

The Impact of Political Annexation on Urban Primacy: A natural experiment on Mexico City testing the institutional origins of primacy

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Abstract. *Institutional theories of urban primacy suggest centralized urbanization can be decentralized through political reform. Despite this potential, rectifying primacy and its attendant inefficiencies attracts sporadic interest. Perhaps this is because the disruption of primacy is rarely observed, rendering the potential of decentralization a nebulous concept. Missing cities are a defining feature of primacy yet rarely figure in empirical cost-benefit analyses. To explore this dimension, we examine the history of urbanization in a large country renowned for primacy before and after it was invaded and divided into two countries. In the invaded part of the country, we observe the disruption of primacy following the transformation of political institutions, highlighting the importance of addressing institutions in the redress of urban primacy.*

Keywords. *Capital cities; institutional economics; Mexico City; primacy disruption; urbanization; urban primacy,*

Abstrak. *Teori kelembagaan urban primacy menyarankan urbanisasi terpusat dapat didesentralisasi melalui reformasi politik. Terlepas dari potensi ini, memperbaiki sistem primacy dan inefisiensi yang menyertainya menarik minat sporadis. Mungkin ini disebabkan karena rusaknya sistem primacy jarang diamati, membuat potensi desentralisasi menjadi konsep yang samar-samar. Kota-kota yang hilang adalah ciri utama primacy namun jarang muncul dalam analisis biaya-manfaat empiris. Untuk menelusuri dimensi ini, kita mengkaji sejarah urbanisasi di negara besar yang terkenal sebagai primacy sebelum dan sesudah terbagi menjadi dua negara. Di bagian negara yang dijajah, kami mengamati rusaknya status primacy setelah transformasi institusi politik, menandai pentingnya menangani institusi dalam pemulihan status urban primacy.*

Keywords. *Ibu Kota; ekonomi kelembagaan; Mexico City; gangguan keutamaan; urbanisasi; keunggulan perkotaan*

Introduction

Urban primacy describes an economy dominated by its largest city and lacking comparably large second cities (Jefferson 1939). Political institutions are thought to play a driving role in the emergence and persistence of primacy. Its characteristic centralized economic geography has been causally linked to a centralized configuration of intergovernmental power (Ades and Glaeser 1995; Kim and Law 2012; Galiani and Kim 2011). Despite the long discourse regarding the political drivers of spatial imbalance, rectifying it from a policy perspective is difficult (Martin

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2015). Logically, some have suggested government reforms have the potential to redress primacy (Henderson 2005; Pike, Rodríguez-Pose, and Tomaney 2007; Quigley 2009). However, the policy solutions aimed at addressing uneven development, such as second city growth poles (Abou-Korin 2010; Rondinelli 1983a) or financial transfers, may inadvertently exacerbate the condition by benefitting core areas over periphery economies (Martinus 2018; Tonts, Martinus, and Plummer 2013). As a result, the disruption of urban primacy is rarely achieved, prompting some to attribute permanence to the phenomenon (Anthony 2014).

The disruption of urban primacy is interesting because primacy is synonymous with second city suppression (Duranton 2009; Henderson 2005; Henderson 2003; Henderson and Becker 2000; Hussain and Imityaz 2018; Quigley 2009; Rondinelli 1983b; Sekkat 2017). Theoretically, disruption would signify decentralized economic development, the emergence of at least one second city comparable in size to the primate city, and the liberation of formerly suppressed, latent economic value on ‘the dark side of economic geography’ (Phelps, Atienza, and Arias 2018). Indeed, unrealized economic potential in the periphery is an opportunity cost inherent to the primate city’s requisite singularity. However, empirically measuring this opportunity cost is challenged by primacy disruption being rare. To address this gap, the following case study examines the impact of political annexation on urban primacy.

The case examines five centuries of urbanization in a North American geography called New Spain, a vast territory that for three centuries was politically united and controlled in Mexico City and later split in two following the invasion of its north by the United States. Today it is an international geography that juxtaposes the persistence of urban primacy with decentralization. Our research question was two-pronged: Was urban primacy disrupted in the northern half of New Spain following the American invasion? If yes, what does subsequent economic development in the southwestern United States indicate about the opportunity costs of primacy? We hypothesize that New Spain, as defined in this paper, is a demonstrable case of primacy disruption. Furthermore, subsequent decentralized economic development in the invaded territory suggests that large primate settlement systems, including regions where natural conditions appear prohibitive, may contain significant latent economic potential.

The remainder of this article is structured into five sections. First, we review the urban primacy literature with a focus upon diagnostics, mechanics, and disruption. Second, we introduce New Spain, a case of primacy disruption. Third, we describe our methodology including the research strategy, design, and analytical techniques used in our case study. Fourth, we present empirical results, derived from time-series quantitative and qualitative data. Fifth, we discuss our results, specifically the drivers of observed divergent urbanization.

Background

What is urban primacy?

To better contextualize urban primacy, Figure 1 presents examples of high national primacy according to two measures (Jefferson 1939; Mutlu 1989). High Primacy 1 is apparent where the ratio between the largest city’s population and that of the second and third most populous cities combined exceeds two (Wilkinson, Haslam McKenzie, and Bolleter 2022). Primacy 2 measures the largest city’s population as a proportion of the total urban population (Mutlu 1989). High Primacy 2 is apparent where the largest city comprises 40% of the total urban population (Rose 1967). Note that our suggested ‘high’ thresholds aim to capture unmistakable cases of primacy while it may be apparent at lower thresholds. For example, Smith (1990) and Jefferson (1939)

identified high primacy where the largest city has over twice the population of the second city, a measure of Primacy 1 as low as 1.00 or as high as 2.00. Practically, measures below 1.00 are low, above 2.00 are very high, with in-between requiring closer inspection.

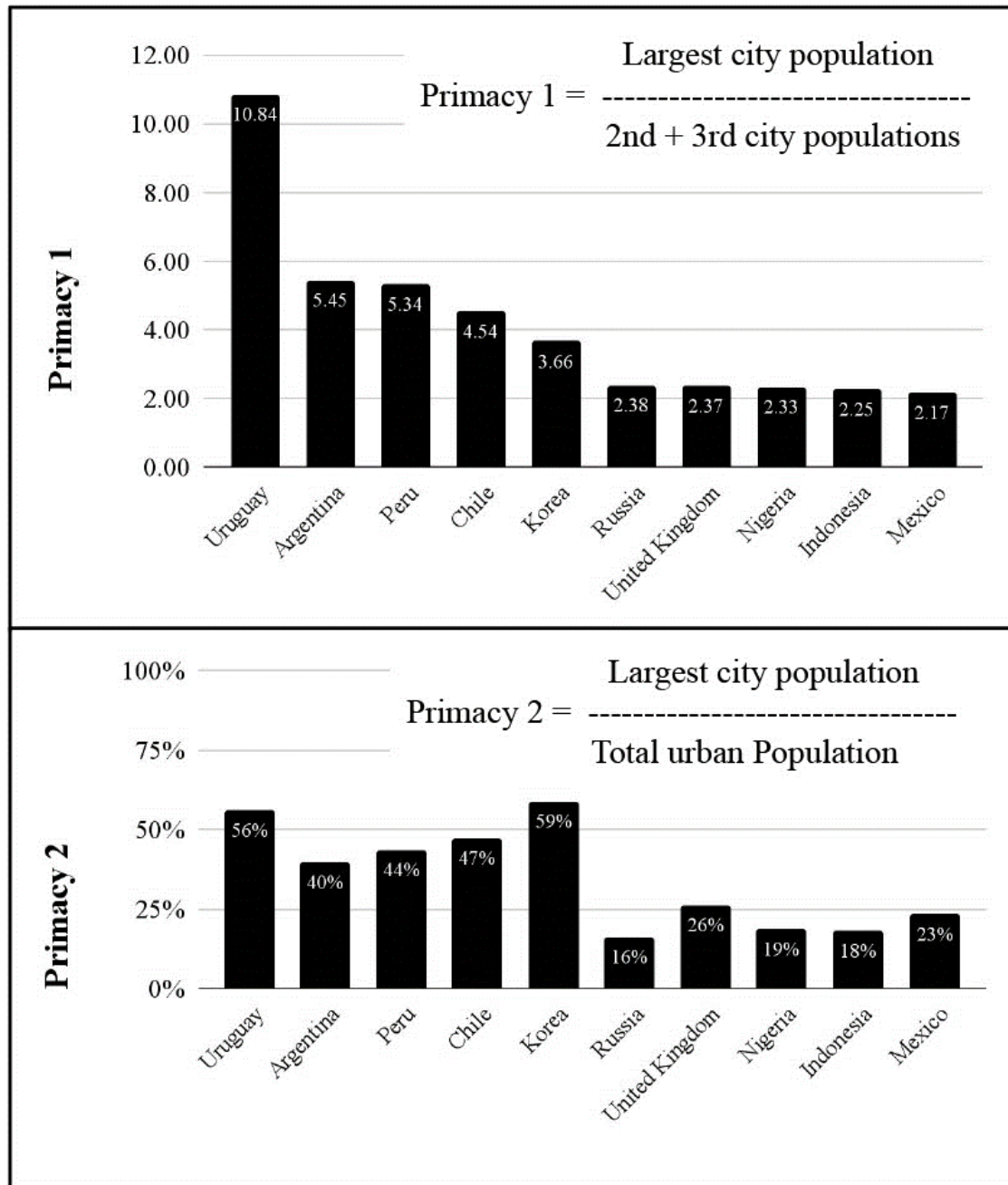


Figure 1: National examples of high urban primacy

Sources: (Brinkhoff 2022; World Bank 2022)

Interestingly, Figure 1 reveals different types of urban primacy. For example, there are countries with high primacy on both measures (Argentina, Chile, Korea), where the primate city largely stands alone as a large city. Alternatively, there are countries with high Primacy 1 and low

Primacy 2 (United Kingdom, Nigeria, Mexico), where the primate city stands above numerous additional, much smaller cities.

The Mechanics of Urban Primacy

A substantial literature exists on the mechanics of urban primacy, attributing a causal role in rich and poor countries alike to political-institutional factors such as capital city status (Ades and Glaeser 1995; Short and Pinet-Peralta 2009). Anthony (2014: 35) remarks that several studies were unanimous in finding a significant positive relationship between primacy and capital city status (Galiani and Kim 2011; Kim and Law 2012, 2016; Martin 2015; Quigley 2009; Rossman 2018; Short and Pinet-Peralta 2009). This is explained by the ability of capitals to agglomerate government jobs, lobbying, and private enterprise, thereby providing a steady source of growth.

While nearly all primate cities are capitals, not all capitals are primate cities. Scholars of primacy and capital cities attribute the variable population magnetism of capitals to the configuration of power within its institutions (Anthony 2014; Henderson 2003; Kim and Law 2012). Anthony suggests that centralized governance begets centralized urbanization, and he described the capital city effect in magnetic and cumulative terms. The urban economist Henderson (Henderson 1974, 1980) examined the process of urbanization and why one city sometimes dominates. Henderson suggests that economic, demographic, and political factors coalesce to determine where infrastructure is distributed and therefore where cities grow (Davis and Henderson 2003; Henderson and Becker 2000; Henderson 2003; Henderson, Lee, and Lee 2001). Accordingly, urban primacy is usually symptomatic of political institutions favoring the capital city.

Long-term studies of city populations added quantitative mettle to an institutional interpretation of primacy. In a study of the countries and sub-national territories of the Americas, Kim and Law (Kim and Law 2012, 2016; also see Galiani and Kim 2011) measured capital city population magnetism to be strongest where central governments are strong, and weakest where sub-national governments are strong. According to Kim and Law, strong sub-national and/or local governments possess the autonomy, power, and resources to steward development regardless of political status or how their potential is perceived in the urban core. Meanwhile, in countries where subsidiarity and localism are weak, development is beholden to higher tiers of government, bottlenecking infrastructure provision.

Primacy Disruption

Why is it important to consider urban primacy disruption? Earlier analyses emphasized deleterious impacts of urban primacy, including congestion and intergovernmental exploitation (London 1977; Hoselitz 1955; Lampard 1955). Softened in tone, later studies affirmed the idea that ‘excessive’ primacy is costly (Henderson 2003: 47). According to Henderson, an excessive measure of primacy signifies enormous productivity growth losses in the form of ‘exhausted scale economies, excessive congestion, and excessive per capita infrastructure costs [in the primate city], while smaller cities have unexploited scale economies and often deficient capital investment’ (Henderson 2003: 52; also see Fujita 1989: 52; Henderson and Becker 2000; Au and Henderson 2006; Davis and Henderson 2003). Similarly, Karayalcin and Ulubasoglu (2020) contend that primate cities grow at the expense of second cities. Thus, primacy disruption represents the reversal of some opportunity costs, when formerly suppressed potential in the periphery is liberated and developed.

Despite the long discourse regarding the political drivers of urban primacy and the potential benefits of decentralization, those who examined the effectiveness of reform to redress primacy

provided qualified support (Falletti 2005). Portes and Roberts (2005) pose that trade liberalization reduced urban primacy in Latin America. For example in Mexico, where the relative size of Greater Mexico City has steadily declined, coinciding with the abandonment of import substituting industrialization policies in the 1980s, the introduction of trade policies in 1994 (e.g., North American Free Trade Agreement or NAFTA), and the subsequent expansion of manufacturing in maquiladora cities such as Tijuana, Ciudad Juarez and Merida. Likewise in Korea, Henderson and colleagues (2001), measured growth in manufacturing employment away from Seoul following the 1970s and 1980s introduction of policies to spur economic liberalization, industrial decentralization, and regional transportation. Both studies suggest reform can deform urban primacy, but they measured moderate declines in primacy, not disruption. Disruption requires the emergence of at least one comparably large second city. Instead, the above samples included Korea, Mexico, Argentina, Peru, Uruguay and Chile, countries that remain examples of ‘extremely high primacy’ (Henderson 2005: 1563). In some instances, for example Argentina, Chile, Peru and Uruguay, decentralization, such as that measured by Portes & Roberts (2005), constituted suburbanization or ‘megalopolization’ around primate cities, meaning that the dominance of the capital region increased (Short and Pinet-Peralta 2009: 1257). Thus, whatever impact trade liberalization had on primacy, such as rising GDP per capita, it did not fundamentally change the settlement pattern (Aroca and Atienza 2016).

In addition to trade policies, institutional perspectives have prompted some to suggest that moving a capital city would disrupt primacy (De Cola 1984; Moomaw and Alwosabi 2004; Mutlu 1989; Rossman 2018). Of the few studies that looked at this, the results were mixed. Bosker and colleagues (2008) attributed Germany’s flat urban hierarchy to the relocation of its capital from Berlin to Bonn (1949-1991). Similarly, Heider and colleagues (2017) determined that Bonn’s 40-year tenure as national capital positively impacted its population. Following Berlin’s reinstatement as capital in 1990, Stahl (2017) measured significant corporate flight, with publicly listed German firms in Berlin increasing from 3.6% in 1991 to 9.3% by 2013. These studies suggest that settlement patterns respond to institutional changes such as capital city movement. Conversely, in a global analysis of the capital city effect, Anthony (2014) found that long capital tenure correlated with high primacy, even where the largest city is no longer a capital. This is evident in Turkey where the population of the capital, Ankara (established as capital in 1923), totals 5.25 million, whereas the former capital Istanbul has a population of 16.50 million (Brinkhoff 2020). Anthony’s results suggest primacy progressively grows inflexible. However, Anthony’s study measured the capital city effect only for largest cities and therefore did not account for rare examples where a once-primate city was eclipsed, as occurred in Brazil twice. Specifically, for two centuries each, Salvador (1534-1763) and Rio de Janeiro (1763-1960) stood as largest, capital cities of what is now Brazil.

The notion of path dependence is helpful in understanding the seeming permanence of urban primacy, what Martin and Sunley (2006: 399) define as an ‘inability to break free of history’ due to political institutional habit and economic legacy. Concomitant with path dependence is ‘lock-in,’ the idea that systems grow increasingly rigid, rendering the possibility of disruption unlikely regardless of whether or not the status quo is beneficial (Arthur 1989; Setterfield 1997). Applying this logic to urbanization, primacy might be accepted as an immovable reality regardless of its costs. However, despite the rigidity implied by path dependence, North (1990: 98-99) cautioned against confounding it with inevitability, writing that ‘at every step along the way there were choices – political and economic – that provided real alternatives.’ This logic might also be applied prospectively – path dependence is not synonymous with permanence. Acknowledging the occasional inevitability of path disruption, Castaldi and Dolsi (2006) examined methods and

experiences of disrupting systems. They termed one method ‘invasion’ whereby exogenous factors permeate and take over. This is the method of primacy disruption explored in this study.

Methodology: A Case Study of Urban Primacy Disruption

To examine an example of primacy disruption via invasion our study centered on Mexico City, a capital renowned for primacy, and the geographies subject to its rule since the sixteenth century. Two features make this case relevant to disruption. First, evidence suggests that Mexico City has been a dominant, centralizing political center since Spain’s conquest of Tenochtitlan in 1521 and Mexico City’s founding atop its ruins (Graizbord 2009). Spain was an authoritarian administrator of its colonies, well documented characteristics eloquently linked to the onset, prevalence, and persistence of primacy throughout Latin America (Aroca and Atienza 2016; Galiani and Kim 2011). In the heart of New Spain, Mexico City emerged as a manifestation of centralized Spanish rule. Some trace its primacy to the eighteenth century (McGreevey 1971). Second, during the post-colonial era (1821 onward), Mexico City’s geographic domain was halved when Mexico ceded approximately 55% of its territory to the United States following the Treaty of Guadalupe Hidalgo at the conclusion of the Mexican American War (1846-8) and the Gadsden Purchase (1853).

As illustrated in Figure 2, in 1830, Mexico was twice its current size, comprising the southwest United States and present-day Mexico. Prior to Mexican independence, this geography was part of the Viceroyalty of New Spain, ruled by Spain via Mexico City for three centuries (1521-1821), henceforth referred to as New Spain. Following Spanish rule and thirty years after Mexican independence, New Spain was split in half. The southern half remained (and remains) Mexico, henceforth referred to as Mexico. Meanwhile, the northern half was ceded to the United States, lands later reformed into US states, California, Nevada, Utah, Arizona, New Mexico, Texas, and including significant portions of Wyoming, Colorado, Kansas, and Oklahoma. Our case examines settlement patterns across this formerly united geography.

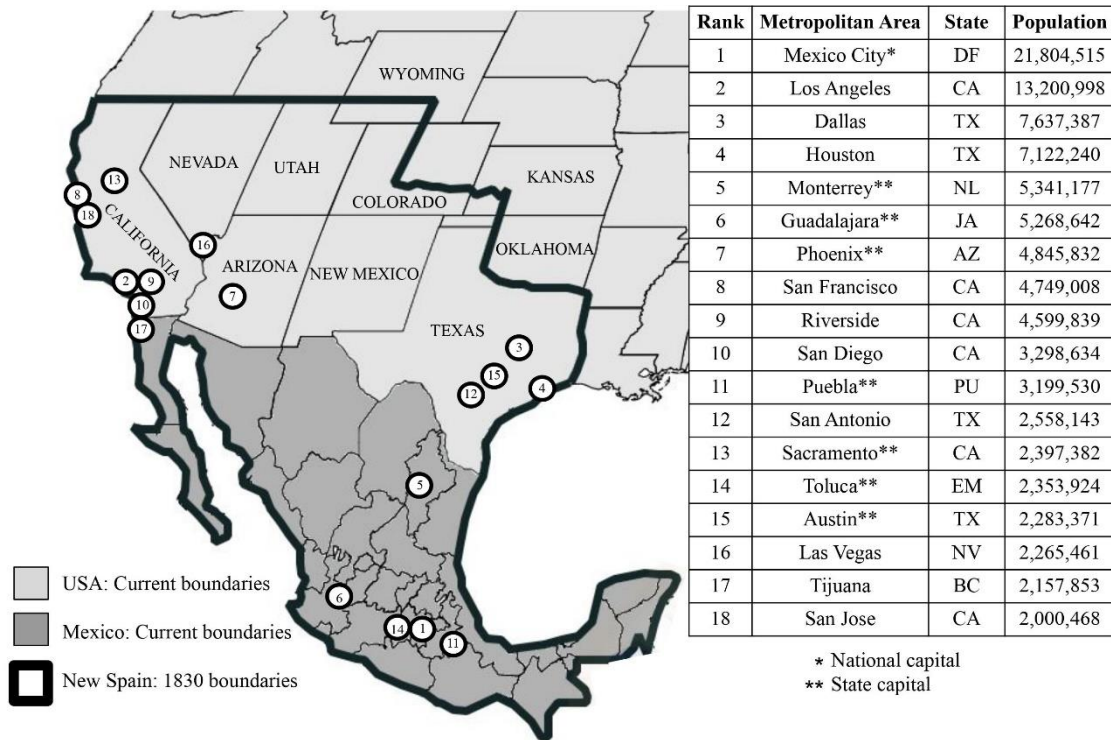


Figure 2: Mexican Urban Geography

Caption: From 1521-1821, the territory defined as New Spain was ruled by the Spanish, known as the Viceroyalty of New Spain. In 1821, Mexico achieved independence; thirty years later Mexico was halved. The southern half remained Mexico while the northern half was ceded to the United States. The map indicates the location of urban agglomerations with populations over 2 million as of the Mexican and American 2020 censuses. Source: (Brinkhoff 2022)

Our research question was two-pronged: Was primacy disrupted in New Spain’s north following its absorption into the United States and if so, what does this indicate about the opportunity costs of primacy? To answer this question, we required two components: first, time-series measures of urban primacy in New Spain and Mexico before and after the US invasion (e.g., 1800-present); second, comparative economic and historic data to determine if, how, and why they differ. Our research strategy produced a descriptive case study, a multifaceted investigation of a contemporary phenomenon within a real-world context (Yin 2014), an approach well suited to the longitudinal analysis of settlement patterns across a fixed landscape (Swaffield and Deming 2011). We applied a multi-century longitudinal time frame similar to Kim’s (2000) long-term analyses of the American urban system.

Our case geography was defined by its former political geography, which has since been divided. What was the basis for examining an urban system spread across two countries? We pose that the geography’s three centuries of shared political institutional history established an economic foundation that was subsequently divided. The historic perspective enables the case to test the assertion that economic geography is sculpted by institutions (e.g., Henderson 2003) by testing for changes in settlement following institutional invasion/reform.

For New Spain and Mexico we developed time-series Primacy 1 measures from 1790 to 2020. Mexico is defined as Mexico’s current political geography. New Spain is defined by Mexico’s political boundaries as of 1830. We omitted Primacy 2 due to inconsistent availability of urban

population data throughout the time frame. City population data from Mexico's sixteenth and seventeenth century colonial periods were unavailable in a consistent form. These periods were not measured. From 1790 onwards, city population data were acquired from multiple sources. For the period 1790 to 1890 we utilized city-proper data compiled from Boyer and Davies (1973), Brading and Wu (1973), Kemper and Royce (1979) and the United States Census Bureau (2018). Population data availability improved for the 20th century with the introduction of Mexico's census in 1895. From 1900 to 2020, we utilized metropolitan definitions of cities; both the Mexican National Institute of Statistics and Geography (INEGI) and United States Census Bureau (USCB) provide metropolitan statistical area (MSA) classifications for this period. We utilized INEGI's MSA classifications and Mexican census records for the Mexican city population from 1900 to 1940 (INEGI 2020). From 1950 to 2020, we utilized peer-reviewed Mexican metropolitan census data (United Nations 2018; Brinkhoff 2022). City populations in the southwestern United States were derived from historic MSA populations from 1900 to 2020 (Schroeder 2016; Brinkhoff 2022). Note that in both Mexico and the southwestern United States some MSAs did not emerge as 'urban' until well into the twentieth century. Thus, in early periods MSA populations represent rural populations in regions that would become metropolitan.

Measures of Primacy 1 for Mexico and New Spain from 1790 to 2020 were calculated and compared. The period of analysis provides forty years of primacy measures prior to Mexico's cession, an iterative process spanning 1836 to 1853. The data test the historic existence of primacy in Mexico and provide a baseline. Should results indicate that primacy was disrupted in New Spain, we estimate the opportunity costs of primacy by quantifying the size and importance of cities that emerged following the political annexation. Specifically, we compiled city population statistics from Brinkhoff (2020) to examine the contemporary distribution of large cities (population >2 million) in New Spain, then juxtaposed these data with city-specific gross domestic product (GDP) data (Berube et al. 2015) and world city status according to the Global and World Cities index (Taylor, Beaverstock, and Smith 2018). The economic weight of the 'American-born' secondary cities is provided to partly quantify the now realized opportunity costs of urban primacy. Whilst it may appear problematic to compare Mexican and American cities, we justify the comparison given the collective geography's three centuries of shared institutional history, rendering both components important regions of Latin America. We suggest that the comparison is akin to an examination of economic divergence across any formerly politically united geography.

Results

To conceptually illustrate the disruption examined and observed by our study, and also the theoretical settlement plasticity implied by institutional economics (Hodgson 1998; Samuels 1995), Figure 3 presents a model depicting the transformation of economic geography between two countries following the invasion by one of the other. In the figure, Country B invades half of Country A, resulting in Country B's institutions, which are supportive of decentralized settlement, being imposed upon the periphery of Country A's primate urban system. Time 3 features the impact of the invasion – the emergence of large non-capital cities and the spread of decentralized settlement in the invaded territory whilst primacy persists in Country A. The invaded portion of Country A conveys both the opportunity costs of primacy (in Times 1 and 2) and the economic potential of decentralization (Time 3).

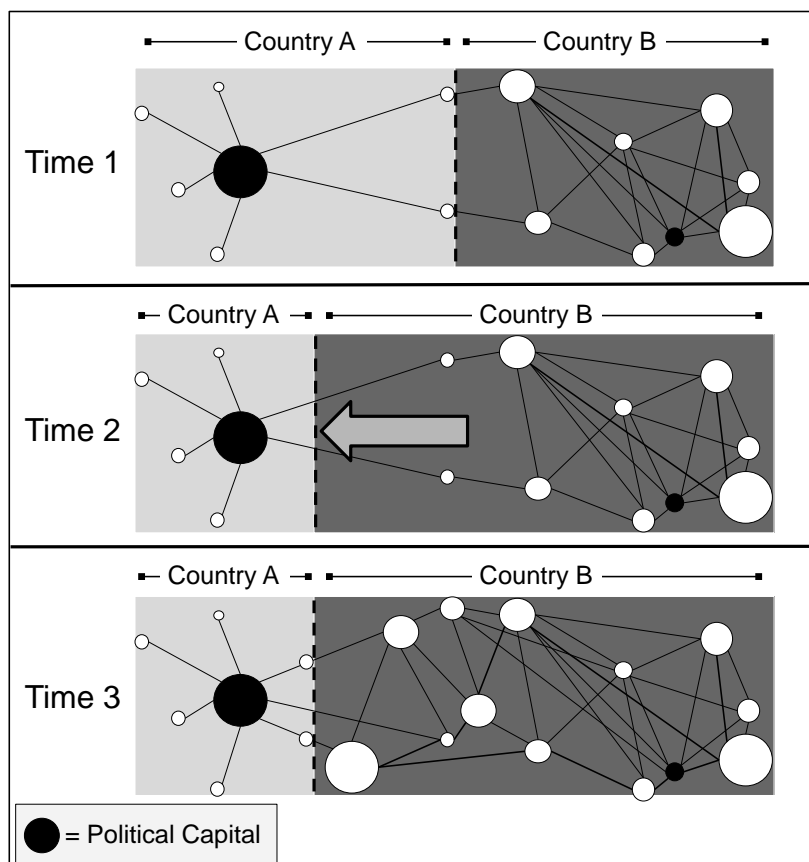


Figure 3: Theoretical Model of Settlement Plasticity

Caption: Time 1 features two adjacent countries, A and B. Settlement in Country A is characterized by primacy in its capital. Settlement in Country B features decentralized settlement with large non-capital cities and a relatively small capital. In Time 2, Country B invades half of Country A. In Time 3, decentralized urbanization in Country B expands into the annexed territory. Source: Author's work

Relative to empirical data, measures of Primacy 1 from 1790 to 2020 are presented in Figure 4. From 1790-1900 primacy in Mexico averaged 1.60 and the region did not exhibit a very high measure (>2.0) until 1900, echoing Kemper and Royce's (1979: 268) assertion that whilst New Spain's urban system was centered on Mexico City by the middle of the 18th century, very high primacy was not apparent until the 19th century. Whilst 1.60 is not 'very' high, it denotes the dominance of one city. Mexico City was well over twice the size of Mexico's second city in all periods, except in 1800 and 1810 when Guanajuato experienced a short-lived population surge (Kemper and Royce 1979). Mexico exhibited very high primacy throughout the twentieth century following explosive population growth in and around Mexico City, plateauing at 4.21 in 1950. Thereafter, population growth in Mexico's second and third largest cities (Guadalajara and Monterrey respectively) outpaced Mexico City. Despite declines, primacy in Mexico remained high (2.06) in 2020.

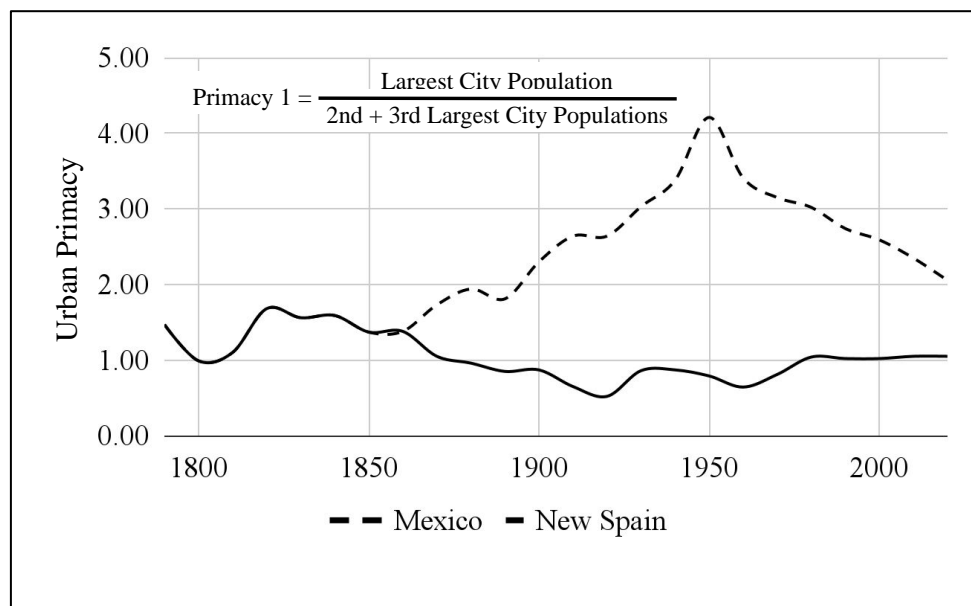


Figure 4: 1790-2020 Measures of Urban Primacy

Caption: From 1790-1860 Mexico and New Spain shared the same largest cities and therefore exhibited the same primacy. The dip in primacy from 1800-1810 corresponds with rapid, albeit short-lived, population growth in the mining center Guanajuato, briefly Mexico’s second city. From 1870 measures of primacy in Mexico and New Spain diverge. In Mexico, Mexico City’s relative size steadily increased, peaking in 1950. Thereafter, primacy in Mexico declined as population growth in Guadalajara and Monterrey outpaced Mexico City, though primacy remained high (2.06) in 2020. In all periods Mexico City was by far the largest city in Mexico. In New Spain, primacy declined below 1.0 from 1880 onwards following the rapid ascension of cities in the north, namely San Francisco, Los Angeles, and Dallas. From 1930 to 1970 the population of Mexico City was eclipsed by Los Angeles. Sources: Mexico: 1790-1890 (Boyer and Davies 1973; Brading and Wu 1973; Kemper and Royce 1979); 1900-1940 (Instituto Nacional de Estadística y Geografía 2020); 1950-2010 (United Nations 2018); 2020 (Brinkhoff 2022); USA: 1790-1890 (United States Census Bureau 2018); 1900-2010 (Schroeder 2016); 2020 (Brinkhoff 2022)

In Figure 4, the measures of primacy are the same for both geographies from 1790 to 1860, averaging 1.43. The same measures are due to the three largest cities in both geographies being in Mexico. During this time, the northernmost population center greater than 10,000 people was Chihuahua, rendering the northern half of New Spain remote and largely unpopulated, consistent with primacy. From 1870 onwards, a divergence is apparent. In Mexico, Mexico City retained and increased its dominance. In New Spain very low measures of primacy starting in the 1860s signify the emergence of large cities of comparable size to Mexico City, namely San Francisco in the nineteenth century and Los Angeles in the twentieth century. The divergence followed rapid westward expansion/invasion of American populations into northern New Spain, particularly into California and Texas.

To further demonstrate urban primacy disruption, Table 1 features the top-ten most populous cities in New Spain from 1800 to 2020 and illustrates hierarchical disruption following the American annexation of northern New Spain. The first American city in New Spain was San Francisco, following the 1849 California gold rush (Starr 1986). By 1870, San Francisco had swelled from a remote village to the second largest city in New Spain, with a population of approximately 150,000 to Mexico City’s 225,000, an unprecedented development relative to three centuries of European settlement in which there were numerous comparable mineral discoveries

that had a far less magnetic and lasting effect on centers outside of Mexico City. San Francisco remained the second most populated city in New Spain until 1910 when a second disruptive ascension occurred in southern California in Los Angeles. Previously a remote mission village, early-twentieth-century Los Angeles rapidly attracted population, particularly following the municipal-bond funded construction of the LA Aqueduct in 1913 (Osborne 1913). Los Angeles eclipsed San Francisco in 1920, later Mexico City from 1940 to 1970, a feat no city in Mexico has approached. From 1980 onwards, Mexico City the megacity resumed its top spot.

Table 1: Top 10 Most Populated Cities in New Spain 1800-2020

Caption: Starting in 1850, the data demonstrate hierarchical disruption within the New Spain urban system following the emergence of cities in the north, a region that prior to the American invasion was desolate of major population centers. Cities in shaded cells are in Mexico; cities in white cells are in northern New Spain (southwest USA).

Population Ranking	1800	1850	1900	1950	2000	2020
1	Mexico City 137,000	Mexico City 185,000	Mexico City 687,122	Los Angeles 4,368,000	Mexico City 18,457,000	Mexico City 21,804,515
2	Guanajuato 71,000	Puebla 71,631	San Francisco 518,821	Mexico City 3,365,000	Los Angeles 12,365,628	Los Angeles 13,200,998
3	Puebla 68,000	Guadalajara 63,000	Dallas 274,769	San Francisco 2,136,000	Dallas 5,204,119	Dallas 7,637,387
4	Leon 29,000	Leon 54,587	Houston 202,438	Houston 1,083,000	Houston 4,693,176	Houston 7,122,240
5	Guadalajara 20,000	Guanajuato 40,000	Los Angeles 189,994	Dallas 973,000	San Francisco 4,123,745	Monterrey 5,341,177
6	Morelia 18,000	San Francisco 34,776	Guadalajara 157,790	San Antonio 604,000	Guadalajara 3,724,000	Guadalajara 5,268,642
7	Veracruz 16,000	Merida 30,000	Austin 148,210	San Diego 557,000	Monterrey 3,405,000	Phoenix 4,845,832
8	Durango 12,000	Morelia 19,473	Puebla 141,054	Guadalajara 403,000	Riverside 3,254,817	San Francisco 4,749,008
9	Chihuahua 12,000	Aguascalientes 18,339	San Antonio 135,821	Monterrey 396,000	Phoenix 3,251,888	Riverside 4,599,839
10	Aguascalientes 10,000	Durango 15,211	Leon 128,990	Sacramento 376,000	San Diego 2,813,834	San Diego 3,298,634

Sources: Mexico: 1800-1890 (Boyer and Davies 1973, Brading and Wu 1973, Kemper and Royce 1979), 1900-1940 (Instituto Nacional de Estadística y Geografía 2020), 1950-2010 (United Nations 2018), 2020 (Brinkhoff 2022); USA: 1800-1890 (United States Census Bureau 2018), 1900-2010 (Schroeder 2016), 2020 (Brinkhoff 2022).

Relative to the economic importance of cities across New Spain, Table 2 features the eighteen urban agglomerations with populations over two million (Brinkhoff 2020) ranked by GDP (Berube et al. 2015), and featuring their respective Global and World Cities Research Network classification (Taylor 2020). Three observations are apparent. First, today northern New Spain hosts three cities (Los Angeles, Dallas and Houston) with populations greater than all Mexican cities except Mexico City. None of New Spain's large American urban agglomerations existed as major commercial centers under Spanish/Mexican rule. Second, from an economic perspective three American cities (Los Angeles, Houston, and Dallas) have higher GDPs than Mexico City. Third, the Global and World Cities Research Network identified three 'alpha' (Los Angeles, Mexico City, San Francisco) and five 'beta' (Houston, Dallas, San Diego, Monterrey, Austin)

world cities in New Spain, six of which are in the United States. The ‘new’ American cities appear disruptive in population and economic importance.

Table 2: A Contemporary View of the New Spain Urban Hierarchy

Caption: Urban agglomerations in New Spain with populations over two million as of 2020, ranked by GDP. Each city’s World City status is indicated, as defined by the Globalization and World Cities Research Network (GaWC). There are many large, economically significant cities in New Spain’s north, all of which emerged following American annexation.

City Name	Country	Population	GDP (PPP, \$M)	World City Status
Los Angeles	USA	13,200,998	\$860,452	Alpha
Houston	USA	7,122,240	\$483,184	Beta +
Dallas	USA	7,637,387	\$412,674	Beta +
Mexico City	Mexico	21,804,515	\$403,561	Alpha
San Francisco	USA	4,749,008	\$331,024	Alpha -
Phoenix	USA	4,845,832	\$207,065	Gamma +
San Diego	USA	3,298,634	\$202,490	Beta -
San Jose	USA	2,000,468	\$160,339	Gamma +
Riverside	USA	4,599,839	\$154,904	NA
Sacramento	USA	2,397,382	\$127,401	Gamma -
Monterrey	Mexico	5,341,177	\$122,896	Beta -
Austin	USA	2,283,371	\$107,364	Beta -
San Antonio	USA	2,558,143	\$102,771	High Sufficiency
Las Vegas	USA	2,265,461	\$93,858	Sufficiency
Guadalajara	Mexico	5,268,642	\$80,656	Gamma +
Puebla	Mexico	3,199,530	\$38,123	High Sufficiency
Toluca	Mexico	2,353,924	NA	NA
Tijuana	USA	2,157,853	NA	High Sufficiency

Sources: (Brinkhoff 2022; Taylor 2020; Berube et al. 2015)

Discussion

Would cities like Los Angeles, San Francisco, Dallas, Houston, etc. have developed under Mexican control or are they products of American institutions? If not these exact cities, would comparably important cities have developed? The evidence suggests not, given that Mexico has not developed comparable cities in the northern geographies it retained and continues to exhibit high primacy. In keeping with primacy, Mexico’s urban system remains concentrated around Greater Mexico City despite the nation’s substantial size, increasing wealth, and long coastlines along the Pacific Ocean and Gulf of Mexico, regions which have been conducive to urbanization in the United States, for example.

It is worth noting that the natural resources which sparked economic development and urbanization in California and Texas were not unique to northern New Spain. Mexico has been comparably endowed with numerous, large, and widespread natural resource deposits, particularly gold, silver, and oil. According to Bakewell (2020), Mexico was the global epicenter of European mining from the fifteenth to the nineteenth century. Whilst natural resources created wealth in Mexico, the importance of major Mexican mining centers ascended and descended with the productivity of their mines. Since 1521 Mexico City has consistently reigned supreme.

While our data support the idea of a historically dominant Mexico City, they convey less about the geographic scale of its primacy and the scale of disruption. American cities emerged out of three centuries of physical and cultural isolation. Whether in New Spain or Mexico, northern regions have long stood apart from the country's more populated and tropical south. The north's vast deserts and semi-deserts limited colonization and weakened economic links with the rest of Mexico (Kemper and Royce 1979). Weak links are still apparent, illustrated by the north's sparse population and unique culture. Balán and colleagues (2014: 36) describe Monterrey in Mexico's northeast as 'thoroughly within the spirit of the North,' one characterized as industrious, hard-working and frugal due to its isolation and harsh climate.

Northern Mexico's isolation and a degree of indifference by the national government toward its north challenge the stereotype of primate cities as parasitic, all-powerful subjugators of the periphery (see: Hoselitz 1955: 278; Lampard 1955: 131). Instead, these characteristics suggest that Mexico City is the rich, centralized seat of a myopic government. In fact, the experience of indifference or neglect somewhat undermines the premise that New Spain was a politically united geography for three centuries, given that the north was hardly subject to Spanish/Mexican institutions. However, neglect and tenuous economic integration are the exact experiences of regions in the shadow of primate cities. Three centuries of weak political institutions is exactly what was disrupted.

Divergent Institutions

Despite centuries of shared history, economic development in the southwest United States stands in stark contrast with that of northern Mexico. The same environmental barriers that had isolated and stymied the region under Mexican control were overcome in large part due to the implementation by American federal, state, and local governments of major works of infrastructure that secured water supplies and critical services. For example, federal loan programs, such as the US National Reclamation Act of 1902, funded irrigation projects in the west, including the Theodore Roosevelt Dam in Arizona in 1911; municipal bonds funded local projects like the Los Angeles Aqueduct (1913); and federal grants financed projects like the Hoover Dam in Nevada. These three examples paved the way for large-scale, rapid urbanization in Phoenix, Los Angeles, and Las Vegas respectively. Furthermore, the Americans' strong appetite to embark upon such investments was fed by a different national imagination, one inspired by Manifest Destiny, the belief that the United States was destined to spread its civilization from the Atlantic to the Pacific Ocean.

The financing strategies mentioned above directly relate to and are underpinned by American political institutions, specifically the United States' relatively decentralized fiscal powers and resources (Kim and Law 2012, 2016). Particularly relevant to this discussion is the American municipal-bond market. Municipal bonds are debt instruments issued and secured by local, county and state governments. According to Young (2012: 929-933), 'local and state governments in the United States have used capital markets to [fund infrastructure] for some two hundred years. [Municipal bonds] fueled the country's industrial and westward expansion... and virtually every

subnational infrastructure component.’ In 2019, the US municipal bond market was valued at \$3.9 trillion and municipal securities financed over two-thirds of infrastructure projects (Municipal Securities Rulemaking Board 2020). Indeed, new American states in northern New Spain were able to access this regime and immediately raise large capital to finance infrastructure, underwriting the development of large population centers.

By comparison Mexico has only recently and in part adopted comparable institutions. In the 1990s Mexico began a process of political, administrative, and fiscal decentralization. Fiscally, significant borrowing and spending powers were devolved to state and local governments. Between 1982 and 1997, the share of subnational revenues increased from 9% to 21%, and from 1978 to 1999 the subnational share of expenditure increased from 18% to 29% (Falleti 2005), underscoring the importance of decentralized fundraising mechanisms. In 1999 Mexico’s federal government ceased guaranteeing subnational debts, thereby increasing the accountability of subnational governments while broadening their autonomy to secure debt independently (Leigland and Mandri-Perrott 2008; Martell and Guess 2006). These reforms prompted Erickson and Eaton (2002) to call for the creation of a Mexican municipal-bond market to finance infrastructure in the north. Coincidentally, this recommendation was simultaneously implemented; Mexico launched its municipal-bond market in December 2001 (Nehme 2001).

Whilst the autonomy and accountability of Mexico’s subnational governments has increased, the country has come from a base of centralization. Local governments are still subject to centralized political and financial controls by federal and state governments (Graizbord 2009: 211; Rodríguez 1993). According to Graizbord, most local administrative decisions must be approved by the state, including public works contracts. Furthermore, despite a nascent municipal bond market, local governments remain dependent upon transfers and their taxation powers are curtailed. Thus, limited sources of investment capital may explain Mexico’s limited urban system. That is, cities are mass concentrations of infrastructure, each component requiring capital investment. A core driver of divergent urbanization across New Spain is the ability to pay for urbanization. American institutions set the stage for state, county, and local governments to access larger pools of capital and the autonomy to do so independent from, or in concert with, higher tiers of government. Thus, American subnational governments have the money to pay for urbanization and they possess the agency to implement infrastructure, allowing many localities to do so simultaneously.

Interestingly, our measures indicate that Primacy 1 began declining in Mexico from a peak of 4.21 in 1950 to 2.06 in 2020 (Figure 2). The decline precedes government decentralization reforms, to some extent countering the causal thrust of the institutional economics. However, there is an important difference between decline and disruption. The levelling off and/or decline of primacy is consistent with the notion of a saturation point (Cuervo G. and Cuervo B. 2013) or maturation paradigm (El-Shakhs 1972; Williamson 1965), whereby primacy plays a supportive role in early economic development, later declining moderately and levelling off as wealth and population spread out. Recognizing this, Snyder (1966: 83) describes the growth of Guadalajara and Monterrey as the ‘thickening up of the hierarchy at intermediate levels’ whilst the proportional growth of cities further down the hierarchy lagged. According to Portes and Roberts (2005) declines in Mexican primacy were inevitable given Mexico City’s lower birth rate coupled with declining migration to the city due to congestion and eroded appeal. It is furthermore worth noting that Mexico’s rate of urbanization has risen from 42.7% in 1950 to 77.8% in 2010 (Atienza and Aroca 2013), representing the migration of tens of millions of Mexicans to cities, and still Mexico City maintains high primacy. In a nation with an urban population of over 85 million, approximately a quarter reside in and around the capital. Thus, despite declining primacy, perhaps reinforced by decentralization reforms, the disruption of Mexico City’s preeminence is not yet apparent, certainly in no way similar to that experienced in New Spain.

Opportunity Costs

Finally, what do our results imply about the opportunity costs of primacy? We suggest that the emergence of numerous large second cities in northern New Spain illustrates the scale of opportunity. That is, the importance of redressing primacy is embodied in the economic importance of the cities constituting disruptive growth. Our results suggest that in the absence of political institutional reform it is unlikely cities comparable to Los Angeles, San Francisco, Houston, etc. would have developed to the degree they have. The American southwest therefore illustrates the existence of latent economic potential and how dependent its realization is upon political institutions and national imagination. The suppressed potential of second cities is usually a hypothetical component in the primacy literature, but this study contributes an empirical measure anchored in historic experience. Perhaps an empirical perspective of opportunity costs will whet the appetite of reformers in other large-scale examples of primacy who hopefully will develop more peaceful methods of achieving the same result.

Conclusion

When northern New Spain was re-formed into the southwest United States, it became subject to new political institutions associated with relatively powerful state, regional, and local governments (Kim & Law 2012, 2016), thereby altering economic geography. The aftermath reinforces and illustrates the thrust of institutional economics – institutions sculpt urban geography. The divergence is so complete that studies examining urbanization in Latin America usually omit the southwest of the United States in their samples despite its ongoing cultural relevance and centuries of Spanish colonization.

The central thesis of this case study was that an invasion and subsequent institutional reform disrupted a primate settlement pattern in the northern half of New Spain, now the southwestern United States. This cogent, somewhat obvious conclusion does not require a great leap of logic; we present a new perspective of old news in plain sight. What is novel is the suggestion that some of the world's great cities were stunted for centuries within political institutional regimes that overlooked the latent potential of once obscure geographies. That is, whilst the primacy literature recognizes that second city suppression is a defining theoretical component of the phenomenon (Henderson 2003; Duranton 2009), in documenting a case of primacy disruption

we could specify that cities such as San Francisco, Los Angeles, Houston and Dallas are world cities that have overcome this suppression. In illustrating the emergence of large second cities following primacy disruption, we suggest that the redress of primacy can unlock significant, latent economic potential and is therefore a topic worthy of continued interest.

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