practices in order to protect their extractive institutions.[59] Lack of a strong pluralist central government to stop this devolution effectively sentenced Latin America to the periphery and confined them to exporting the commodities that fueled The Great Divergence.[60]

The divergent results between these two political models enforces the notion that the Industrial Revolution was the outcome of a political revolution.[61] It also highlights how the rule of law, access to capital, and a restrained bureaucratic capacity are conducive to economic growth. Non-pluralist systems, on the contrary, tend toward weak social

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[56] Baldwin, 37.

[57] Neal and Cameron, 160.

[58] Coatsworth.

[59] In the Austro-Hungarian Empire, for example, serfdom remained legal until 1848, a practice not seen in Western Europe since the 1400s. For more on the Austro-Hungarian empire, see Neal and Cameron, 301; for more on feudalism in Western Europe, see Douglass C. North and Robert Paul Thomas, *The Rise of the Western World: A New Economic History* (London: Cambridge University Press, 1973), 92.

[60] Coatsworth.

[61] John Zysman and Abraham Newman, eds., How Revolutionary was the Digital Revolution?: National Responses, Market Transitions, and Global Technology (Redwood City, CA: Stanford Business Books, 2006), 21.

contracts and inadequate economic policies, because they empower those who prefer such policies.

C. MAIN TAKEAWAYS AND CONCLUDING REMARKS

The emergence of the modern abundant society we know today began in the early 1800s when select parts of the world transitioned from agrarian-based economies to industrial-based economies. In addition to unprecedented growth and abundance, this transition also created an unprecedented gap between the now advanced industrialized countries and poor underdeveloped countries. Also known as The Great Divergence, this gap has been the focus of a large quantity of theories and research, but there is little consensus on the root causes for development or underdevelopment. Recognizing that The Great Divergence was fueled by the Industrial Revolution, I theorize that the fundamental causes of the Industrial Revolution are universally applicable to development.

My historical interpretation of the Industrial Revolution is that Britain's rise rested on a cycle in which restraints on governmental powers permitted the distribution of profits outside of royal circles. These profits allowed for the accumulation of capital, which, in addition to providing for private ventures, was also subsequently reinvested into political institutions, yielding a cycle of further restraints under the aegis of rule of law, strengthening the social contract, and producing widespread growth.[62] Although the causal ambiguity of this developmental cycle obscures where it begins, the cycle illustrates the importance of restraints, rule of law, and capital, in creating and maintaining developmental growth.

Based on this interpretation of the Industrial Revolution, I emphasize that the rule of law, access to capital, and strong, yet restrained, bureaucratic capacity are fundamental factors required to create a virtuous growth cycle and yield economic development. This interpretation argues against some of the most influential developmental theories of the 20th century, which, I contend, misunderstood the Industrial Revolution as a story of

[62] This is the central thesis, as interpreted by this author, in Daron Acemoglu, Simon Johnson, and James Robinson, "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth," *American Economic Review* 95, no. 3 (2005): 546–579.

political and economic systems, technology, and entrepreneurship—not a story of political functions. As a result of this misattribution, most developmental initiatives—ISI included—focus on providing resources and replicating specific economic models. In Chapter II, I support this latest claim by performing an extensive analysis of ISI, arguably the most invasive and ambitious developmental program in Latin America to date. In this analysis, I find that, as an aggregate, countries that implemented ISI performed slightly worse than countries that did not. However, the broad range of economic outcomes across countries indicates that the ISI program played a surprisingly small role in economic performance.

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II. INDUSTRIALIZATION POLICY IN LATIN AMERICA

The motivation of Latin American states to implement import substitution industrialization (ISI) programs is largely attributable to the economic shocks of the 20th century, specifically the two World Wars and the Great Depression. While these shocks had consequences on a global scale, they were particularly harmful to countries dependent on commodity trade. In this chapter, I make two key arguments. First, I argue that the absence of the rule of law, access to capital, and strong, yet restrained, bureaucratic capacity during the 19th century put Latin America on a divergent developmental path from that of the industrial world. More specifically, I find that the absence of these fundamental factors contributed to the Latin American dependence on commodity trade for income, increasing the severity of the impact produced by the two World Wars and the Great Depression on Latin American economies and motivating Latin American governments to take a bigger role in their economies. This first argument also illustrates the appeal of ISI, an aggressive industrialization program to reduce commodity dependency and deliver economic growth.

My second argument is that economic outcomes in the late 20th century were determined by a conjunction of factors, and that the role of ISI in these outcomes is unclear. This argument is built from a quantitative analysis of economic performance in Latin America from 1950 to 1982, which finds that while there is a slight negative relationship between ISI policies and economic growth, the model overall delivered a broad range of outcomes in the region. Essentially, these observations indicate that economic policies influence economic outcomes—but to a smaller degree than expected. This is a surprising finding because positions on ISI tended to be highly polarized, either in favor or in opposition, but my research finds that the debate was rather inconsequential.

A. OVERVIEW

I divide this chapter in three sections. First, I briefly review the economic history of Latin America, from the beginning of the 19th century through the Second World War. In this section, I focus on the absence of the fundamental factors, and how this absence permitted elites to monopolize profits, prevent widespread reform, and subjugate their respective economies to commodity trade. This section provides the context by which Latin America emerged from the Second World War heavily dependent on commodity trade, which also aids in understanding the appeal of the ISI model to policy makers. Second, I conduct a quantitative analysis of ISI, which concludes that the model not only failed to meet its objectives but, in fact, was an overall detriment to the region. The final section extracts the theoretical implications of the ISI findings, minimizing the importance of ISI and highlighting the existence of other factors. This final section sets the transition into Chapter III, where I make the case that these other factors are a developmental cycle of rule of law, access to capital, and strong, yet restrained bureaucratic capacity—the same fundamental factors observed during the Industrial Revolution.

B. HISTORICAL INTERPRETATION OF ISI IN LATIN AMERICA

Understanding how Latin America evolved in the post-independence era is a helpful starting point to advance the discussion on the present-day developmental gap and the appeal of the ISI model in mid-20th century Latin America. Starting with the independence movements in Latin America, this section shows the divergent path of Latin America during key periods of the Industrial Revolution.

1. Independence to WWII: Where Did the Profits Go?

Independence movements in Latin America were more related to the collapse of the Spanish Empire than they were an endogenous demand for reform and self-governance.[63] Newly formed republics inherited colonial leaders, practices, structures, and institutions. Further, leading up to the revolutions, Spanish American settlers reigned over their territories with great autonomy and never upheld Spanish institutions with great regard because of their restraining nature.[64] As a result of this strong regionally based power and the destruction of the remaining Spanish bureaucratic authority, the post-

[63] Robert H. Bates, John H. Coatsworth, and Jeffrey G. Williamson, "Lost Decades: Post Independence Performance in Latin America and Africa," *The Journal of Economic History* 67, no. 4 (2007): 917–943, 921.

[64] Carlos Fuentes, *Latin America: At War with the Past* (Toronto: House of Anansi, 2001), 27–29.

colonial environment in Latin America gave rise to the *caudillismo* era throughout Latin America. While the exact definition of the caudillos is open to interpretation, Lynch describes them as strong regional warlords who reigned in an apolitical system of personal dominance and submission, and whose influence rose to national significance in their respective republics. In this system, "supreme power was personal, not institutional" and large estates—fit for agriculture and livestock—were a primary source of wealth.[65]

The time period of the caudillismo coincided with the demand boom for raw materials. As a result, elites had little desire to change the socio-political and economic structures.[66] While extensive research on this time period is beyond the focus of this thesis, the convergence of caudillismo in Latin America with the incentive structure created by the international demand for raw materials strongly correlates with the findings of Acemoglu and Johnson on 19th century Eastern Europe.[67] Per that discussion in Chapter I, elites in feudal Eastern European economies repressed their regions because providing raw materials to their industrious counterparts in Western Europe benefited their immediate interests. Latin America, similarly, entered the 20th century with limited political, economic, or social reform, minimal investment in institutional capacity, and strongly dependent on commodities.

Bolivia during the first half of the 20th century is very representative of the role elites played in suppressing regional economies, where a handful of tin-mining families came to dominate national economic and political affairs.[68] As a result, the Bolivian economy became dependent on a single commodity—tin—for over 70 percent of its exports.[69] This extreme commodity dependence repeated itself across the region to a

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[65] John Lynch, "Bolivar and the Caudillos," *The Hispanic American Historical Review* 63, no. 1 (1983), 4; James Lockhart, "Encomienda and Hacienda: The Evolution of the Great Estate in the Spanish Indies," *The Hispanic American Historical Review* 49 no. 3 (1969), 424.

[66] Werner Baer, "Import Substitution and Industrialization in Latin America: Experiences and Interpretations," *Latin American Research Review* 7, no. 1 (1972): 96.

[67] Acemoglu and Robinson, 98–109.

[68] Rex A. Hudson and Dennis Michael Hanratty, *Bolivia, A Country Study* (Washington, DC: Headquarters, Dept. of the Army, 1991), 101.

[69] Paul Valentine Horn and Hubert Emerson Bice, *Latin-American Trade and Economics* (Upper Saddle River, NJ: Prentice-Hall, 1949), 134.

varying extent. Using key representative countries, Table 1 illustrates the extent of the region's commodity dependence in 1938. Argentina, for example, the most diverse country in the table, relied on two products for 40 percent of its exports. Guatemala, the worst performing country, relied on coffee and bananas for over 95 percent of its exports.

Table 1. Top Two Exports in Selected Countries in 1938

Country	Top Export	Percent	2nd Export	Percent	Total Percent
Argentina	Corn	26.9	Linseed	12.8	39.7
Bolivia	Tine	71.4	Silver	12.3	83.7
Brazil	Coffee	45.5	Cotton	19.1	64.6
Chile	Copper	38.0	Nitrate	28.2	66.2
Colombia	Coffee	58.4	Petrol	17.9	76.3
Costa Rica	Coffee	57.5	Bananas	23.5	81.0
Ecuador	Cocoa	21.1	Minerals	19.2	40.3
Guatemala	Coffee	70.2	Bananas	25.0	95.2
Honduras	Bananas	82.3	Gold/Silver	9.0	91.3
Mexico	Silver	21.9	Lead	9.9	31.8
Nicaragua	Coffee	45.5	Bananas	38.0	83.5
Panama	Bananas	73.6	Other		73.6
Paraguay	Cotton	28.4	Quebracho	21.7	50.1
Peru	Cotton	27.3	Petroleum	23.2	50.5
Salvador	Coffee	89.2	Gold/Silver	5.7	94.9
Uruguay	Wool	40.4	Gold/Silver	9.4	49.8
Adapted from Horn and Bice (1949), Table 13, p.134					

The dependence depicted in Table 1—promoted by elites based on their own personal incentives—yielded economic disasters during the Great Depression and the Second World War because as commodity prices fluctuated, so did entire economies. These disasters subsequently motivated Latin American policymakers, who recognized the need to address commodity dependence and declining terms of trade after the Second World War. Import substitution industrialization (ISI) seemed the clear solution.

2. What Was the Import Substitution Industrialization Model (ISI)?

The quest to become more resilient to international boom and bust cycles can roughly be divided into two polarized approaches: an intensification and diversification of exports; or an inward turn and the industrialization of manufactured goods as a mechanism to become autonomous.[70] While industrializing initiatives in Latin America date back to colonial times, industrialization via import substitution did not become a widespread economic prescription until after the United Nations Economic Commission for Latin America and the Caribbean (CEPAL, in Spanish)—specifically Raul Prebisch—provided the theoretical foundations for the ISI model in 1950.[71] Identifying the exact role of the CEPAL in the implementation of ISI in each individual country is challenging because not every country openly acknowledged the beginning of ISI, nor did they necessarily acknowledge the influence of the CEPAL in their domestic politics.[72] Importantly, the methodology behind Prebisch's work has been widely criticized by the academic community.[73] Nonetheless, CEPAL came to represent an international endorsement of ISI, which facilitated access to loans and capital from the international community.

In short, the motivation provided by economic crises, the theoretical framework provided by the CEPAL, and the access to loans and capital provided by the international

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[70] Bulmer-Thomas, 257, 268.

[71] Edmund Valpy Knox FitzGerald, "ECLA and the Theory of Import Substituting Industrialization in Latin America," in *An Economic History of Twentieth-Century Latin America* (London: Palgrave Macmillan, 2000), 58–59.

[72] Baer, 97.

[73] Sarkar (1986) provides a list of 14 different academic articles supporting attacking the methodology of Prebisch's 1950 study, see: Prabirjit Sarkar, "The Singer–Prebisch Hypothesis: A Statistical Evaluation," *Cambridge Journal of Economics* 10, no. 4 (1986): 355–371.

community ushered in a new era of economic pursuit for Latin America via the ISI model. The heart of the ISI model was to (1) restrict imports via protectionist tariffs, quotas, permits, and prohibitions and (2) to promote rapid growth via state-owned enterprises. This combination, proponents claimed, would diversify Latin American economies and make them more resilient to international cycles.

As a result of the adoption of import restriction policies, tariff rates in Latin America around 1960 were among the highest in the world and higher than ever before in the region. Table 2 illustrates these measures by comparing tariff rates in select Latin American countries to average rates in Europe. These tariffs were also combined with favorable policies towards importing raw materials, with the intent of also promoting industrialization.[74]

Table 2. Protectionist Tariffs circa 1960, in Percentages.

Country	Nondurable consumer goods	Durable consumer goods	Semi-manufactured goods
Argentina	176	266	95
Brazil	260	328	80
Chile	328	90	98
Colombia	247	108	28
Mexico	114	108	28
Uruguay	23	24	23
Europe	17	19	7
Adapted from Bulmer-Thomas (2003), Table 9.I, p.271			

[74] Bulmer-Thomas, 257, 341.

Importantly, the figures in Table 2 do not fully capture the intensity of the protectionist measures at the time. Countries also applied additional restrictions to imports, a measure not captured by the table. Mexico and Uruguay are a good example of this concept. Despite their comparatively low tariffs, both of these countries restricted imports via permits and quotas, highlighting the power of these alternate policies in restricting imports.[75]

The second pillar of ISI depended on state-led growth, which meant the state created or took possession of many industries, particularly industries that the private sector would not enter. The number of state-owned enterprises (SOE) thus grew considerably over this timeframe, although data to quantify this claim are hard to come by. One OECD report finds that in the case of Brazil, the state itself did not even know how many SOEs they owned.[76] Presumably, this was an endemic problem for the rest of the region as well. The notion of the dramatic increase of SOEs during the ISI period is supported by a large volume of literature. Rapley, for example, concludes that Chile, Argentina, and Brazil were the countries to most aggressively take over leading sectors of the economy. Between 1940 and 1970 the Chilean state government created 140 firms and is reported to have owned nearly 700 SOEs in the 1970s—compared to the 34 firms they own in 2018.[77] For context, research shows that the New York Stock Exchange (NYSE) listed 1153 tradable firms in 1985, providing a frame of reference to the size and role of the state assumed during the ISI experiment.[78] Combining the SOE narrative along with the protectionist measures listed in Table 2 illustrates how committed governments were to the ISI experiment. These

[75] Bulmer-Thomas, 271.

[76] Full report available at: Aldo Musacchio and Sergio G. Lazzarini, "State-Owned Enterprises in Brazil: History and Lessons," The Working Party on State-Ownership and Privatisation Practices (April 4, 2014), https://www.oecd.org/daf/ca/Workshop_SOEsDevelopmentProcess_Brazil.pdf.

[77] Directorate of Intelligence, "Chile: Allende's Economic Record, "Central Intelligence Agency (April, 1972), https://www.cia.gov/library/readingroom/docs/CIA-RDP85T00875R001700030070-0.pdf; "Chile Country Commercial Guide," Export.gov (17 Aug., 2017), https://www.export.gov/article?id=Chile-State-Owned-Enterprises.

[78] This number was derived by pulling a list of all current firms listed in the NYSE and filtering companies added after 1985 (the first available year). The original list of companies is available on the NASDAQ website.

commitments, however, did not translate into a favorable economic outcome to the ISI experiment.

C. ANALYTICAL BREAKDOWN OF ISI IN LATIN AMERICA

Empirical and quantitative analysis of economic performance in Latin America between 1950 and 1990 reveals three headline conclusions. First, ISI failed to achieve its main objective: to liberate Latin American nations from their dependence on commodities. Second, there is a slight negative relationship between ISI and economic growth between 1950 and 1980. Third, the negative relationship between ISI and economic growth was strongest between 1980 and 1990.

To support these conclusions, I start by listing the assumptions and definitions of my analysis. The ISI experiment in Latin America did not necessarily fit a perfect definition within defined dates. Rather, ISI existed as a variety of policies with a varying range of intensity over the course of several decades. To overcome this ambiguity, I build on the work of Bulmer-Thomas and I make several assumptions in order to assign discrete dates and locations. The remainder of this section builds on this framework in a three-part analysis: a commodity dependency analysis; an economic growth comparison between ISI and non-ISI countries, and an economic growth comparison based on rule of law—all of which support the aforementioned findings.

1. Assumptions and Definitions

The implementation of ISI was most predominant in Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay, likely because these republics already had existing industries to build upon. Importantly, however, Bolivia, Paraguay, and Peru briefly experimented with ISI as well.[79] Of note, Venezuela had a period of industrialization policies, but these were largely overshadowed by the deindustrializing nature of their Dutch

[79] Bulmer-Thomas, 257, 268.

Disease.[80] This combination is problematic in analyzing the performance of ISI; for this reason, Venezuela figures are excluded from this quantitative analysis of ISI.[81]

In order to define the start and end dates of ISI, I make four assumptions. First, with the exception of Peru, all participating countries are assumed to have started ISI in 1950 with the publication of Prebisch's study. This is a reasonable assumption because the Prebisch study intensified and formalized an approach that was already prevalent in Latin America. In the case of Peru, the signing of La Ley de Promoción Industrial in 1959—a law designed to aggressively promote industry—is the first clearly documented instance of an ISI push.[82] Second, I assigned the end dates based on significant changes in a country's leadership. In the case of Chile, Uruguay, Paraguay, and Peru, military coups d'état indicate a clear rightward shift in economic policy.[83] Similarly, in Bolivia, the end of ISI is represented by the election of an orthodox president in 1956.[84] Third, the 1982 Mexican declaration of bankruptcy and the subsequent imposition of austerity policies across much of the region represents the overarching end of the ISI model, which is the date used to signify the end of ISI in countries without previous significant indications of a right turn. Last, some authors make a distinction between ISI and an export promotion strategy (EP) some countries tested circa the 1960s. In my analysis, I do not make a distinction between EP and ISI. I find that EP was more of an addendum to ISI than it was a new development

[80] W. Max Corden and J. Peter Neary, "Booming sector and de-industrialization in a small open economy," *The Economic Journal* 92, no. 368 (1982): 825.

[81] Similarly, Belize is omitted from this discussion because they did not gain its independence until 1981.

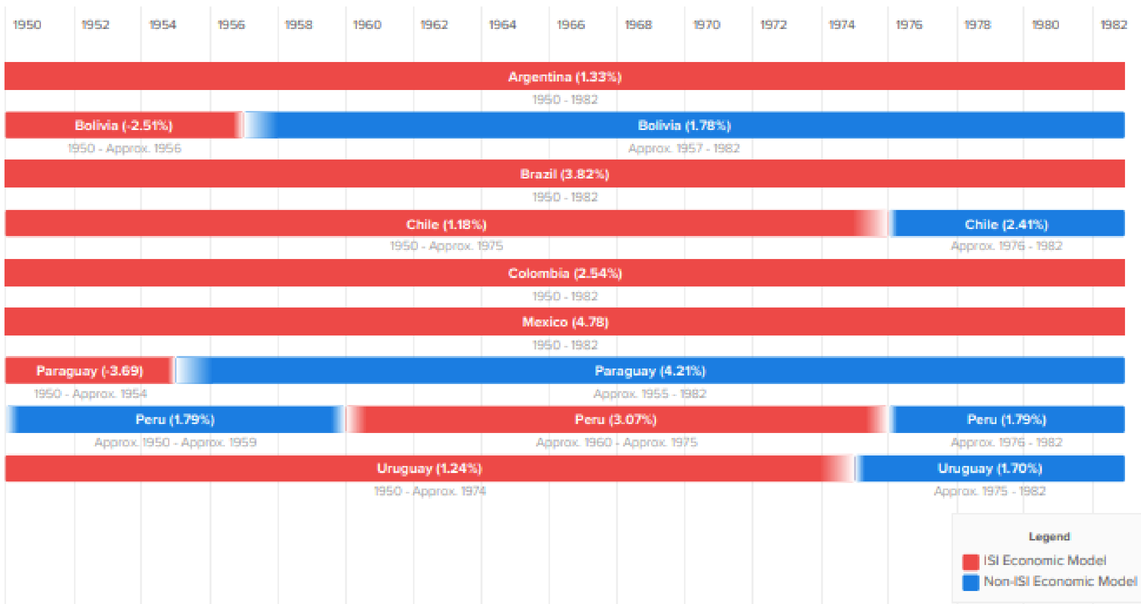
[82] For more, see Casa del Congreso, en Lima "Ley no. 13270: Ley de Promoción Industrial," (November 26, 1959) https://docs.peru.justia.com/federales/leyes/13270-nov-30-1959.pdf.

[83] For both Chile and Uruguay I assign the end of ISI in 1975, two years after their respective coups d'état. Economic literature for Chile shows that significant economic reform did not begin until 1975. This shift is not a clear for Uruguay, so my assumption is that both of these economies shifted their economies at the same time. For more on this see Donald G. Richards, "The Political Economy of the Chilean Miracle," *Latin American Research Review* 32, no. 1 (1997): 139–59.

[84] Alejandro F. Mercado, Jorge GM Leitón, and Marcelo F. Chacón, "El Crecimiento Económico en Bolivia (1952–2003)," *Revista Latinoamericana de Desarrollo Económico* 5 (2005): 9–42.

strategy because it revolved around the core tenet of industrialization.[85] Figure 1 illustrates the locations, timelines, and assumptions described above, which also provides a visual representation for the analytical model.

Figure 1. Timeline of ISI in Latin America



2. Analyzing Commodity Dependency

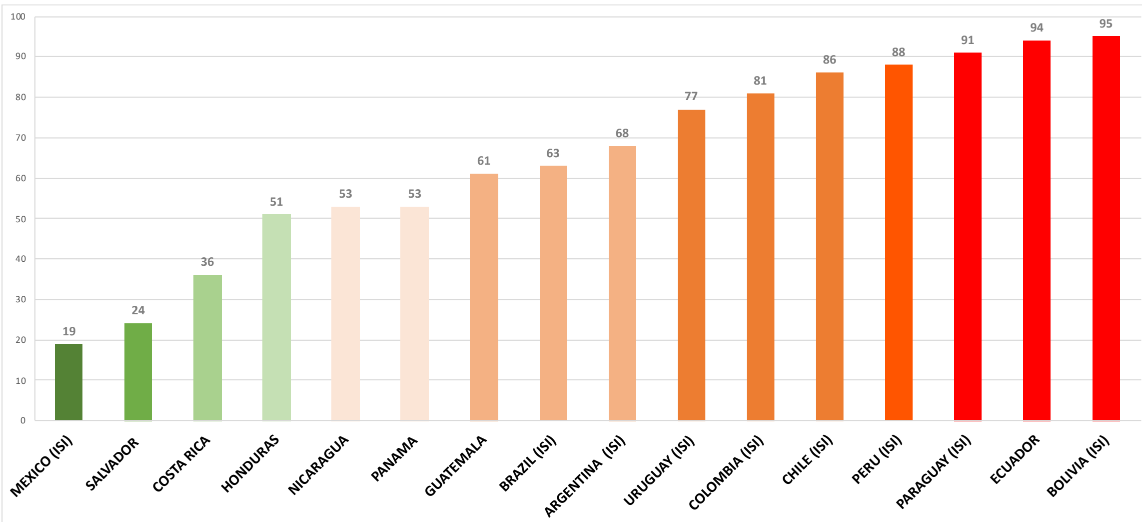
The United Nations Conference on Trade and Development defines a *Commodity Dependent Developing Country* as a country whose ratio of commodity exports to total value of merchandise exports exceed 60 percent.[86] Lack of data on commodity exports prevents a granular analysis on commodity dependency during the implementation of ISI. Therefore, the analysis in this section relies on broad trends and correlations, without making any claims about causation. Cross-referencing the countries listed in Figure 1

[85] Bulmer-Thomas makes this point when he says, "EP strategy was based on the recognition that the domestic market was not large enough to support firms of optimal size in many branches of industry. At the same time, the strategy remained committed to protecting manufacturing from international competition. Thus, it attempted to graft onto ISI a new set of incentives that would make exports of manufactured goods possible" These incentives for exporters included: special access to credit, tax breaks, and other subsidies. For more on EP as it pertains to ISI see: Bulmer-Thomas, 316.

[86] United Nations Conference on Trade and Development, 2014.

against export figures in 2014/15 indicate that with the exception of Mexico, countries that implemented ISI continue to be dependent on commodities into today. Figure 2 provides a graphic representation of the commodity to export value and finds a strong correlation between the countries that implemented ISI and those which are currently the most dependent on commodity exports.

Figure 2. Commodities as Total Percent of Exports (2014/15)



Similarly, a comparative analysis on the dependency between the top three exports in 1938 and those in 2014–15 shows that the countries that have made the most progress in diversifying their exports were the non-ISI countries. Figure 3 illustrates the ratio of the main three commodities export again total exports in 1938 and 2014/15, respectively. Figure 3 is ranked from left to right in order of most improved to least improved. Of note, Paraguay and Ecuador in fact became even more dependent on their top three commodities.

Figure 3. Top Three Commodities as Percentage of Total Trade

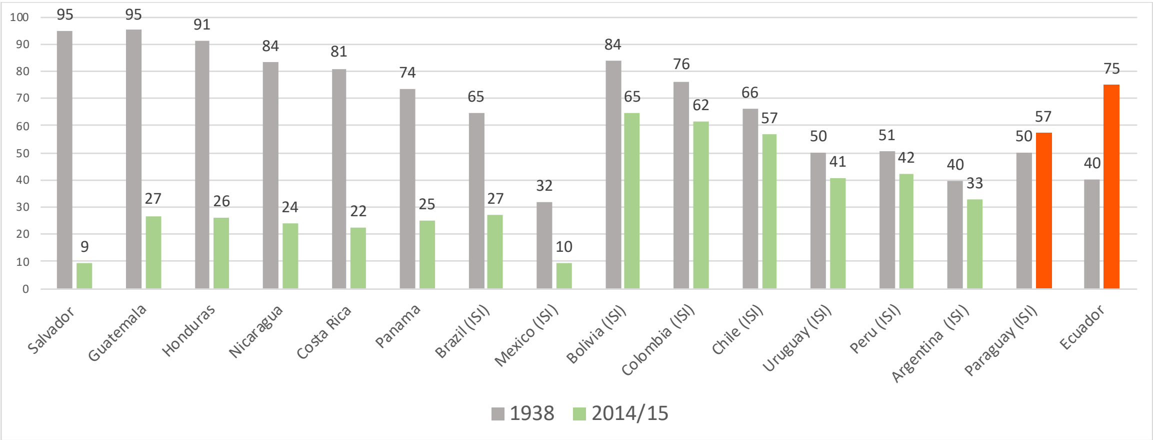


Table 3 builds upon Figure 3 and shows the percentage point change between 1938 and 2014/15. Countries that implemented ISI are clustered near the bottom, in ranks 7 through 15. Alternatively, countries clustered at the top are all non-ISI countries, showing a correlation between ISI and continued commodity dependence.

Table 3. Change in Dependency on Top Three Exports from 1938 to 2015

Rank	Country	1938	2014/15	Percentage Point Improvement
1	Salvador	95	9	86
2	Guatemala	95	27	68
3	Honduras	91	26	65
4	Nicaragua	84	24	60
5	Costa Rica	81	22	59
6	Panama	74	25	49
7	Brazil (ISI)	65	27	38
8	Mexico (ISI)	32	10	22
9	Bolivia (ISI)	84	65	19

Rank	Country	1938	2014/15	Percentage Point Improvement
10	Colombia (ISI)	76	62	15
11	Chile (ISI)	66	57	9
12	Uruguay (ISI)	50	41	9
13	Peru (ISI)	51	42	8
14	Argentina (ISI)	40	33	7
15	Paraguay (ISI)	50	57	-7
16	Ecuador	40	75	-35
Adapted from 1938 data Horn and Bice (1949), Table 13, p.134; 2014/15 data adapted from United Nations Conference on Trade and Development State on Commodity Dependence (2016).				

Again, these figures do not necessarily imply causation. It would be unfair, for example, to suggest that Paraguay's commodity dependence in 2015 was caused by its four-year ISI experiment in the 1950s. These figures do, however, help understand the inadequacy of ISI in achieving its stated goals, particularly when combined with similar analysis in terms of GDP figures.

3. Testing the Relationship between ISI and Economic Growth

GDP data for Latin America between 1950 and 2018 is robust and allows for a more detailed analysis than the one provided in the previous section. This section performs a comparative analysis between what I describe as "ISI countries" and "non-ISI countries." These categories are also time dependent, e.g., the term "ISI countries" includes 1973 Chile, but not 1974 Chile. The opposite is true about the term "non-ISI countries." See addendum A and B for a visual representation of how this methodology is applied to the GDP data.

Comparing GDP per capita growth performance in Latin America between ISI and non-ISI countries illustrates disappointing results for the ISI model. As shown at the bottom of Table 4, a growth comparison between ISI and non-ISI countries reveals that ISI countries consistently underperformed economically. Table 4 also indicates that the largest performance difference occurred during the so-called Lost Decade, during which countries that pursued ISI the longest performed considerably worse. This divergent outcome during the Lost Decade is attributable in no small part to the CEPAL-endorsed debt accumulation from 1950–1980.

Table 4. GDP Per Capita Growth Rate Averages (1950–1989)

	1950–1959	1960–1969	1970–1979	1980–1989
Individual Performance (ISI Countries)				
Argentina (1950–1989)	0.18%	3.19%	2.11%	-1.72%
Bolivia (1950–1956)	-2.51%			
Brazil (1950–1989)	3.39%	3.19%	5.80%	1.26%
Chile (1950–1975)	1.46%	3.44%	-3.49%	
Colombia (1950–1989)	1.40%	1.82%	5.15%	0.00%
Mexico (1950–1989)	2.84%	6.03%	5.81%	-0.83%
Peru (1960–1975)		3.68%	3.28%	
Paraguay (1950–1954)	-3.69%			

Uruguay (1950–1975)	1.57%	0.90%	1.67%	
Individual Performance (Non-ISI Countries)				
Bolivia (1956–1989)	-3.12%	3.28%	2.76%	-0.73%
Chile (1973–1989)			5.68%	1.42%
Costa Rica	2.03%	4.11%	3.92%	-0.15%
Ecuador	2.13%	2.42%	4.65%	-0.15%
Guatemala	0.21%	2.36%	2.97%	-0.48%
Honduras	0.43%	2.22%	3.25%	-0.15%
Nicaragua	3.64%	4.27%	-2.15%	-0.26%
Panama	2.55%	4.79%	1.88%	-0.26%
Peru (1951–1958; 1976–1989)	1.81%		-2.05%	1.42%
Paraguay (1954–1989)	0.86%	3.30%	6.56%	1.42%
Salvador	1.12%	3.55%	2.87%	0.00%
Uruguay (1973–1989)			3.42%	0.43%
Collective Performance				
Arithmetic ISI Average	0.58%	3.18%	2.90%	-0.32%

Arithmetic non-ISI Average	1.17%	3.37%	2.81%	0.21%
Weighted ISI Average	0.96%	3.00%	2.32%	-0.75%
Weighted Non-ISI Average	1.72%	3.44%	3.08%	0.07%
Average Performance				
Arithmetic ISI Average (1950–1989)=1.77%				
Arithmetic non-ISI Average GDP Growth (1950–1989)=1.82%				
Weighted ISI Average (1950–1989)=1.38%				
Weighted non-ISI Average (1950–1989)=2.08%				
Adapted from Maddison Project Database 2018 Note 1: This table is a numerical representation of Figure 1. Weighted figures were calculated by aggregating respective GDP per capita figures into a single aggregate number, for both ISI and non-ISI countries, and calculating GDP changes accordingly. See Appendix C for more details. Note 2: While there are methodological issues with using GDP figures and averages, the purpose of this table is to illustrate the ambiguous—perhaps negative overall—trend of the ISI program.				

Data from both country sets include a broad range of economic performance figures. Brazil's superior economic performance, for example, is more comparable to that of Panama, a non-ISI country, than it was to Argentina, an ISI country. Conversely, Argentina's lackluster performance is more comparable to Honduras and Guatemala than it is to any of its ISI-counterparts. This seemingly random relationship between economic performance and the decision to implement ISI leading up to the Lost Decade obscures the explanatory power of ISI in the economic output between 1950 and 1979. During the 1980s however, the decision to pursue ISI seems to correlate with inferior economic performance.

4. Analytical Limitations

Importantly, the analytical technique used to study the performance of ISI has several limitations, which need to be taken into account, and alternative explanations must be considered. First, ISI-like policies began long before the CEPAL formally named the approach as ISI.[87] As a result, the model does not capture any hypothetical growth that occurred prior to 1950 and is therefore underestimating the contributions of ISI policies in delivering growth. Second, the model measures strictly GDP growth, ignoring other contributions to development. Conceivably, ISI countries might have made progress in transitioning from rural societies into modern urban societies with infrastructure, education, access to medical services, etc. Third, this model ignores political systems altogether. Studying the relationship between political systems and economic output could yield valuable insight into the discussion of institutional function over institutional form—topics that are addressed in the Mexico case study in the third chapter. Fourth, most non-ISI countries are also small Central American states, which brings into question the fairness of comparing these economies against their large South American counterparts. Fifth, there are no counterfactuals to each case: that is to say, for example, we do not have data on how Argentina would have performed without ISI and it is entirely possible that ISI was the best alternative available at the time. Lastly, using average growth numbers over an extended time period does not control for higher periods of growth following a deep crisis.

D. ECONOMIC INTERPRETATION OF THE ISI FAILURE

The economic explanation for the inferior economic performance of ISI tends to focus on the inefficiencies of the industries, the poor quality of the products, squandering

[87] Edmund Valpy Knox FitzGerald, "ECLA and the Theory of Import Substituting Industrialization in Latin America," in *An Economic History of Twentieth-Century Latin America* (London: Palgrave Macmillan, 2000), 58–59.

of resources, and corruption. Economists find that many of these issues stemmed from a lack of foreign competition in the marketplaces. The logic is that lack of competition meant the quality and price of the products were not competitive in world markets, limiting demand and preventing firms from achieving economies of scale. As early as 1963, Prebisch himself encapsulated this concept when he said:

> An industrial structure virtually isolated from the outside world thus grew up in our countries . . . The criterion by which the choice was determined was based not on considerations of economic expediency, but on immediate feasibility, whatever the cost of production . . . tariffs have been carried to such a pitch that they are undoubtedly -on an average-the highest in the world...the proliferation of industries of every kind in a closed market has deprived the Latin American countries of the advantages of specialization and economies of scale, and owing to the protection afforded by excessive tariff duties and restrictions, a healthy form of internal competition has failed to develop, to the detriment of efficient productions.[88]

Worsening the problem, governments did not focus their ISI policies into well-tailored industries in which they could possibly exploit a comparative advantage.[89] Consequently, new industries were established, but they never became profitable. These new industries also developed a new type of elite: the *industrial elite*.[90] These new elites gained considerable influence in policy making and, naturally, resisted any policy changes that could potentially affect their interests. Consequently, making changes to protectionist policies became increasingly difficult—which helps explain why some countries maintained disruptive policies long after Prebisch's statements in 1963.[91] As a result, ISI policies created enormous industries that were neither profitable nor removable.

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[88] As quoted in, Hirschman, "Political Economy of Import-Substituting," 2.

[89] Baer, 96.

[90] For more on the shifting dynamics of elites in Latin America see: Fernando H. Cardoso, "The Industrial Elite," *Elites in Latin America* (1967): 94–114; and Fernando Cardoso, "The Entrepreneurial Elites of Latin America," *Studies in Comparative International Development* 2, no. 10 (October 1966): 147–159.

[91] Hirschman, 18–19.

E. CONCLUDING REMARKS

Understanding how the Latin American experience diverged from the British experience during the 19th and 20th centuries is a helpful starting point to understanding current underdevelopment in Latin America. A brief review of Latin American history reveals that the Caudillismo political system in early 19th century Latin America was a system of personal dominance and submission, absent of the fundamental factors observed during the Industrial Revolution. In this system, elites benefited greatly from commodity trade and effectively prevented their economies from developing beyond trading raw goods. As a result, Latin America entered the 20th century dependent on commodity trade. The World Wars and the Great Depression later exposed the vulnerability and volatility of these commodity economies, motivating the states to start aggressive industrialization programs.

This context led to the implementation of ISI in Latin America, which mostly failed to reduce commodity dependence or deliver economic growth in the region. Perhaps the more important insight, however, is that there is a wide range of observed outcomes across different time periods and countries. This range of outcomes indicates that the ISI model was a minimal factor in the economic performance of the era. This conclusion is counterintuitive because ISI was, arguably, the most aggressive Latin American developmental program of the 20th century. Logic dictates that an aggressive developmental program of this nature should have a measurable impact—even if it was negative. This performance variance demonstrates the existence of factors beyond what traditional economic growth models include: if similar economic policies deliver vastly different results, other factors must be at least partly responsible for the variance observed in economic outcomes. The natural question, then, is what are those other factors? In Chapter III, I provide a solution to this question by shifting the focus away from ISI and back to the fundamental factors. By studying specific time periods of the Mexican economy, I find that the emergence of the fundamental factors, as an expression of function rather than form, provided for economic prosperity. I also find that the erosion of the fundamental factors contributed to economic decline.

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III. MEXICO CASE STUDY

A major finding from Chapter II is that outside factors can overshadow or amplify the effects of economic policies on economic performance. This finding captures one of the central questions of this research: what are these other factors? Mexico provides a good starting point to address this question for two reasons. First, it was the top performing country during ISI, both in terms of GDP per capita growth and percentage point drop in commodity dependence. And second, Mexico's history includes periods where there is an observable increase in the rule of law, access to capital, and bureaucratic capacity. More to the point, in this chapter I correlate the emergence of these factors with two discrete periods during which economic performance soared for approximately three decades at a time. In this chapter, I also find that lack of restraints on the bureaucratic capacity contributed to the end economic prosperity. Importantly, in periods of growth, I credit a series of formal and informal institutions—of somewhat peculiar forms—with providing functions consistent with the fundamental factors. The atypical form of the institutions providing these factors, and the correlation between these factors and economic performance underlines the core arguments of my research, both on the importance of these factors and the priority of institutional function over form.

A. OVERVIEW

Supporting my two core arguments, I derive four intermediate conclusions from the Mexican case study. First, Mexico's *Long Recession* from 1800 to 1876 is attributable to a decline in rule of law and bureaucratic capacity.[92] Second, sustained economic growth during the reign of Porfirio Diaz, also known as the *Porfiriato* (1876–1911), is largely attributable to the administration's provision of rule of law to a special sub-segment of society. This tailored provision of rule of law gave Diaz access to capital, expanded his bureaucratic capacity, and started a developmental cycle. Third, Mexico's extraordinary growth from 1946 to 1975, also known as the *Mexican Miracle*, is attributable to an unusual

[92] Bates et al. dub this timeframe "the lost decades." I modified this term to the "Long Recession" in order to avoid confusion with the "Lost Decade" of the 1980s.

arrangement within the Institutional Revolutionary Party (PRI, in Spanish) that functioned as rule of law. This atypical version of rule of law provided a strong, yet restrained, bureaucratic capacity, which gained access to capital through oil profits, and led to the Mexican Miracle. And fourth, the strong bureaucratic capacity of the Mexican government lost its restraints and began to operate unilaterally, directly contributing to the Mexican debt crisis and the *Lost Decade* of the 1980s.

1. Selecting and Analyzing the Time Periods

Correlating Mexico's economic performance to its domestic political environment accentuates a trend between economic performance and the domestic political environment. As depicted in Table 5, Mexico's economic performance between its national independence and the end of the ISI period can be roughly divided into five periods: negative growth during the Long Recession, from the early 1800s to the late 1870s;[93] moderate to sustained growth during the Porfiriato, from the late 1870s to 1910; economic instability during between 1910 and the late 1930s; high and stable growth during the Mexican Miracle, starting in the mid-1940s and ending with a financial crisis in 1976; and an unstable economic period starting in 1976 and worsening through the end of the Lost Decade.

Table 5. Mexican Economic Performance to Political Cross Reference

Dates	Political Period	Average Annual GDP per Capita Growth Rate	USA Average Annual GDP per capita Growth Rate (For Comparison)
1800–1877	Late Colonial Period	-0.20%	0.95%
	Early Post Independence (the long recession)		
1876–1911	Porfiriato	3.05%	2.10%

[93] Bates, 917–943.

<table>
<tr><th>Dates</th><th>Political Period</th><th>Average Annual GDP per Capita Growth Rate</th><th>USA Average Annual GDP per capita Growth Rate (For Comparison)</th></tr>
<tr><td>1910–1929</td><td>Mexican Revolution</td><td rowspan="2">0.97%</td><td rowspan="2">2.30%</td></tr>
<tr><td>1930–1945</td><td>Early-Post Mexican Revolution</td></tr>
<tr><td>1946–1975</td><td>Early to Mid PRI
(the Mexican miracle)</td><td>4.54%</td><td>1.69%</td></tr>
<tr><td>1976–1989</td><td>Transition into
the Lost Decade</td><td>0.79%</td><td>2.54%</td></tr>
<tr><td colspan="4">Data adapted from 1800–1910 estimates found in Coatsworth (1978); data adapted from 1910–1989 from Maddison (2018)
Note 1: For the purpose of simplicity, consecutive time periods with unfavorable economic performance are combined into one economic period.
Note 2: Due to data limitations, there is a one-year overlap between the end of the Porfiriato and the Mexican Revolution.</td></tr>
</table>

In the remainder of this section, I analyze each of the aforementioned periods to observe the emergence or erosion of the fundamental factors. These factors sometimes took peculiar forms, and their presence is not always immediately clear. As such, I expand on the definitions of the factors, where needed, to demonstrate how certain features of the Mexican institution arrangements performed functions consistent with the fundamental factors.

a. Explaining the Long Recession (1800 to 1877)

In his famous quote “The war made the state, and the state made war,”[94] Charles Tilly summarized the notion that war increases the bureaucratic capacity of a state and creates the “physiology” of the nation-state. Political sociologists, both before and after

[94]As quoted in, Centeno, “Blood and Debt,” 1565.

Tilly, have reached similar conclusions based largely on observations in early modern Europe.[95] Contrastingly, Centeno uses data from eleven countries to demonstrate that the war-and-state relationship described by Tilly has little applicability to 19th century Latin America. In other words, independence movements in Latin America generally failed to generate bureaucratic capacity. The emergence of nation-states, at least in early modern Europe, resulted, in part, when armed conflict created expensive military requirements and drove existing administrative apparatuses to penetrate into society in a quest for taxes.[96] This expansion of the state into civilian populations strengthened its bureaucratic capacity and its relationship with the population, both of which remained in place even after the initial armed conflict ended. In turn, the population constituting this newly expanded tax base demanded services in return for their taxes, which marked the beginning of a social contract, forming the basis for what we know as the modern nation-state.

Mexico's postcolonial history illustrates Centeno's concept of how the "liberation" of Latin America from the Spanish colonial system did not produce the state exemplified by Charles Tilly. Lack of bureaucratic capacity and unrestrained elites in early modern Mexico are largely to blame for the divergent outcome in three manners. First, as covered in Chapter II, instead of instituting reform, elites replaced the Spanish bureaucratic rule with caudillismo, preventing socio-economic progress and the emergence of the fundamental factors. Second, elites prevented a tax collection system, a key component of the social contract. The Mexican independence movement in Latin America failed to penetrate society and extract taxes, and therefore did not follow the military-political causal relationship. A considerable portion of wealthy elites did not perceive the results of these independence wars as a threat to their wealth and property. Consequently, these wealthy elites did not feel compelled to fiscally support the war effort and felt that paying taxes was beneath their social status.[97] Inevitably, therefore, the Mexican independence movement relied on foreign loans and even resorted to creating "artificial wealth" by simply printing

[95] For more on this concept, see Centeno, "Blood and Debt,"1607.

[96] Centeno, "Blood and Debt," 1566.

[97] For more on this concept see Centeno, "Blood and Debt," 1594.

currency.[98] Centeno finds that none of these alternate funding sources promoted the institutional state-formation described by Tilly but, in fact, created macroeconomic issues that contributed to the economic stagnation characteristic of the Long Recession.

Third, elites refused to recognize a unified state authority, favoring civil wars instead. Achieving a monopoly on violence is an elemental characteristic of Max Weber's state-formation process, a feature not achieved in Mexico until 1876. Centeno finds that between 1821 and 1876, Mexico saw forty-five different presidential administrations. Prior to 1876, military capabilities were scattered around the country, geared to protect private interests and ambivalent to the challenges to the central state.[99] In fact, elite rulers were more concerned with internal threats from fellow elites than they were with external threats, which meant that these elites were more focused on amassing their own forces instead of supporting the would-be state. Caudillos used violence to protect their wealth and property but failed to achieve an overwhelming supremacy. As a result, Mexico experienced decades of violence that did not have the advantage of building state capacity. The 1836 revolt in Texas is a well-known example of a regional response to efforts by the central state to impose authority, but Centeno finds that similar revolts occurred throughout the era and across the country. Overall, the contrast between the European nation-building experience and the early post-colonial experience in Mexico indicates that unrestrained elites contributed significantly to the economic stagnation of their country. Their role in perpetuating violence and inhibiting the formation of a social contract and institutional development also inhibited industrial activity and contributed to poor economic performance.[100]

b. Porfiriato (1876 to 1911)

Demonstrating great political and military skill, Porfirio Diaz led a rebellion to monopolize violence and assume control of the Mexican government in 1876. This section

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[98] For more on this concept see Centeno, "Blood and Debt," 1583.

[99] Centeno, "Blood and Debt," 1590.

[100] Miguel Angel Centeno, *Democracy within Reason: Technocratic Revolution in Mexico* (University Park, PA: Penn State University Press, 2010), 7.

builds on the work by Bortz and Harber to study the role of rule of law and access to capital in creating the glimmer of a social contract, unifying the Mexican central government, and delivering economic prosperity to a select section of society.[101] This era clearly demonstrates the beneficial effects of institutional reform—specifically a patrimonial form of rule of law—on economic prosperity.

Upon assuming office, Diaz faced the same threats that had defeated his predecessors for decades: political chaos and economic stagnation.[102] Bortz and Harber find that these two threats fueled each other and created a vicious cycle that normally culminated in a military coup. The cycle began when regional warlords would contest the head of state, who in response needed funds to strengthen his capacity to defeat these challenges. Without a significant tax base to provide for these expenses, governments resorted to predatory practices for funds, e.g., arbitrary seizures, involuntary loans, and appropriations. These predatory approaches were self-defeating because they signaled to otherwise supporting elites that the government was getting too strong, which instilled fear in them. In response, elites limited their fiscal support and restricted the bureaucratic capacity of the government. As a result, governments became vulnerable and created an opportunity for a caudillo to take over. Thus, a coup-cycle of "violence, predation, and zero growth" emerged.[103] The crux of this cycle is what Weingast calls the fundamental political dilemma, which is that, in his words, "a government strong enough to protect property rights and enforce contracts is also strong enough to confiscate the wealth of its citizens."[104] Solving this dilemma, Weingast adds, requires a limited government that places self-enforcing restraints, allowing it to grow powerful enough to enforce the law but preventing it from abusing its power. Attempting to place a common rule of law upon fellow caudillos would have predictably resulted in violence, restarting the coup-cycle.

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[101] Jeff Bortz and Stephen H. Haber. The Mexican Economy, 1870–1930: Essays on the Economic History of Institutions, Revolution, and Growth (Palo Alto, CA: Stanford University Press, 2002).

[102] Bortz and Haber, 15.

[103] Bortz and Haber, 15.

[104] Barry R. Weingast, "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development," *Journal of Law, Economics, & Organization* 11, no. 1 (1995): 1.

In order to break the coup-cycle and stay in power, Diaz tailored the application of rule of law to a special subsection of society, both foreign and domestic.[105] In this system, Diaz made a credible commitment to key elite members in society, who provided him access to the capital required to expand the power of the central government because it "would enforce *their* property rights."[106] By creating these provisions, Diaz implemented a highly patrimonial system, which also encouraged development.[107] Under this construct, the Diaz administration unified, reformed, and extended the federal banking system, creating an environment to attract investment and finance the central government. Replicating the construct of a social contract, financial supporters demanded compensation for the financial risk they took with their investments—hence, these supporters received special privileges when applying for concessions, permits, patents, and credit lines, creating monopolistic distortions within the Mexican economy.[108] This system effectively jump-started the economy: on average, GDP per-capita grew at an annual rate of over three percent, out-performing the growth rate of the United States over the same time period and contrasting with the negative average growth Mexico experienced for most of the 19th century.

As peculiar and inefficient as this system seems, it created industrialization and economic prosperity—albeit for a select few—in a country that had previously existed in perpetual devolution since its independence. In some ways, the Porfiriato was a victim of its own success because the regime was unable to contain economic prosperity, providing means to a wide range of social classes. Ultimately, the patrimonial system of the Porfiriato and its containment of wealth distribution provided motive for the 1910 Mexican

[105] Bortz and Haber, 15.

[106] Bortz and Haber, 325.

[107] The concept of *developmental patrimonialism* describes a form of rent-seeking behavior that also yields development. Governments sometimes undertake investment programs that are not profitable (such as installing an electric grid in rural areas) but have a long term positive effect on development. In a developmental patrimonialism regime this may take the form of corrupt handouts and highly undemocratic processes, but the system still provides infrastructure for development which would otherwise not occur.

[108] Bortz and Haber, 325.

Revolution—putting an end to the Porfiriato.[109] Nonetheless, the Porfiriato highlights how even a constrained application of rule of law can start a social contract and deliver economic prosperity for those within the rule of law aegis.

c. Post–Mexican Revolution and the Mexican Miracle (1928 to 1975)

Development in Mexico during the period dubbed The Mexican Miracle is analogous to the Porfiriato era in that it provides another example of how the emergence of the rule of law and bureaucratic capacity correlates with economic prosperity. The per capita growth rate during this period once again outpaced the growth rate of the United States. Development was highly patrimonial because the executive wielded abundant power; eventually, this form of developmental patrimonialism became a contributing factor to the subsequent collapse of the Mexican economy. The PRI was the dominant political party in Mexico from the end of the Mexican Revolution until 2000. As such, this party is often credited with the Mexican Miracle, and blamed for Lost Decade. This section builds on the work of Centeno and focuses heavily on the PRI, studying their version of rule of law and relating it to bureaucratic capacity and economic performance. Given the strongman nature of the PRI, this section will also place a special focus on the individuals who led the party.

Skillfully crafting what Centeno calls an *inter-elite settlement*, Plutarco Elias Calles put an end to the chaos that dominated the Mexican political scene during the Mexican Revolution. By creating the precursor party to the PRI, Calles united the significant power factions and effectively formalized the rules that would govern Mexican politics for the rest of the 20th century. This settlement put an end to the violence by guaranteeing each faction would be able to participate in politics while ensuring no single faction could dominate the others.[110] This inter-elite settlement gradually turned into a self-enforcing rule of law, governing national-level decisions.

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[109] Naturally, this explanation is an oversimplification of a complicated topic. There is considerable debate on the causes and outcomes of the Mexican Revolution, but this topic is beyond the focus of this research. For more on the Mexican Revolution see: John Mason Hart, *Revolutionary Mexico: The Coming and Process of the Mexican Revolution* (Berkeley: University of California Press, 1997).

[110] Centeno, Democracy within Reason, 7.

Rules within the PRI were self-enforcing because, as the power and influence of the PRI grew, so too did the motivation for abiding by the PRI's rules. Langston finds that the large margins by which the PRI won in elections at all levels of government ensured compliance within the party because party members simply could not expect to fare well outside it. The rules on reelections made provisions to prevent regression to the caudillo days, but the rules also gave the head of state ample power. In theory, this arrangement would allow the executive branch to quickly meet its political agenda while at the same time limiting its ability to dominate the political scene. As a result, Mexico would be governed as a series of limited monarchies six years at a time.[111] Additionally, the PRI practiced what is called the *dedazo*, the right of the incumbent head of state to name the successor president of the party, who would then participate in a mostly uncontested national election.[112] This feature ensured maximum compliance with the president during his tenure, maximizing his ability to execute his agenda, and helped minimize internal conflict because causing disturbances would render one ineligible for the dedazo. In short, elites within the PRI system had to operate by making concessions to other factions within the party. This dynamic served the similar crucial function of improving the rule of law because, by definition, these limits on government officials were self-enforcing, and they solved the fundamental political dilemma posed by Weingast.

From 1946 to 1975, this system delivered astonishing economic growth and development for Mexico. Coincidentally, 1946 was also the year in which Miguel Aleman took office, the first bureaucrat who did not represent any one faction, but whose career grew based strictly on service to the party itself.[113] Centeno credits Aleman with removing ideology from the party because his leadership was based on managing bureaucratic patronage. This ideological shift removed party restraints, allowing Aleman to expand the bureaucratic capacity. Without restraints, Aleman was able to quickly and effectively restructure the economy, which he used to create a strong relationship between the

[111] Joy Langston, "The Birth and Transformation of the Dedazo in Mexico," in *Informal Institutions and Democracy: Lessons from Latin America,* eds. Gretchen Helmke and Steven Levitsky (Baltimore: Johns Hopkins University Press, 2006): 143–159, 147.

[112] Helmke and Levitsky, 143–159, 147.

[113] Centeno, 54.

government and private industry. This partnership directly contributed to the Mexican Miracle because it resulted in highly adaptable and favorable monetary and fiscal policies.[114] As with the Porfiriato, the autonomy and patronage of the head of state was able to yield development for approximately three decades before the system started to turn on itself.

d. Transition into the Lost Decade (from 1970 to 1989)

The autonomous features of the Mexican executive branch became unhealthy once the regime started to lose its legitimacy and turned to populism.[115] Centeno finds that a shift to populism disrupted the balance between government power and private interests that enabled the Mexican Miracle. Starting with the Luis Echeverria administration (1970–1976) and continued by his successor Jose Lopez Portillo (1976–1982), government spending increased dramatically. In keeping with the driving philosophy behind ISI, Echeverria believed in strong government intervention and openly circumvented national treasury policies, implementing his own populist policies instead, with little challenge. Without a formal link between private sectors and the government, Centeno adds, the only influence available to the private sector was to leave.[116] As a result, capital began flying out of the country and would continue to do so for the rest of the decade. Linking access to capital with bureaucratic capacity, Centeno finds that by the late 1970s routine political decisions became complex bureaucratic challenges.[117] Over the course of the decade, the equivalent of a third of its gross national product left Mexico: creating massive federal debt in the process and laying the foundations for the 1982 debt crisis. Debt, capital flight, inflation, and oil crisis began a cycle that culminated in Mexico being unable to service its debt in 1982, marking the beginning of the Latin American debt crisis and the Lost Decade. The Mexican economy would not recover from this crisis for approximately two decades. While it is not entirely fair to blame Mexican domestic policies for the debt crisis, there is

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[114] Centeno, 69.

[115] Arguably, the regime's legitimacy reached a new low in 1968 with the Tlatelolco massacre of hundreds of protesting college students.

[116] Centeno, 71.

[117] Centeno, 69.

a clear link between the economic crisis and the policies that began in 1970, policies made possible by the lack of restraints on the Mexican bureaucratic capacity of the Echeverria administration

B. CONCLUDING REMARKS

The economic history of Mexico since its independence has two discrete periods punctuating overall economic despair in which economic performance soared for approximately three decades. This economic pattern provides valuable insight into answering the core question that emerged in Chapter II: what are the factors influence economic outcomes? In both of these time periods, the atypical emergence of the fundamental factors played a central role in explaining both the rise and fall of the economy, stressing the importance of not only of the factors, but also of their functionality. During the Porfiriato, Mexico developed two societies: one with rule of law and one without. Research shows that the Mexico with rule of law provided access to capital, which expanded bureaucratic capacity of the central state. This dynamic created a type of developmental patrimonialism that produced impressive economic results and delivered development that benefited the entire country. The most evident countrywide benefits of the Porfiriato were political stability, the end of violence, and the development of the federal banking system. Ultimately, however, the disproportionate distribution of benefits produced the Mexican Revolution and devolved the country back to chaos and economic despair.

Preceding the Mexican Miracle, the PRI emerged from the Mexican Revolution as a mechanism for all major power factions in Mexico to rule, putting an end to the armed conflict. Solving one of the driving factors behind the Mexican Revolution, mechanisms were put in place to ensure no one faction came to dominate the other. This informal balance of powers served similar functions as improving rule of law because, effectively, it restrained the government from overreach. With the emergence of the rule of law, the bureaucratic strength of the government increased because none of the major power factions feared government overreach, allowing it to grow. The informality of these bureaucratic restraints, however, led their decay when faction lines became blurred.

Initially, this unrestrained bureaucratic capacity aligned with the private sector and delivered the Mexican Miracle. Ultimately, the same bureaucratic capacity that provided for the Mexican Miracle broke the alliance with the private sector and triggered capital flight, starting the devolution of the developmental cycle and affecting institutional capacity. This unrestrained bureaucratic capacity responded to the capital flight by amassing large federal debt, which laid the foundations for the 1982 debt crisis—demonstrating the explanatory power of the fundamental factors in economic outcomes.

IV. CONCLUSION

Why are some countries rich and others poor? In this research, I build on the rich scholarship on this question to determine that economic development rests on a cycle of three fundamental factors: rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. A similarly important conclusion is that the functional capacity of institutions outweighs the importance of institutional form. In this chapter, I tie together main lessons from each chapter to support my claims on fundamental factors and the function over form concept. I also use this chapter to highlight the research gaps of this project as well list an immediate set of questions that stem from this research.

A. THESIS REVIEW

As shown in Chapter I, the differentiation between rich and poor is essentially synonymous with the differentiation between industrialized and non-industrialized. That is to say, prior to the Industrial Revolution, the wealth created within agrarian-based societies was a function of population, with little room for achieving efficiency-based growth. The Industrial Revolution itself represents an inflection point in history that created The Great Divergence: a seemingly insurmountable developmental gap between rich and poor countries. Chapter I discussed how the Industrial Revolution was centuries in the making and rested upon the fundamental factors of rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. My interpretations of the Industrial Revolution are the foundations for this research, in which I theorize that the functions that provided the most pronounced case of development in history are universally applicable.

Importantly, these conclusions are vastly different from some of the most influential developmental theories of the 20th century, which tended to focus on reproducing outcomes. Modernization theorists, for example, posited that development occurs in discrete stages of development, and that countries naturally progress through each stage once the economy achieves certain features. The theory goes on to say that economies “take off” once they modernize economic factors, accumulate capital, and extend commercial trade ties. The outcome-based approach also captures the driving philosophy behind structuralism and dependency theory, which focused on the need for developing countries to become industrially self-sufficient in order to join the ranks of modern capitalist countries. The latter theoretical foundations led to the implementation of import substitution industrialization (ISI) in Latin America, one of the most ambitious and aggressive developmental programs in contemporary economic history.

The purpose of the ISI model was to create industrial growth via state-owned enterprises, operating behind protectionist tariffs, quotas, permits, and prohibitions. My research on ISI found that the program typically failed to achieve its intended goals, which were reducing commodity dependence and delivering economic growth. The more important finding, however, is that ISI did not have a clear measurable economic impact in the region. That is to say, countries that implemented ISI delivered a broad range of outcomes, and the role of ISI in these outcomes is surprisingly unclear. Based on these observations, I conclude that economic policies are but one factor in determining economic outcomes. Differently put, other factors seem to better explain economic outcomes.

In Chapter III, I use these observations to forward my discussion on functional importance of rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. I developed my two core arguments using Mexico’s economic history as a case study, correlating the emergence and erosion of the fundamental factors with the rise and fall of the Mexican economy, respectively. Importantly, I credited a series of atypical formal and informal institutions with providing the functionality of the fundamental factors: rule of law, access to capital, and strong, yet restrained, bureaucratic capacity. This observation on the various forms of these institutions underlines a core argument of my research, which prioritizes institutional functions over institutional form in providing for development.

B. SIGNIFICANT FINDINGS

In short, I use this research to enforce the notion that there is no formula to development. Policy programs that work in one country will not necessarily work in another country. Similarly, programs that work in a certain point of time will not necessarily work at a different point of time. These observations contradict decades of developmental theories and efforts, which prescribe specific policies or economic and political systems. Troublingly, rule of law and bureaucratic capacity were often afterthought in development policy-making on the ground for the latter half of the twentieth century. In my research on ISI in Latin American, for example, rule of law and bureaucratic capacity were rarely addressed in any of the literature. Fukuyama, too, finds that during the implementation of the Washington Consensus in the 1990s, laws and judicial systems "were overlooked or deliberately forgotten in response to vested interests."[118] Similarly, developmental programs in the form of foreign aid tends to focus on delivering specific outcomes, but studies suggest these programs may be causing more harm than good.[119]

C. FUTURE RESEARCH

Further research on this topic should expand on the ISI findings and perform further case studies, specifically on the countries that did not perform well in the period. My suspicion is that the fundamental factors outlined in Chapter I are absent from these cases. Time constraints precluded me from analyzing the neoclassical turn and the Washington Consensus to the same degree as ISI. Discovering the explanatory power of these policies in the post-ISI era could also provide insightful information, especially if the results were to once again minimize the role of economic policies in economic outcomes. It is also reasonable to assume that there are far more fundamental factors than the three outlined in this research. Further research should focus on expanding the number of variables in an effort to find more universal factors. Finally, my research meets the same conceptual problem as much of the scholarship on poverty and growth: difficulty in attributing direct causation for the developmental cycle of these fundamental principles. The Mexico case study, for example, is particularly problematic because it ignores the institutional capacity each administration inherits prior to delivering growth.

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[118] Francis Fukuyama, ed., *Falling Behind: Explaining the Development Gap between Latin America and the United States* (London: Oxford University Press, 2008), 147.

[119] For more on concerns with foreign aid, see William Easterly, *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done so Much Ill and so Little Good* (New York: Penguin Press, 2006); Part III of Deaton, *The Great Escape.*

Scholarship emphasizing the importance for development of institutional function over form has existed for decades. As far back as 1968, for example, Samuel Huntington noted that the United States, Great Britain, and the then Soviet Union all had different forms of government, but shared “strong, adaptable, coherent institutions.”[120] Similarly, in 2007 Rodrik made a case for *universal economic principles* when he noted that “there is no unique correspondence between the functions that good institutions perform, and the form that such institutions take.”[121] The World Bank itself published a report in 1997 stressing the importance of central governments in enforcing rule of law in development, indicating that these concepts are not limited to heterodox academic circles.[122] While finding these relationships may be helpful, the causal ambiguity of these cycles needs to be addressed if these concepts are to achieve applicability.

[120] Samuel P. Huntington, *Political Order in Changing Societies* (New Haven, CT: Yale University Press, 2006), 1.

[121] Dani Rodrik, *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth* (Princeton, NJ: Princeton University Press, 2008).

[122] World Bank, “World Development Report 1997: The State in a Changing World” (New York: Oxford University Press, 1997), https://openknowledge.worldbank.org/handle/10986/5980.

APPENDIX A. ISI GDP PER CAPITA DATA

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
cgdppc	Argentina	Bolivia (Plu	Brazil	Chile	Colombia	Costa Rica	Ecuador	Guatemala	Honduras	Mexico	Nicaragua	Panama	Peru	Paraguay	El Salvador	Uruguay		ISI GDP per capita		GDP Per Capita Change
year	ARG	BOL	BRA	CHL	COL	CRI	ECU	GTM	HND	MEX	NIC	PAN	PER	PRY	SLV	URY				
1949	8646	1666	1527	4271	2921					2472				1434		5837		28774		
1950	8542	1627	1549	4399	2984					2648				1306		6269		29324		1.91%
1951	8425	1751	1544	4489	2958					2723				1296		6820		30006		2.33%
1952	7573	1741	1632	4820	3063					2766				1196		6600		29391		-2.05%
1953	7985	1507	1660	4798	3179					2679				1168		7223		30199		2.75%
1954	8249	1521	1747	5131	3342					2860				1183		7529	30379	31562		4.51%
1955	8681	1520	1856	4846	3326					2986						7495		30710		1.09%
1956	8696	1372	1849	4676	3332					3051						7473	29077	30449		-0.85%
1957	9069		1913	5137	3317					3164						7416		30016		3.23%
1958	9554		2059	5272	3263					3256						7127		30531		1.72%
1959	8665		2124	4863	3349					3259			2299			6732	28992	31291		-5.04%
1960	8928		2280	4960	3377					3380			2486			6867		32278		3.15%
1961	9455		2442	4729	3447					3525			2641			6993		33232		2.96%
1962	9197		2559	5821	3519					3657			2784			6956		34493		3.79%
1963	8877		2519	5889	3518					3906			2886			6864		34459		-0.10%
1964	9685		2527	5928	3628					4325			2989			6972		36054		4.63%
1965	10458		2509	5595	3614					4558			3148			7024		36906		2.36%
1966	10422		2626	6175	3702					4852			3310			7227		38314		3.82%
1967	10598		2738	6435	3747					5124			3409			6890		38941		1.64%
1968	10943		2912	6502	3872					5509			3270			6995		40003		2.73%
1969	11761		2966	6811	4007					5841			3283			7343		42012		5.02%
1970	12259		3275	6702	4209					6214			3439			7850		43948		4.61%
1971	12699		3576	7443	4524					6442			3543			7776		46003		4.68%
1972	12934		3899	7292	4832					6945			3523			7375		46800		1.73%
1973	13551		4291	6910	5208					7472			3661			7682		48775		4.22%
1974	14250		4540	6471	5543					7999			3752			7835		50390		3.31%
1975	13953		4639	5384	5747					8504			3979			8076	34818	50282		-0.21%
1976	13746		4904		5986					8696								33332		-4.27%
1977	14399		4903		6165					8791								34258		2.78%
1978	13601		4976		6494					9411								34482		0.65%
1979	14400		5184		6607					10244								36435		5.66%
1980	14431		5052		6825					11236								37544		3.04%
1981	13441		5133		6708					11812								37094		-1.20%
1982	12865		5162		6621					11364								36012		-2.92%
1983	13179		4987		6447					10412								35025		-2.74%
1984	13313		5041		6421					10433								35208		0.52%
1985	12313		5207		6331					10293								34144		-3.02%
1986	13077		5835		6592					9431								34935		2.32%
1987	13276		5880		6501					9333								34990		0.16%
1988	12897		5792		6587					9168								34444		-1.56%
1989	11979		5832		6593					9299								33703		-2.15%

Data extracted Maddison Project Database, version 2018. Bolt, Jutta, Robert Inklaar, Herman de Jong and Jan Luiten van Zanden (2018), “Rebasing ‘Maddison’: New Income Comparisons and the Shape of Long-Run Economic Development.” https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2018

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APPENDIX B. NON-ISI GDP PER CAPITA DATA

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
cgdppc	Argentina	Bolivia (Plu	Brazil	Chile	Colombia	Costa Rica	Ecuador	Guatemala	Honduras	Mexico	Nicaragua	Panama	Peru	Paraguay	El Salvador	Uruguay		ISI GDP per capita		GDP Per Capita Change
year	ARG	BOL	BRA	CHL	COL	CRI	ECU	GTM	HND	MEX	NIC	PAN	PER	PRY	SLV	URY				
1949						3088	2314	2157	1834		1590	2198	1932		1404			16517		
1950						2855	2441	2130	1838		1738	2073	2048		1370			16493		-0.15%
1951						2826	2397	2073	1876		1797	1941	2141		1341			16392		-0.61%
1952						3071	2639	2057	1977		1985	1968	2191		1391			17279		5.41%
1953						3509	2642	2077	2097		2001	2062	2280		1465			18133		4.94%
1954						3420	2803	2048	2039		2038	2183	2276		1450			18257		0.68%
1955						3608	2736	1995	2014		2185	2176	2382	1220	1475		18571	19791		1.72%
1956						3305	2745	2058	1993		2095	2226	2392	1245	1521			19580		-1.07%
1957		1266				3456	2781	2094	2032		2239	2353	2469	1214	1565		20203	21469		3.18%
1958		1233				3786	2775	2153	1986		2209	2502	2403	1265	1544		19453	21856		1.80%
1959		1245				3683	2839	2199	1905		2253	2790		1232	1564			19710		1.32%
1960		1237				3823	2926	2147	1972		2118	2380		1191	1526			19320		-1.98%
1961		1250				3875	2908	2212	2021		2246	2622		1239	1592			19965		3.34%
1962		1247				4031	2964	2248	2114		2443	2869		1333	1775			21024		5.30%
1963		1309				4248	2956	2326	2182		2671	3066		1368	1804			21930		4.31%
1964		1358				4360	3080	2337	2248		2897	3172		1427	1899			22778		3.87%
1965		1397				4643	3267	2376	2272		3128	3392		1480	1971			23926		5.04%
1966		1488				4899	3293	2466	2318		3061	3561		1495	2077			24658		3.06%
1967		1546				5074	3396	2531	2380		3252	3827		1573	2156			25735		4.37%
1968		1683				5269	3514	2683	2443		3312	4006		1642	2178			26730		3.87%
1969		1713				5505	3598	2771	2369		3384	4350		1699	2205			27594		3.23%
1970		1759				5829	3778	2875	2390		3381	4504		1801	2249			28566		3.52%
1971		1809				5981	3884	2939	2350		3437	4903		1874	2287			29464		3.14%
1972		1757				6299	3864	3086	2406		3333	5098		1971	2381			30195		2.48%
1973		1897				6569	4104	3179	2486		3678	5156		2041	2483			31593		4.63%
1974		2116				6589	4646	3229	2659		4182	5105		2151	2514			33191		5.06%
1975		2162				6670	4716	3237	2642		3791	5110		2285	2613			33226		0.11%
1976		2240		5518		7073	4988	3334	2921		4036	5047	3880	2405	2724	8126	34768	52292		4.64%
1977		2267		5932		7752	5251	3530	3167		4562	4859	3710	2681	2901	8066		54678		4.56%
1978		2201		6286		7871	5373	3593	3270		3796	5154	3591	2960	3082	8532		55709		1.89%
1979		2230		6712		8058	5639	3710	3238		2375	5210	3659	3200	2911	9217		56159		0.81%
1980		2229		7041		8012	5826	3793	3168		3028	5569	3900	3517	2754	9825		58662		4.46%
1981		2238		7282		7739	5831	3813	3104		3091	5882	4076	3754	2591	9834		59235		0.98%
1982		2122		6251		7074	5704	3680	3039		2929	5822	4035	3690	2547	8819		55712		-5.95%
1983		2060		5957		6974	5351	3580	2923		3083	6101	3521	3545	2554	7808		53457		-4.05%
1984		2140		6069		7256	5357	3550	2965		3032	5918	3610	3539	2644	7684		53764		0.57%
1985		2251		6006		7245	5358	3404	2914		3093	5744	3566	3553	2633	7631		53398		-0.68%
1986		2206		6179		7800	4969	3469	3015		2952	6414	4047	3435	2782	8612		55880		4.65%
1987		2259		6507		7568	4638	3439	3053		3049	6809	4380	3511	2744	9475		57432		2.78%
1988		2006		7025		7564	4711	3329	3180		2334	5966	4136	3640	2821	9373		56085		-2.35%
1989		2049		7570		7860	4705	3521	3179		2151	5905	3379	3653	2893	9362		56227		0.25%

Data extracted Maddison Project Database, version 2018. Bolt, Jutta, Robert Inklaar, Herman de Jong and Jan Luiten van Zanden (2018), “Rebasing ‘Maddison’: New Income Comparisons and the Shape of Long-Run Economic Development.” https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2018

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APPENDIX C. CALCULATING TABLE 4

A	R	S	T	U
cgdppc		ISI GDP per capita		GDP Per Capita Change
year				
1949		28774		
1950		29324		1.91%
1951		30006		2.33%
1952		29391		-2.05%
1953		30199		2.75%
1954	30379	31562		4.51%
1955		30710		1.09%
1956	29077	30449		-0.85%
1957		30016		3.23%
1958		30531		1.72%
1959	28992	31291		-5.04%
1960		32278		3.15%
1961		33232		2.96%
1962		34493		3.79%
1963		34459		-0.10%
1964		36054		4.63%
1965		36906		2.36%
1966		38314		3.82%
1967		38941		1.64%
1968		40003		2.73%
1969		42012		5.02%
1970		43948		4.61%
1971		46003		4.68%
1972		46800		1.73%
1973		48775		4.22%
1974		50390		3.31%
1975	34818	50282		-0.21%
1976		33332		-4.27%
1977		34258		2.78%
1978		34482		0.65%
1979		36435		5.66%
1980		37544		3.04%
1981		37094		-1.20%
1982		36012		-2.92%
1983		35025		-2.74%
1984		35208		0.52%
1985		34144		-3.02%
1986		34935		2.32%
1987		34990		0.16%
1988		34444		-1.56%
1989		33703		-2.15%

See Appendix A for full table shown here.

Calculating weighted numbers in Table 4:
The S Column aggregates all ISI GDP per capitas into a single ISI GDP per capita. Countries included in this figure fluctuate depending on the economic model at the time (see Figure 1). While adding GDP per capita across countries normally does not provide a useful figure, in this case the goal is only to measure change. The S column essentially pools output to then calculate change in column U, which provide are then used to calculate the "weighted" numbers in Table 4. This process is repeated for non-ISI countries as well.

Importantly, as countries come in and out of ISI, a new baseline (R column) is used to ensure the U column is not calculating change based on an artificially high or low number.

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