

Economic Geography, Political Inequality, and Public Goods in the Original 13 US States

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August 18, 2018

Abstract

A large and fruitful literature has focused on the impact of colonial legacies on long-term development. Yet the mechanisms through which these legacies get transmitted over time remain ambiguous. This paper analyzes the choice and effects of legislative representation as one such mechanism, driven by elites interested in maximizing jointly economic prospects and political influence over time. We focus on malapportionment in the legislatures of the original thirteen British North-American colonies. Their joint independence created a unique juncture in which postcolonial elites simultaneously chose the legislative and electoral institutions under which they would operate. We show that the initial choice of apportionment in the state legislatures is largely a function of economic geography, that such a choice generated persistent differences in representation patterns within states (political inequality), and that the latter shaped public goods provision in the long run.

“Men, who have more than a proper degree of power, are seldom known to surrender it freely.”

Hugh Williamson, North Carolina politician on the persistence of the colony’s malapportioned legislature

1 Introduction: The Political Transmission of Colonial Legacies

In modern democratic societies, the monopoly of violence lies mostly, if not exclusively, with the state and power is about the institutionalized allocation of political influence. By that we refer to the way in which economic and political institutions adjudicate between competing interests with different preferences over legislation, regulation, and fiscal choices. In recent years, a large body of work has focused on the historical origins of such an allocation across democracies and how they shape long-run economic and political outcomes. In this paper we contribute to these efforts by analyzing the origins and long-run consequences of legislative malapportionment in the original 13 US states. We theorize and establish empirically a link between economic geography and the initial decision to adopt different systems of representation. Using a new dataset capturing political inequality at the county level within states, we establish its persistence since the early adoption until the mid 20th Century. Finally, we show this persistence to prove highly consequential for the provision of public goods.

During the British North American colonial era (1607-1775), a system of “corporate” representation was established in each of the colonial legislatures, in which the town, parish, or county was the basis of representation. In none of the 13 colonial legislatures was representation apportioned on a ‘one (white) man, one-vote’ basis (Zagarri 1987). Highly restricted, corporate representation was simply imported from England, where the basis in the House of Commons was the county, borough, or university (Pole 1966). As with the House of Commons, this caused the more populated political units to be systematically underrepresented.

In the North American colonies, however, this system of representation provided an additional source of political inequality. As residents moved away from the Atlantic seaboard into the frontier interiors of each colony, these populations would only gain representation in the colony’s legislature if new political units (i.e., towns, counties, parishes) were created. Since the creation of new political units would threaten coastal majorities, coastal elites strategically limited their formation (Pole 1966, Van Tyne 1922, Zagarri 1987). The policy of maintaining coastal majorities meant that as more people moved westward, the existing inequality

of representation in the various legislatures widened further. This in turn contributed to the deepening cleavage between coastal and interior residents.¹

British colonial policy exacerbated these tensions. In an attempt to deter further settler expansion into the frontier, an English Royal Proclamation in 1765 forbid the colonial legislatures from reapportioning representation (Zagarri 1987: 43, Van Tyne 1922: 210). The inability to redress these grievances politically lead to numerous uprisings, some of which were violent, on the frontiers of a number of colonies.² It also contributed to large-scale out-migration, to not only other colonies, but also to lands west of the Appalachian Mountains, by residents seeking, among other things, greater political equality (Turner 1956, Van Tyne 1922).

With the May 10th Resolutions of 1776, the Continental Congress, the de-facto government of the federation of the 13 colonies, called on each colony to create new governing structures by writing their first sovereign constitutions (Adams 2001). Given this autonomy, elites in each new state had to determine, among other critical choices, whether to maintain colonial institutions that constrained the political power of the poor.³ Despite the opportunity to institutionally entrench the colonial system of representation in their first sovereign state constitutions, elites in four states – Massachusetts, New Hampshire, New York, and Pennsylvania, implemented a system of representation based on population and regularly-scheduled reapportionment. We classify these four states as Proportional-Apportionment States (or, hereafter, PAS).

¹In his seminal work, Turner (1956) described this cleavage as thus, “The creation of this frontier society... produced an antagonism between interior and coast...contests between the property-holding class of the coast and the debtor class of the interior, where specie was lacking, and where paper money and a readjustment of the basis of taxation were demanded; contests over defective or unjust local government in the administration of taxes, fees, lands, and the courts; contests over apportionment in the legislature, whereby the coast was able to dominate, even when its white population was in the minority; and, later, contests over slavery.”

²See, for instance, Kars (2002) regarding the Regulator Movement in North Carolina, which was violently suppressed by the colonial militia.

³For instance, when a member of the Massachusetts (MA) Provisional Congress supported the expansion of suffrage with the end of the colonial era, John Adams, the primary author of this state’s first (and only) constitution, wrote to this reformer in May of 1776, “...if you give to every Man, who has no Property, a Vote, will you not make a fine encouraging Provision for Corruption?...I would not advise (the MA state legislature) to make any alteration in the laws, at present, respecting the qualifications of voters.”

The remaining nine continued with a corporate basis of representation, which we designate as Biased-Appportionment States (or, hereafter, BAS), in their first sovereign state legislatures.⁴

This proved to be a highly consequential choice that carried long-term effects in terms of: (1) patterns of political inequality within the states (until the US Supreme Court ruled in 1964 that unequal state-legislative representation is unconstitutional)⁵; (2) redistribution and the provision of public goods; and (3) patterns of long-term development. As we show below, the choice by 9 states to maintain the colonial basis of apportionment created a *biased system* of representation that was remarkably persistent for nearly 200 years. On the other hand, none of the 4 states that committed initially to some form of representation based on population reneged on this commitment to “one (adult white) man, one vote” during the antebellum era (1789-1860).

By explaining the origins of these institutional choices and precisely measuring their long-term implications, our analysis makes several contributions. We offer a better understanding of the role of political institutions as an important factor in the causal process linking colonial legacies and later outcomes.⁶ Our focus here is on a relatively understudied aspect of this process: the role of representative institutions. We see the transmission of colonial legacies into current outcomes as a long-term process in which the design and continuity of representative institutions play a fundamental role. In contexts of democratization (however partial), incumbent elites seek to design institutional reforms to maximize the preservation of their current

⁴These nine states include three Northern and future non-slave states (Connecticut, New Jersey and Rhode Island) and six Southern slave states (Delaware, Georgia, Maryland, North Carolina, South Carolina and Virginia). See Table 1 below for further details on each state. See Appendix Figures A1 and A2 for a map of the original 13 states.

⁵See *Reynolds v. Sims*, 377 U.S. 533 (1964).

⁶On the influence of endowments and inequality on legal, financial, and educational institutions see Sokoloff and Engerman (2000); Acemoglu, Johnson and Robinson (2001); Landes (1999). On the impact of different types of extraction and the forms of social organization associated with them on future patterns of public goods provision and economic prosperity, focusing on the differential impact of different property regimes of large states, see Iyer and Banerjee (2005) and Dell (2010); on how early forms of social organization translated into persistent patterns of human capital inequality, see Bertocchi and Dimico (2014). See Nunn (2014) for a survey of the historical comparative political economy literature.

and *future* political advantage. The extent to which they are successful in doing so shapes the workings of the new democratic regime in the long run, as demonstrated by a growing literature on the implications of the varying degree to which countries are able to overcome the institutional influence of incumbent elites during periods of transition (Karl and Schmitter 1991; Mares 2015; Acemoglu and Robinson 2008; Albertus and Menaldo 2013, 2018). We argue that postcolonial elites in 1776 approached the choice on representation within each state to secure their initial political influence and, in line with previous contributions, the extent to which they managed to do so shaped the politics of public goods provisioning in the long run.

However, the maximization of political influence was not the only concern of incumbent elites. Feasible economic production and territorial control, via settlers' presence, also featured prominently. Early choices about legislative representation reflect to a large extent the labor needs of incumbent political and economic elites. As in the case of the franchise (Nikolova 2017), geography shapes the elite's choice of malapportionment through its impact on labor scarcity and the importability of slaves. The shift to population-based apportionment takes place where labor scarcity is high and climatic conditions are unsuitable for growing cash crops. These are the conditions under which incumbent elites *sacrifice* political influence and open-up representative institutions: as a way of increasing the economic base of their states by attracting new residents and deterring out-migration. Our primary theoretical contribution is to demonstrate how geography conditions the strategies regarding the *types* of institutional arrangements that elites use to maintain their influence following independence.

By linking the literature on institutional conflicts during transitions (Mares, 2015; Albertus and Menaldo, 2018) and the literature on economic geography and colonial legacies, we are able to understand why some colonial elites decided to sacrifice their status-quo political advantage in 1776. In turn, by linking the literature on the effects of malapportionment (Samuels and Snyder 2001, Dragu and Rodden 2011, Ansolabehere and Snyder 2008) with the literature on colonial legacies and economic development (Iyer and Banerjee 2005, Dell 2010), we are able to identify a new mechanism of persistence of colonial legacies. As a result, this paper corrects the tendency to overlook electoral institutions, as opposed to constraints on power, state capacity or even economic and legal institutions, as a fundamental engine linking economic geography and current outcomes.

In addition, the paper makes two empirical contributions. The first one concerns the scholarly understanding of the origins of state malapportionment in the United States. The effects of malapportioned state legislatures on the distribution of state spending in the 20th Century are well known (Ansolabehere, Gerber and Snyder 2002). Yet, surprisingly little work in political science has systematically linked the origins of this electoral institution to colonialism and slavery. Ansolabehere and Snyder (2008) attribute wide-scale state-legislative malapportionment in the mid-20th Century to the rise of urbanization in the late 19th Century. We provide an alternative explanation of the origins of malapportionment among 9 of the original 13 US states.

The second empirical contribution concerns the systematic empirical analysis of the persistence of early choices through time, a pre-condition for the transmission of the colonial legacy to actually occur. This is not the first piece linking political phenomena, such as the franchise, back to colonial legacies both comparatively (Engerman and Sokoloff, 2005; Acemoglu and Robinson, 2000; Acemoglu, Johnson and Robinson, 2001) and in the context of the United States. For instance, Berkowitz and Clay (2011) focused on legacies regarding legal traditions (common versus civil law) and their interaction with the patterns of political competitiveness at the state level, whereas Nikolova (2017), exploring a mechanism similar to the one developed below, links franchise decisions during the colonial era to labor market demand patterns.

Yet, despite these advances, however, few studies have demonstrated that these initial political institutional choices persisted, or meaningfully explain subsequent outcomes.⁷ We provide one of the first efforts to theorize and empirically trace the effect of political institutions as a mechanism transmitting the impact of colonial legacies on political inequality and public good provisions. We establish how this initial choice to maintain the colonial system of representation created a systematic source of political inequality

⁷For instance, while the mechanism highlighted by Nikolova (2017) clearly contributed to institutional development during the colonial era, it is doubtful that variation in white male suffrage at the end of the colonial era had long-term effects. This is for the simple reason that most suffrage restrictions on white males did not persist and fell sharply after independence (Engerman and Sokoloff 2005: 898). Contra Nikolova's hypothesis, the pattern of persistence appears uncorrelated with slavery. For instance, all adult white males were given the right to vote in Georgia (1798), Maryland (1802) and South Carolina (1810) much earlier than in New York (1826), New Jersey (1844), and Connecticut (1845).

that persisted for nearly 200 years. To this end, this paper also makes a significant contribution by providing a consistent measure of political inequality during the colonial and post-colonial era through the 1964 Supreme Court ruling state-legislative malapportionment unconstitutional. We then demonstrate that this source of political inequality substantially shaped long-run public goods provisioning within these states.

Methodologically, we devise a plausible identification strategy that overcomes many of the flaws in the empirical literature using cross-national evidence to support the argument that historical institutional development causally affected long-term outcomes.⁸ Several aspects of our empirical strategy are worth highlighting. First, focusing on the original 13 states allows us to control for many potential sources of heterogeneity as the original US state-level governments, with the exception of a few institutional features, were largely similar in their design (e.g., plurality electoral system, bicameral legislature, common law legal system (Adams 2001, Berkowitz and Clay 2011)). Second, we eliminate concerns about reverse causality by exploiting the fact that the colonial system of representation was exogenously imposed on all 13 colonies though they differed in both size and economic structure (e.g., Van Tyne 1922, Zagarri 1987). Furthermore, post-independence public goods provisioning was not a concern of British rulers when creating the various colonial corporations and charters in the 17th Century that ultimately resulted in the original 13 states. The use of instruments capturing physical geographic features of the colonies further ameliorates concerns about reverse causality. Third, we present a consistent measure of political inequality at the county level for all 13 states through the period of interest, avoiding major measurement issues. Unlike the discrete variables that are common to the literature, the variable introduced here provides a continuous measure of relative representation allowing for precise estimates of the effects of this source of political inequality on subsequent public goods provisioning. Our estimation strategy leverages the consequences of these early institutional choices on within-state political inequality to measure the within-state distribution of *state-level* public education spending in the antebellum period across the counties of the original 13 states. Public education is an essential investment to foster economic development and a central focus of contention in the political development of industrializing democracies such as the United States (Ansell and Lindvall 2013,

⁸See, for instance, Pande and Udry (2005) for criticisms of the political economy empirical literature using cross-national panel data.

Lindert 2004). Importantly, the choice about representation at the core of this paper occurred well before state governments played a role in public education expansion (Goldin and Katz 2009). We are able to demonstrate significant evidence of an institutional channel through which colonialism and slavery affected the provision of public education in the 19th Century, and then evidence that this channel persisted long after the demise of both.

The rest of the paper is organized as follows. We first introduce a theoretical framework to understand the choice of representative institutions under different structural conditions. We analyze the conditions under which a potential trade-off between political influence and economic gains emerges for postcolonial elites in different states, thus shaping the choice of representative institutions. Second, we provide evidence in support of our argument on the determinants of institutional choices in the case of the 13 colonies. Third, we show empirically how these early choices translated into persistent patterns of political inequality within states. To do so, we present an original dataset covering the original 13 colonies between 1775 and the mid-20th century. On the basis of these data, we map out the persistent differences in political inequality derived from the choice at the time of independence. Finally, we provide evidence on the impact of political inequality on public goods provision in the long run.

2 The Choice of Representative Institutions at the Time of Independence: Theoretical Argument

2.1 The Initial Choice

To understand what drove some of the original 13 colonies to abandon the fixed, and highly biased, system of electing representatives that favored coastal elites during colonial times and what drove other states to keep it even in a context of major institutional innovation, we put the original 13 colonies into a broader theoretical framework, a framework focused on how political elites make decisions about political inequality and how these decisions persist over time.

We theorize *political inequality* between counties within states as the result of a strategic choice by political elites trying to maximize their current wealth and their future political influence.⁹ In societies with

⁹See, for instance, Boix (2003); Acemoglu and Robinson (2006); Beramendi (2012) for work that uses a

low capital intensity, assuming the degree of technological progress to be relatively constant, the former depends almost exclusively in the stock of labor. The latter, in turn, hinges upon the specifics of the institutional arrangements that govern political exchanges in the medium run, thus shaping political and economic risks over time. By risks we refer, primarily, to potential increases in taxes to fund public goods accessible to all citizens (as opposed to captured by incumbent elites).

In an unconstrained world, when setting their preferred level of political inequality, incumbent elites will try to maximize future political influence without incurring sacrifices in terms of the factor composition of the economy. Constraints are rarely, if ever, absent though. Critical to our argument is the idea that economic geography determines whether incumbents are able to jointly achieve their desired factor composition of the economy and future political influence or whether, by contrast, they face a trade-off between them when designing representative institutions. The mechanism mediating this trade-off lies in the strategy pursued by each local economy to solve a fundamental challenge: labor scarcity, an especially pressing problem in economies characterized by low-capital intensity. In such settings, increasing output per capita occurs primarily by increasing the stock of labor. As advanced by Nikolova (2017), there is a direct link between the nature of the feasible options to this problem and the nature of political decisions by elites.

In any emerging union, labor scarcity is not a uniform concern. Our argument plays particular emphasis on two exogenous determinants of the politico-economic geography: the size of each colony and the access to coastal areas with climatic conditions suitable for growing exportable cash crops (which we term as “benign climatic conditions”). In small, highly dense units, labor scarcity does not pose a problem unless they suffer from extremely high levels of out-migration. By contrast, labor scarcity is bound to be a greater worry in large and sparsely populated units. Among the latter, there are two strategies to increase the stock of labor: to make themselves attractive to new settlers in search of better economic fortunes, or to buy and/or import labor. The key analytical issue is what drove each subnational unit to follow either path, and with what consequences for political inequality and representation.

The second exogenous factor – climate and geography of each unit – conditions the initial choice by shaping the ability of local elites to profitably meet their labor needs by importing slave labor vis-a-vis other similar approach.

alternatives, such as servitude or the allocation of civic (property) and political rights to settlers. Nikolova (2017) shows how elites extended the suffrage during the colonial era in places where they were particularly dependent on white migrant workers (and tightened it when slave labor could profitably replace voluntary migrants); building on Congleton (2010), she argues that “representative assemblies served as a commitment device for any promises made to migrants by ruling elites (p.5)”. Here we take the analysis one step forward and focus on the connection between geography, labor scarcity, and malapportionment.

Given a status quo of political advantage (biased representation), what are the conditions under which incumbent elites would have incentives to sacrifice it? We argue that the switch takes place when economic geography imposes a trade-off between political advantage on the one hand and economic gains/territorial control on the other. As the trade-off intensifies, the calculus of elites changes, thus shaping their decision about political representation. In what follows, we analyze how the different combinations of the two factors of interest in our argument (unit size¹⁰ and climatic conditions) condition the potential costs of keeping the institutional status quo and lead to different choices in terms of political representation.

- **Scenario 1:** *Small states with high population density* In this case, incumbent elites do not face a labor scarcity problem to begin with. As a result, their calculus is simple: the potential benefits to be derived from an increase in existing patterns of net migration would not outweigh the expected loss in consumption due to rising taxation that would occur if representation were based on population. The change to a more proportional system would also weaken their future political influence on a much broader range of policy choices, including public goods provision. Elites in small states, therefore, had a strong incentive to maintain the status quo.
- **Scenario 2** *Small states with benign coastal climatic conditions* Elites in these states face a similar set of circumstances. As in case 1, the lifetime consumption of elites in these small units would decrease if representation were based on population. For one, as a result of lower malapportionment, they would also face an increase in taxes. Moreover, and in contrast to their counterparts in case 1, the coastal climate gives these elites the ability to preserve their economic advantage through the importation of slave labor. The potential impact of outmigration by disadvantaged settlers on the stock of labor poses

¹⁰We assume here that unit/state size and population density to be very highly correlated

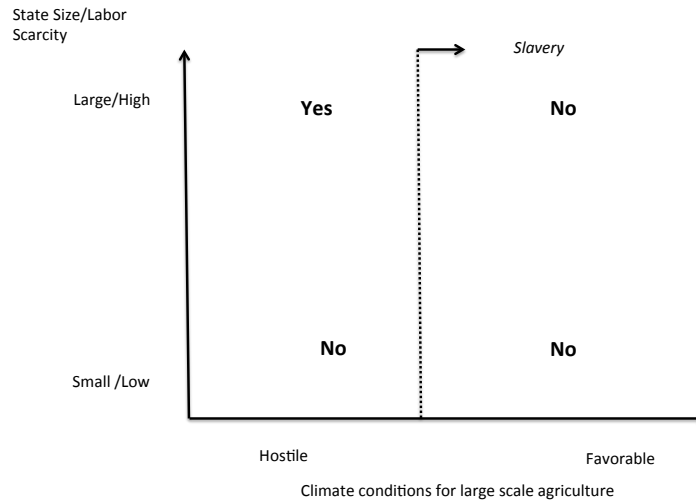
no threat to them. Accordingly, elites in these colonies have very little reason to risk future political control by allowing representation to be based on population.

- **Scenario 3** *Large, sparsely populated states with benign coastal climatic conditions* Under these circumstances, elites have much to gain from retaining residents and attracting new migrants. Yet, as in the previous case, their dominant strategy is to resort to imported slave labor. Because they have less need to attract white migrants while already benefitting from the status quo in terms of legislative malapportionment, they have no incentive to entertain a switch to a better apportioned system and incur future political and economic (via taxation) costs.
- **Scenario 4** *Large, sparsely populated states without benign coastal climatic conditions* Finally we turn to the calculus of elites in larger states with unsuitable conditions for large-scale profitable slavery. As in Case 3, elites in these large, sparsely-populated colonies would gain significantly by attracting more labor and would be significantly harmed by large-scale emigration. Yet, in this case, geography constrains the realization of the economies of scale associated with large scale imports of slaves. Absent slavery as a feasible economic option, incumbent elites are forced to make their units attractive enough for settlers to migrate and stay. It is under these conditions that the trade-off between current political advantage and economic considerations emerges most starkly.

For elites it is crucial to maintain a stock of labor that secures enough economic input and, especially in remote inland areas, secures enough presence to maintain territorial control. Settlers, on the other hand, also face a calculation that involves economic and political aspects. Their likelihood of staying will be smaller if they face the risk of constant extraction and, more importantly, lack the ability to protect their interests through the political process. Elites must therefore create incentives for settlers to stay by solving a commitment problem on the settlers' side. An effective way to do so is to reform the inherited system of representation from a corporate to a population-based one. Endowed with political equality, citizens are less likely to migrate to areas where their political voice is known to be muted by the system of representation. The interplay between the size of the colony and the relatively cost-free opportunities to move for settlers shapes the incentives of elites in units with unsuitable climate to abandon corporate, highly malapportioned representation.

Figure 1 summarizes the key predictions in our logic.

Figure 1: Geography and the Choice to Reapportion Representation



Our analysis approaches the decision to keep malapportionment as one among several strategies by elites to preserve their power. They only sacrifice it when labor needs, as determined by economic geography, “forces” them to. Obviously, elites have other “tools” at their disposal, ranging from limiting the franchise to employing de facto methods that prevents the right to vote from becoming effective. The goal of all these strategies is to preserve advantage and institutionalize political inequality. The choice of a specific one or any combination thereof is driven by the nature of the threat, and there is no reason to believe ex ante that different strategies like franchise restrictions or the institutionalization of malapportionment are either substitutes or complements. Theoretically, the key lies in the structure of inequality, namely whether it is primarily within or between units. The fundamental intuition that would follow from our analysis is that coastal elites use malapportionment if the greatest source of inequality is between coastal areas and interior frontiers. If, over time, local inequality is the greater threat to elite power (and/or the larger redistributive

threat), then elites should use suffrage restrictions.¹¹ If both types of inequality are threats, and labor needs are met, then we would expect incumbent elites to use both.

2.2 From Early Choices to Political Outcomes

The next hurdle is to explain how this initial choice translates into different outcomes in the long run. We expect elites in units retaining malapportioned representation to become the winners amidst higher levels of political inequality. The reasons behind this expectation are well understood in comparative politics: malapportioned entities enjoy a disproportionate level of political influence (relative to their population size) that allows them to bargain from a position of advantage and shape policy according to their interests. And, they fight hard to preserve such an advantage.¹² Furthermore, and unlike sources of power that require persistent mobilization and collective action, electoral institutions like malapportionment are self enforcing (Bruhn, Gallego and Onorato 2010).¹³ This persistent advantage in turn should have substantial implications for the allocation of public resources.¹⁴

While malapportionment may be difficult to reform, our empirical analysis will focus on a period that covers the transition from a pre-industrial, mostly rural, world to a fully industrialized one. The substantial changes wrought by this process alters who benefits from a fixed system of representation. Namely, industrialization undermines the initial advantage by pre-industrial coastal elites in highly malapportioned states:

¹¹Arguably, in a system without colony-wide elections, suffrage restrictions are more important when local-level inequality is greater than inter-regional inequality within colonies. Hence, an implication of this argument is that suffrage restrictions were much more important when the population was largely confined to the coast, as it was for most of the colonial period, and diminished as people moved westward.

¹²For a detailed historical analysis on the origins and consequences of legislative malapportionment in Latin America illustrating this logic see Snyder and Samuels (2004).

¹³That is, the institution persists and continues to advantage the overrepresented until reformed. Its persistence is facilitated because the majorities malapportionment engenders through its distortions can more easily block attempts to reform it.

¹⁴Legislative malapportionment has been shown to affect the distribution of public transfers in federations around the Western Hemisphere (Gibson, Calvo and Falleti 2004, Ansolabehere and Snyder 2008) and the inter-country transfers in the European Union (Rodden, 2002).

as urban density grows the initial advantage of coastal elites turns into an advantage for rural districts.

The natural question emerges then as to why, given the rising power of urban centers, the initial switch towards a population-based representation system did not become universal. The reason is that under conditions of disperse economic geography rising urban elites do not have an incentive to do so. As Rodden (2011) explains, industrialization leads to the concentration of labor in urban cores. Since workers are the obvious constituency for the growth of left-wing parties, a switch to a population based system would imply a broadening of the political space for new forces challenging the economic and political status quo. Rather, in contexts with a highly uneven economic geography, rising urban elites have an incentive to enter into a coalition with rural elites, the *new winners* of malapportionment in the industrial world, to keep the system of representation as is and limit the potential impact of organized labor on taxation and the allocation of public goods.¹⁵ This is consistent with political development in the highly industrialized Northern states: as the political geography of partisan cleavages began to map onto an urban-rural divide in the North, the Republican Party became a coalition of rural elites and urban industrialists. Persistent overrepresentation of rural areas was an important source of their political power (Ansolabehere and Snyder 2008).

It is through this mechanism that we expect the initial choice on political representation to be persistent over time and condition the politics of public goods provision in the long run. We turn now to the empirical assessment of our argument.

3 Empirical Strategy: from the theory to the case

The argument above points to three clear observable implications:

1. By shaping labor needs, cross-state differences in economic geography conditioned the choice of initial post-colonial representative institutions.
2. The original levels of political inequality derived from this choice persisted through time.

¹⁵This is a bargain similar to the one that has been observed in many other federations around the world: small fiscal transfers to rural areas serve rising industrial elites to form a coalition in the legislature that protects against demands for redistribution or the broadening of access to public goods (Beramendi, Rogers and Díaz-Cayeros 2017, Bruhn, Gallego and Onorato 2010).

3. Political Inequality had a strong and persistent impact of the provision of public goods (public education) central to economic development.

Our empirical strategy takes on each of these three implications sequentially in the context of the original US 13 states. We first provide evidence of our theory that economic geography conditioned the need for colonies to meet labor needs through voluntary in-migration and by deterring out-migration, which drove the initial choice of (mal)apportionment among the original 13 states. This exogenous source of variation across the colonies is critical to our ability to identify the effects of this institution on subsequent public goods provision. Second, we show that if a state chose to maintain its colonial basis of representation, the resulting political inequality persisted in the long run. Finally, we establish that this source of persistent political inequality had a large effect on the provision of public goods until malapportionment was ruled unconstitutional by the Supreme Court in 1964.

Before presenting each of these three steps in detail, we discuss the connection between the theoretical premises in our argument and the empirical setting in which we assess our theoretical argument. We focus on three issues: (1) the centrality of labor scarcity and migration as a political issue in late 18th Century North America; (2) the awareness by elites on the importance of malapportionment as a tool to secure political influence; and (3) the extent to which state boundaries were fixed at the time decisions about representation were adopted.

3.1 Demand for Migrants in Colonial North America

Our theoretical argument is based on the premise that elites in each colony strongly desired more immigration to their territories. On this, historians have clearly documented the belief among colonial elites that given the abundance of land and scarcity of labor and capital, economic growth and the well-being of their colony depended on increasing the supply of labor (e.g., Pincus 2016).¹⁶ In particular, the vast and sparsely populated interior lands could only bear economic fruits with a substantial increase in the labor supply

¹⁶According to Galenson (1996: 153), “The key to economic success in colonial America, for individual planters as well as entire colonies, was to obtain an adequate supply of agricultural labor to grow crops that would satisfy the demands of the large European market or of the expanding markets of the colonies.”

(Abernethy 1937, Turner 1956).¹⁷ This was a central political issue at the time.¹⁸

As outlined above, there were three primary options available for substantially increasing a colony's population through migration: imported African slaves, indentured servants and voluntary migrants (both international and from other colonies). It has been estimated that nearly half of the migrants who came to the Colonial America between 1700 and 1775 were slaves (Fogleman 1998). As a result, an elite planter system based largely on slave labor developed near coastal waterways from Delaware to Georgia. Yet its large-scale profitability did not extend to the Northern colonies or far from the coasts.¹⁹ Due to the high costs of passage to Colonial America and improving economic conditions in Great Britain which slowed the rate of voluntary migration (Galenson 1996), increasing population through indentured servitude (which comprised approximately half of migrants to Colonial American in the 17th Century (Fogleman 1998)) or free migration became increasingly difficult in the 18th Century.

As a result, and despite a rapid natural rate of population increase (Gemery 2000), the 13 colonies remained sparsely populated at the time of independence.²⁰ These acute labor shortages meant that retention of their own residents and the ability to attract migrants from other colonies was an important source of labor. The lack of restrictions on inter-colony migration, along with the similarities across colonies in language and culture, lowered exit costs significantly among extant residents and colony-to-colony migration was very high

¹⁷In addition to the overall economic and security benefits of increasing their colony's population, many coastal elites also had a direct interest in population growth along the frontier given their vast landholdings of uninhabited interior lands. The profitability of these land claims was perceived to be dependent on increasing the population of the frontiers (Abernethy 1937). As a result, the attempts by the British to stem internal migration to and prevent the sale of interior lands was a major grievance against the British by both coastal elites and the frontier population.

¹⁸This importance is demonstrated by the fact that one of the primary grievances outlined in the Declaration of Independence (1776) was that British policy "endeavoured to prevent the population of these States."

¹⁹Critical to our argument, slavery was legal in each colony and economic historians attribute this variation across colonies in its use to differences in climatic, soil and disease environments (Sokoloff and Engerman 2000: 220). See Appendix C for more information and sources.

²⁰In 1775, population density was only roughly 5 inhabitants per square mile with an urbanization rate of less than 5%. See Appendix C - Table C2 for sources.

(Gemery 2000, Villaflor and Sokoloff 1982). The increased difficulty of attracting in-migration from abroad was exacerbated by the large out-migration of whites from the mid-Atlantic and New England colonies, especially to interior lands of the Southern colonies.²¹ Reversing these trends were seen as critical to the post-independence economic prospects of many Northern colonies.

3.2 Malapportionment as an instrument of Preserving Elites' Power

A second assumption of our argument relates to the importance of malapportionment as an instrument for preserving elite power (Snyder and Samuels, 2004). Most scholars of comparative political development have focused on institutions, such as suffrage, as mechanisms for limiting the poor's access to political power (e.g., Engerman and Sokoloff 2005, Nikolova 2017). The question is again whether this was a fundamental political concern in our case of interest.

Historians of the colonial period have emphasized the role that malapportionment played in protecting the political power of coastal elites in the various colonial legislatures, in particular, from the expanding frontier populations (e.g., Turner 1956; Schaper 1901; Green 1931; Zaggarri 1987; Van Tyne 1922). While elites expressed a desire to populate their colonies, these coastal elites across Northern and Southern colonies expressed a fear that poorer interior populations would more heavily tax the wealthier coastal regions within their state (Green 1931, Pole 1966; Handlin 1966). The "corporate system" of representation in the colonial legislatures allowed coastal regions to retain power despite rapid westward shifts in the population.

As the population moved into the interior, representation of these populations required the creation of new administrative units. Hence, strategically limiting the creation of new units was an important

²¹For instance, Villaflor and Sokoloff (1982) estimated that roughly 50% of the whites born in the colony of Pennsylvania migrated to the Southern (slave) colonies prior to independence. At the end of the colonial era, New England also experienced large out-migration of residents to more fertile Western lands, which was widely seen as economically harmful (Klarman 2016, 60). According to one contemporary account, this emigration "enfeebles New England, since it...deprives her of industrious citizens." It was also widely believed during the Constitutional Convention of 1787 that the Southern states would soon have a majority of white citizens, as populations migrated 'south-westerly' along and over the Appalachian mountains (Farrand 1911, 605).

mechanism for maintaining coastal majorities in the legislatures. As a result, the greatest losers of this system were those settlers on the frontiers of the sparsely-populated *large* colonies (Cappon, Petchenik and Long 1976: 100).²² This source of political inequality was significantly worsened by British policy. Following the French and Indian War (1756-1763), the British, in an attempt to stem westward migration, forbid the creation of new administrative units by colonial legislatures, effectively fixing representation in a time of rapid population movements (Zagarri 1987: 43, Van Tyne 1922: 210). This is crucial for our identification strategy outlined below.

These policies combined to leave coastal regions with control of the legislatures at the time of independence and therefore the power to perpetuate this in their initial sovereign constitutions. A large historical record leaves little doubt that maintaining this institutional arrangement was seen as critical to their ability to preserve power following the transition (e.g., Handlin 1966). In particular, coastal elites in the slave colonies came to see geographically-fixed representation as the key mechanism for protecting their interests from the rapidly-increasing yeoman populations in the upland, western regions of their own states (Green 1931).²³ The coastal slave-owners feared that whites in regions within their state where slavery was not as profitable and widespread would finance their demands for greater redistribution and public goods by specifically voting to tax a particular type of property – slaves – differently than other types of property.

²²According to Van Tyne (1922: 210), “Perhaps the worst sufferers were the Scotch-Irish in the western part of Pennsylvania, who, deprived of proper representation in that legislature, pushed into the Piedmont region of the Carolinas, where again they were deprived of proportional representation by the seaboard planters. But, the significant fact here and in other cases is that the refusal of proportional representation was resented. As freeman and English subjects’, the Scotch-Irish and Germans of the interior protested against three Quaker counties of Pennsylvania having 24 of the 36 representatives in the colonial assembly, though they had less than half the population.”

²³One must bear in mind the additional uncertainty in 1776 about whether slavery could profitably be extended beyond the coasts. Prior to the invention of the cotton gin in 1794, cotton was only profitably grown near the coasts of Georgia and South Carolina. Moreover, the ability to profitably employ slaves west of the piedmont of Virginia and North Carolina was thought to be low. Appendix-Figure A3 shows the within-state distribution of the share of the population enslaved in 1790, and that it was roughly inversely correlated with distance from the coast.

This explains why geographically-fixed apportionment of the state legislatures was the primary means of restricting political access over suffrage restrictions in the slave states after the colonial era and a central political concern.

The logic governing the calculus of elites under these circumstances is best illustrated by South Carolina's coastal (i.e., 'low country') elites: one planter wrote that up-country whites (within SC) were "strangers to our interests, our customs, and our concerns....Though we take you into our association (state)....we can never surrender ourselves into your hands with power to dispose of us as you please" (Schaper 1901: 280). This overriding concern of coastal elites, from Maryland to Georgia, to limit the ability of western populations to gain control of their state legislatures has been documented by historians (e.g., Green 1931, Schaper 1901, Harry 1902). In response to calls from the "high country" of South Carolina to reapportion representation on a white population basis, one low-country politician succinctly described the strategy and concerns of the coastal slave-owning elites in these five states. "If representation were apportioned equally, ...the system might be built up, the tax on lands might be entirely taken off, and laid wholly on negroes....It might be arranged that without appearing to aim at the low country, that no estate below a certain value should pay any tax at all, while the tax on estates should be raised to equal the wants of the government. The standards might be fixed to exempt the estates of the upper, and include the generality of estates in the lower" (Phocion 1795: 19).

3.3 Fixed Boundaries of Each Colony

Given the importance that the size of each colony plays in each state's demand for labor, a crucial assumption in our argument is that units' boundaries are given and exogenously determined at the time choices about the system of representation are made. While border disputes between colonies were pervasive, the size of each colony reflected to to a remarkable degree the initial boundaries established by the colonial charters in the 17th and early 18th Centuries (Stein 2008). At the time of independence, the western border of each colony that extended to the Appalachian mountains was ambiguous and British policy following the French and Indian War tried to substantially slow western expansion. Yet, given that the Western border of small states did not extend to the Appalachians, any future changes to the western borders would likely only

increase the territory of the large states and hence their need for greater in-migration.²⁴ Regardless, we can conclude that the size of each state at the time independence was exogenous to future elites' choices about the post-colonial system of representation.²⁵

4 The Choice of Representative Institutions at the Time of Independence: Empirical Evidence

We turn now to evaluate the first empirical implication of our argument: cross-state differences in economic geography conditioned the choice of initial post-independence representative institutions. We provide preliminary evidence by matching each colony with one of the four theoretical cases as defined above. We then more thoroughly test our argument in three steps. First, we show that the systems of representation in the states that reformed their colonial system possessed the same biases in favor of coastal regions as those that retained their colonial systems. Second, we provide systematic evidence that economic geographic factors explain the shift to a population-based system of representation for only a few states. Lastly, we show that indeed this choice did cause a shift in the geographic distribution of representation in these four states, but not in the remaining nine.

4.1 Predicted Choice of Initial Representation: Preliminary Evidence

Table 1 reports the values for the core theoretical dimensions for each state around the time of independence. We place each state within one of the four cases depending on its value for each measure. Large (Small) colonies, which we measure by square miles in 1790 (column 1), are limited to either Case 3 or 4 (Cases 1 and 2). States whose climates permitted (did *not* permit) the profitable use of slave labor, which we proxy

²⁴At the same time, no colony saw these western lands as under their jurisdiction at the time of independence, and they remained largely unsettled by British subjects. See Appendix Figures A1 and A2 for the geographic distribution of the population in the late colonial era. This changed quickly after independence, and migrants flooded into territories west of the Appalachian Mountains. Most of the claims to this territory was ceded by the Original 13 states in the 1780s.

²⁵Changing the borders of the states was broached during the Constitution Convention of 1787; one delegate said they were “originally nothing more than colonial corporations” and did not reflect true economic, cultural or religious boundaries. These proposals went nowhere (Farrand 1911).

by slave population share in 1790 (column 2), separates high slave share states into Cases 2 and 3 (Cases 1 and 4). Using this simple framework, each of the 13 colonies, except for New Hampshire, are placed in the appropriate case.²⁶

We next show our measures for variation across colonies in the need to increase in-migration of labor. Column 3 reports the estimated population density for each colony in 1775. Column 4 indicates the share of each colony's area that remained frontier near the time of independence.²⁷ At first sight, and consistent with our argument, larger colonies had significantly lower population density and a much greater share of their territory remained frontier. This correlation is largely due to the fact that the colonial population was most densely concentrated along the Atlantic coast, and therefore the size of each colony was almost perfectly inversely correlated with each colony's population density.²⁸ Given their natural access to the coast, the smaller colonies had significantly higher population densities than the larger colonies. In fact, by the end of the colonial period, a sizable landless labor force existed in most of the smaller colonies (Galenson 1996: 169).²⁹ This simple descriptive evidence is consistent with our argument that it was the larger colonies whose economies would benefit the most from in-migration and suffer the most from out-migration.

Column 5 reports whether each state adopted a proportional or retained the fixed colonial system of representation in their initial constitution. Our argument suggests that only states in case 4, ones in which their size meant they benefitted from greater in-migration which they could not fill with profitably with imported slaves, would give up this source of political inequality and commit to population-based representation. For instance, colonial New York was large (column 1) and therefore very sparsely populated

²⁶New Hampshire is reported as a mixed case. While it was among the smaller colonies, its geography contributed to its low population density, which could not be remedied with imported slaves.

²⁷We define frontier as the share of each state in which the population density is less than 2 inhabitants per square mile in 1790, the year of the first US Census.

²⁸In 1790, roughly $1/3^{rd}$ of the US population resided in a coastal county, which is the highest share on record. As we show below, a state's population density was largely a function of its size (in square miles) and miles-of-coastline-to-size ratio, and is unlikely to be endogenous to some unobserved factor. See Appendix Figures A1 and A2 for the geographic distribution of the population in the late colonial era.

²⁹Unsurprisingly, the states identified by historians as possessing a sizable landless labor force were the states with no remaining frontier. Contemporary sources corroborate this (e.g. see Zaggarri 1987: 38)

(column 3) and contained vast frontiers (column 4). In addition to a low and failing slave population (column 2), we know that it received far fewer foreign immigrants compared to other mid-Atlantic and the Southern slave colonies and relatively little in-migration from other colonies (Villaflor and Sokoloff 1982). Massachusetts was receiving neither much in the way of foreign or other colony in-migration, and was experiencing large net outmigration.³⁰ We argue that the economic need to both induce immigrants into their states and retain their own residents created a political motive to abandon the system of representation that had benefitted incumbent elites until then. Holding on to political power came at a very high cost in this particular set of colonies.

Table 1: Political-Economic Geography and Initial Political Inequality

State	Size, 1790 (sq. mi) (1)	Slave Share, 1790 (%) (2)	Pop. Density, 1775 (3)	Share Frontier, 1790 (%) (4)	Fixed Initial Representation (5)
Case 1					
CT	5,543	1	37.3	0	Y
RI	1,545	1	34.3	0	Y
NJ	8,729	6	16	0	Y
Case 2					
MD	12,407	32	20	0	Y
DE	2,490	15	18.2	0	Y
Case 3					
GA	59,425	35	1	51	Y
NC	53,865	26	5.2	0	Y
SC	32,020	43	5.6	0	Y
VA	107,438	39	5.4	38	Y
Case 4					
MA	43,969	0	7.2	63	N
NY	54,555	6	3.9	76	N
PA	46,055	1	7.1	49	N
Mixed Case					
NH	9,350	0	9.4	0	N

Note: See Appendix-Tables A1 and A2 for state abbreviations and sources. Column 4 measures the share of each state with fewer than 2 inhabitants per square mile in 1790. See Appendix C-Table C2 for more information.

4.2 The Initial Choice: Regression Analyses

To move beyond descriptions, we require a within-state measure of political inequality in representation in the various colonial (and then state legislatures). A key contribution of this paper is the construction of a

³⁰See Appendix C and Table C1 for more information regarding colonial-era migration patterns.

consistent measure of political inequality during the colonial and post-colonial era through the 1964 Supreme Court ruling state-legislative malapportionment unconstitutional. We follow the approach in David and Eisenberg (1962) and Ansolabehere, Gerber and Snyder (2002) to measure county-level representation in the state legislatures, which (like the latter authors) we call the Relative Representation Index (*RRI*, henceforth). To calculate each county's *RRI*, we identify each state's electoral laws specifying the number of representatives and senators, respectively, apportioned to each county of the original 13 states for each decennial census year. We then divide each county's apportionment of representatives and senators, respectively, by each county's adult white male (hereafter, *AWM*) population. For each county, we divide this ratio by another: the state's total number of representatives and senators, separately, divided by the state's total *AWM* population. This results in a relative measure of representation for each county for each chamber of the (bicameral) state legislature. Any value greater than 1 indicates that the county is overrepresented relative to "fair representation" in the respective chamber of the state legislature. Any value less than 1, therefore, indicates the county is underrepresented. Our final measure of county-level political inequality is simply the average of each chamber's *RRI* for each county, and then the logarithmic value of this.³¹

Using this measure we are able to show three things: on the basis of data from 1775, (1) we first show that the status quo system had strong distortionary consequences in favor of coastal elites; (2) we then show that indeed the switch to a population-based system of representation was driven by labor needs (as proxied by economic geography variables); (3) finally, we show that as early as 1790, the reforms had powerful effects on the geographic distribution of relative representation in the 4 PAS.

First, we calculate representation in the legislature of each colony in 1775, the last year of British colonial rule. Specifically, we use apportionment in each colonial legislature provided by Cappon (1975: 100-101) combined with 1775 population estimates from Sutherland (1936) to calculate the *RRI* for each existing county of the 13 colonies in 1775.³² If, as we contend, that British policy favored the coastal regions, then a county's distance from the Atlantic Coast should be inversely related to representation during the colonial period in *both* of the 9 BAS and 4 PAS. We test this by generating a measure of county distance from the

³¹See Online Appendix C for more details on how we calculate *RRI* and the sources we use.

³²The values are nearly identical when using more accurate population data from the 1790 Census.

coast by combining county boundaries as they existed in 1775 with GIS software that determines the central point of each county. From this, the direct distance to the nearest point on the Atlantic coast is measured.³³ Figure 2a shows a partial regression leverage plot with the predicted colonial *RRI in 1775* (vertical axis) against the predicted value of a county's distance from the coast (x-axis). In the counties of *both* the 9 BAS (left panel) and 4 PAS (right), there is a significantly inverse correlation between underrepresentation in the colonial legislatures and county distance from the coast.³⁴ This indicates that colonial policy did indeed create winners of the coastal residents throughout the 13 colonies, and with it the possibility to maintain this system upon independence.

Second, our argument theorizes the choice by coastal elites to either preserve or abandon malapportionment upon independence as a function of labor needs at the end of the colonial era. As such, it hinges on the fact that the demand for greater voluntary labor, which we proxy by using population density and population slave shares, was determined by factors that did not directly influence the choice of initial representation. To predict population density, we use the size of the colony in square miles (Figure 2b, left) and its shoreline-to-size ratio (2b, right).³⁵ Figure 2b shows that population density in 1775 was highly correlated with colony size ($r=-0.84$) and shoreline-to-size ratio ($r=0.67$). The argument that the proportion of slaves in a colony's population is not endogenous to some unobserved factor is supported by the fact that slavery was legal in each of the colonies, and the prevalence of its use is widely attributed to geographically and climatically determined profitability (Sokoloff and Engerman 2000: 220). Empirical support for this claim is shown in Figure 2c (left), which depicts the correlation of a variable measuring a state's average

³³More information about the county-level geographic variables can be found in the Appendix A-Table A2.

³⁴Instead of splitting the sample between counties in the 9 BAS and 4 PAS, we also ran an interaction model in which county distance to the Atlantic Coast is interacted with a dummy indicating whether the county is in what would become a BAS. A Wald test of the difference in coefficients between the reference group (counties in the 4 PAS) and the comparison group (counties in the 9 BAS) yields a p-value of 0.4. This indicates that we cannot reject the null that there is no statistical difference in the relationship between county distance from the coast and *RRI* in 1775 across the soon-to-be 9 BAS and 4 PAS.

³⁵Shoreline-to-size ratio is the ratio of number of miles of shoreline (on the Atlantic) in each colony to its total square miles. This captures the proportion of a colony's territory with access to the coast.

annual number of frost-free days and the share of a state's population who were slaves in 1790 ($r=0.84$).³⁶

To assess whether the elites in the 4 PAS implemented a population-basis of representation as a means of retaining residents and attracting voluntary migrants, we model this initial choice as a binary logit in which a colony's size and average frost-free days predict the initial choice of whether to maintain the fixed colonial system of representation. Suggestively, these two variables jointly predict the initial choice of representation perfectly (Figure 2c, right).³⁷ Neither variable, however, provides much leverage on its own. Of the 6 largest states, 4 chose to retain their biased colonial basis. Of the 6 lowest slave-share states, only 3 chose a population basis of representation. The switch towards population-based representation took place only in large states with climatic conditions hostile to the development of slave-based agriculture.

Third, the implications associated with reforming the system of representation became apparent quickly. Figure 2d shows that the choice of 4 states to implement a population basis of representation did indeed affect the geographic distribution of representation in these states. By 1790, the year of the first post-colonial national Census, there is no relationship in the 4 PAS between a county's distance to the coast and its *RRI in 1790*. By comparison, Figure 2d (left) shows that in the 9 BAS states county distance from the coast remains significantly inversely correlated with a county's *RRI in 1790*.³⁸ Unlike in the 4 PAS, the initial choice in the 9 BAS preserved the colonial basis of over-representation of the coastal regions.

4.3 Competing Explanations

A central assumption to our identification strategy is that the choice to maintain or change the biased basis of representation did not simply reflect a colonial legacy. Put differently, for the research design to be valid it must hold that the four colonies that chose a population basis of representation upon independence were not appreciably different than the colonies that chose to maintain the colonial fixed basis other than the

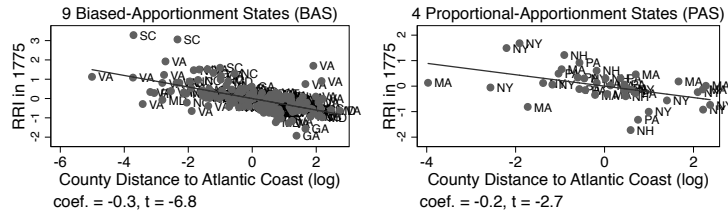
³⁶Cash crops, such as tobacco and rice, required long frost-free growing seasons. See Appendix Table A2 for more information on how state-level frost-free days is measured and its source.

³⁷Each independent variable is continuous and the results are not due to a collinearity problem.

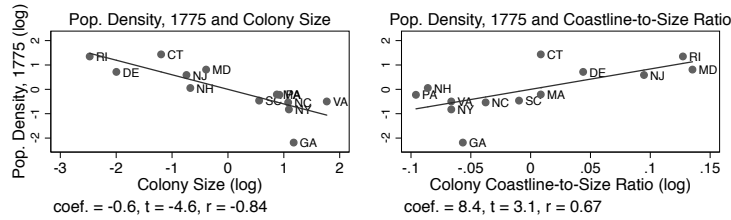
³⁸The Wald test of the difference in coefficients between the 9 BAS and 4 PAS has a p-value of less than 0.000 indicating that we can conclude there is a significant difference between county distance from the coast and *RRI in 1790* across the 9 BAS and 4 PAS.

Figure 2: Geographic Determinants of *RRI*

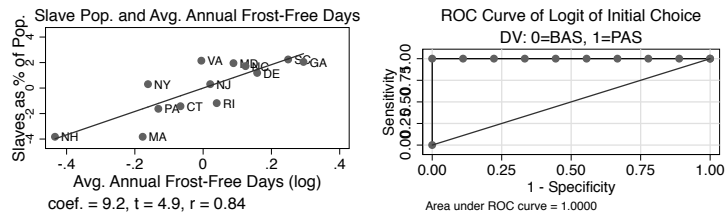
a) County Distance to the Atlantic Coast and Colonial *RRI* in 1775



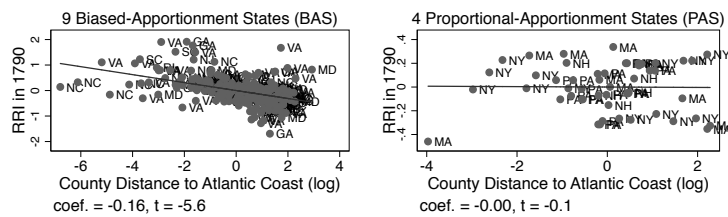
b) Determinants of Colonial Population Density, 1775



c) Determinants of Colonial Slave Share (left) and Initial *RRI* (right)



d) County Distance to the Atlantic Coast and *RRI* in 1790



Each model in a) and d) includes state fixed effects

economic-geographic factors described above. Instead, we might worry that the findings below, and the choice of each state's initial basis of apportionment, are due to variation across the 13 colonies in initial conditions at the end of the colonial era. There are a number of additional factors if present could invalidate the results presented above. Here we focus on three aspects emphasized in the comparative politics literature: inequality, ethno-religious differences, and the role of urbanization/industrialization.

Sokoloff and Engerman (2000) argue that greater economic inequality influenced the adoption of less inclusive institutions following independence in Latin America. Yet, the existing records on cross-colony inequality at the time of independence are not consistent with this account. Instead, scholars have found that wealth inequality in the Southern slave colonies was nearly identical to that in New England (Lindert and Williamson 2013, Jones 1980); and, the region estimated by Lindert and Williamson (2013) to have had the highest inequality in income, the Middle-Atlantic colonies, included two colonies that reformed their system of representation.³⁹ As shown in Appendix Table C1, all available evidence suggests that not only inequality, but differences across colonies in wealth, income, and human capital at the end of the colonial period *cannot* account for the representative institutions adopted upon independence.⁴⁰ For the sake of space we discuss this evidence in Online Appendix C.

A second concern is that the initial choice of representative institutions could reflect unobserved cultural and religious differences across states, in particular between non-slave and slave states, rather than economic-geographic factors. Yet this story would have to explain the *within-region* divergence in the choice of initial choice of representation (i.e., why only half the Northern, non-slave states chose to reform the colonial basis of representation). Furthermore, this within-region divergence in initial choice occurs in not only the Mid-Atlantic states, whose colonial history and demographics were quite distinct from one another, but also in the ethno-religiously-similar New England states.

³⁹Nikolova (2017) also argues that differences across colonies in inequality cannot explain variation in the timing and the extent to which the franchise was extended during colonialism. Our claim is buttressed by the fact that we observe *within-region* variation in the initial choice of representation (whereas Nikolova emphasizes North-South differences).

⁴⁰For instance, according to Galenson (1996), Virginia (a BAS) and Pennsylvania (a PAS) had similar rates of *AWM* illiteracy. Illiteracy was likely no higher in Connecticut (a BAS) than Massachusetts (a PAS).

Lastly, we need to account for a third potential confounder associated with the patterns of urbanization and industrialization. As discussed above, Ansolabehere and Snyder (2008) argue that the systematic malapportionment of state legislatures in the 20th Century was due in part to the rise of urbanization in the previous century. According to this logic, greater urbanization at the end of the colonial period should be associated with a *decrease* in the likelihood of adopting a population-based system of representation. Instead, we observe a positive, though statistically insignificant, relationship between urbanization rate in 1790 and the choice to reform the colonial basis.⁴¹ The decision to abandon or retain malapportionment at the time of independence, when the 13 colonies were overwhelmingly rural, responded to a different logic. As we argued above, changes in the economic structure - namely, industrialization and urbanization - actually increased the incentives of rural elites to maintain the biased system of representation.

5 Persistence of Political Inequality

The second empirical implication from our theoretical argument is that the initial choice of representation created a persistent source of political inequality in the 9 BAS, but not in the 4 PAS. We investigate this contention using two different approaches. We first demonstrate that counties that were over(under)-represented during the colonial period remained over(under)-represented over the next nearly 200 years. Since the size and number of counties changed over time, we also show that the spatial distribution of representation remained biased towards the coastal counties over time. In each case, we show that this pattern only occurs in the 9 BAS.

We begin by examining whether the choice to maintain the colonial system of representation lead to persistent over(under)representation. To this end, we regress *RRI* at approximately 50-year intervals (1790, 1850, 1900 and 1950, respectively) on *RRI in 1775* by estimating the following equation on the entire sample of counties from the Original 13 states:

$$RRI_{1790} = B_S + B_1 RRI_{1775} + B_2 BAS + B_3 (RRI_{1775} * BAS) + SFE + \varepsilon \quad (1)$$

⁴¹This relationship is shown in the Online Appendix Figure A4.

where B_1 measures the relationship between *RRI in 1775* and *RRI in 1790* (the first post-colonial measure of *RRI*) in the 4 PAS. The coefficient of interest is B_3 , which measures the relationship of the interaction of *RRI in 1775* and a dummy variable indicating whether the county is a fixed apportionment state (BAS) and *RRI in 1790*. We expect B_1 to exhibit no meaningful relationship between the colonial *RRI* (in 1775) and the first post-colonial *RRI in 1790*. And we expect B_3 to show a strong positive and large relationship between *RRI in 1775* and *RRI in 1790* in the counties of the 9 BAS. Indeed, the coefficient on B_3 is statistically significant at the 99.9% level, and indicates that a 10% increase in the *RRI in 1775* is correlated with a roughly 7% increase in *RRI in 1790* in the counties of the 9 BAS. On the other hand, B_1 shows that there is no meaningful relationship between the colonial *RRI* and the first post-colonial *RRI* in the counties of the 4 PAS.⁴² *SFE* indicates that the model is estimated with state fixed effects, which gives us a within-state interpretation for each coefficient. Crucially, when the same equation is run using *RRI in 1850, 1900 and 1950*, respectively, as the dependent variable, the coefficient on B_3 remains positive and highly significant in each regression. These estimates for Equation 1 for each time interval (1790, 1850, 1900 and 1950, respectively) are shown in Appendix Table D2.

In Figure 3, we visually demonstrate this persistence over time in the 9 BAS, and the corresponding absence of any long-term relationship in the 4 PAS. Figure 3a shows the expected value of *RRI in 1850* at each value of county *RRI* in the colonial era (1775) in the 9 BAS (left panel) and 4 PAS (right), respectively.⁴³ Figure 3b shows a nearly identical relationship when we plot the expected values of *RRI in 1850* against *RRI in 1790*, our first post-independence measure of *RRI*. In Figure 3c, we show the relationship between

⁴²The Wald test of the difference between *RRI in 1790* and *RRI in 1775* across counties in BAS and PAS produced a p-value of 0.0001.

⁴³Each figure was generated using Clarify (Tomz, Wittenberg and King 2003) and includes 95% confidence intervals in which all covariates are held at their mean. Note also that all figures present a split-sample estimation strategy in which the left figure shows the estimates on only the counties of the 9 BAS, and the right for only the 4 PAS. For all split-sample models presented in this paper, the appendix includes estimates for models including an interaction between a dummy for whether a county is in a BAS and *RRI* pooling the counties across the 13 states (i.e., as with Equation 1). The split sample estimation strategy used for the figures provides a more stringent test, as it is estimated with fewer observations and allows relevant covariates (such as county slave share) to vary across the BAS and PAS.

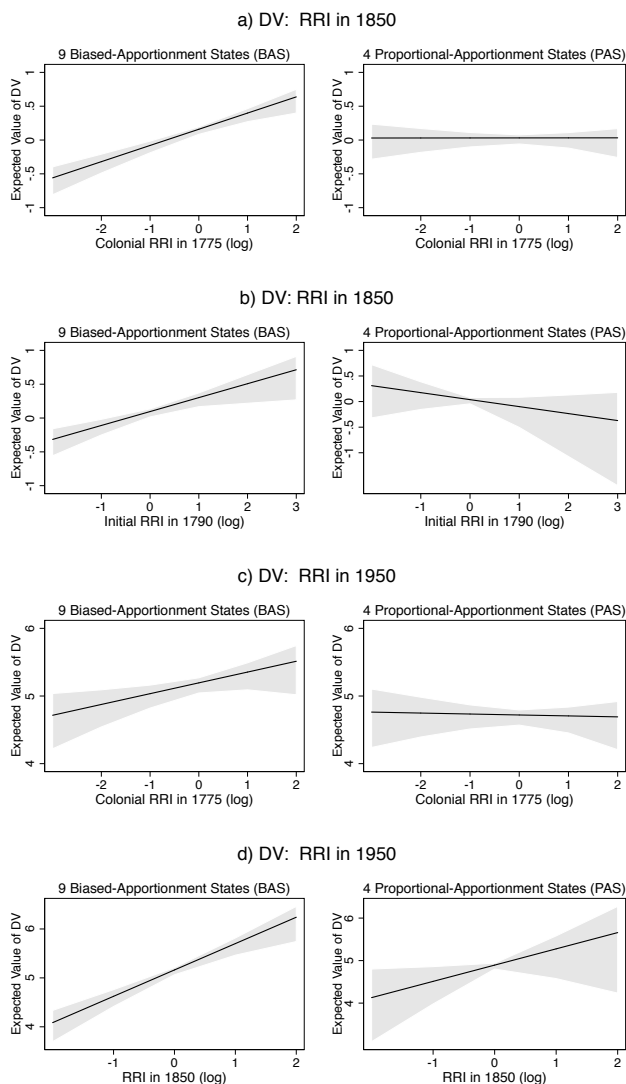
colonial *RRI* and its value nearly 200 years later, *RRI in 1950*. Remarkably, the coefficient on *RRI in 1775* in the 9 BAS is only slightly smaller for 1950 (3c, left) than for 1850 (3a, left). Lastly, in Figure 3d, we show that *RRI in 1850* strongly predicts, as expected, *RRI in 1950* in the 9 BAS (left). There is also a positive, though imprecisely estimated, relationship in 4 PAS (right), which is inconsistent with the observed patterns in Figures 3a-3c.⁴⁴

A potential concern is that the number of counties and, therefore, the boundaries of the existing counties, changed significantly between 1775 and 1950. As a result, when correlating *RRI* for the same county over time we are in many cases comparing counties of different sizes, as well as omitting newly created counties. To account for this and to allow the sample to vary over time, we also test whether in the 9 BAS and 4 PAS a county's distance from the Atlantic Coast is correlated with its *RRI* over time. Even as new counties are introduced, we are examining whether the geographic distribution of representation continues to over-represent counties closer to the coast. In Figure 4, we present the same model as used in in Figure 2d, again using 50-year intervals. A significantly inverse relationship between a county's distance from the coast and its *RRI* remains in the 9 BAS in 1850 (Figure 4a, left), 1900 (Figure 4b, left) and 1950 (Figure 4c, left). Each specification includes total county population in the year of the model to control for the fact that most non-proportional systems of representation tend to under-represent the more populous districts. State fixed effects are included, as well. In each specification from 1790 to 1950, the coefficient is essentially unchanged in the 9 BAS. A 10% increase in the distance of a county's centroid from the nearest point on the Atlantic Coast is observed with a 1 to 2% decrease in a county's *RRI* in each specification from 1790 to 1850 (p-value=0.000 in each model). This shows that even with the enormous changes in the number of counties, the colonial bias in favor of the coastal areas remained in the 9 BAS for nearly 200 years following independence. Reassuringly, there is no observed relationship between county distance to the coast and its *RRI* in the 4 PAS.

Taken together, the evidence strongly indicates that the choice to maintain the colonial basis in the 9 BAS resulted in a highly persistent source of political inequality. The basis of representation chosen

⁴⁴This is, however, largely consistent with the argument that malapportionment in US state legislatures was associated with increasing urbanization in the 19th Century (Ansolabehere, Gerber and Snyder 2002)

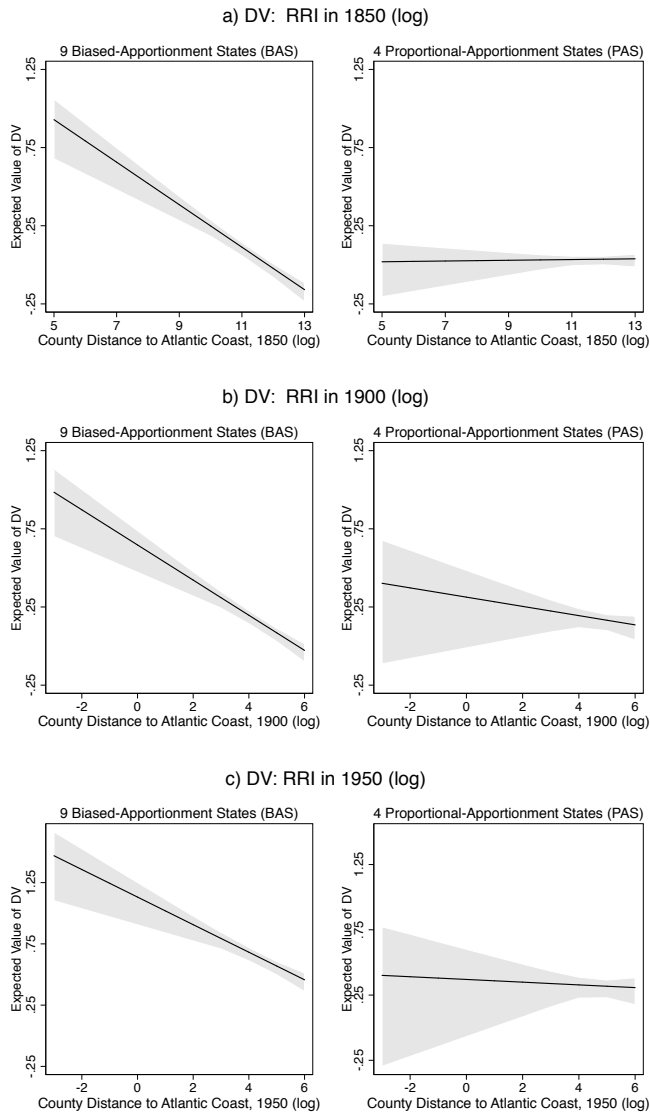
Figure 3: Persistence of Initial Inequality



Each model includes total county population and State fixed effects

Note: Each figure was generated with *Clarify*, and show the expected value of each dependent variable with (shaded) 95% confidence intervals against the values of *RRI* in 1775 (a and c), 1790 (b) and 1850 (d), holding all other covariates at their mean. Each model includes state fixed effects. The sample for all figures on the left are counties in the 9 BAS; all figures on the right are counties in 4 PAS. The estimates are reported in Appendix C.

Figure 4: Geographic Persistence of Initial Inequality



Each model includes total county population and State fixed effects

Note: Each figure was generated with Clarify, and show the expected value of each dependent variable with (shaded) 95% confidence intervals against the values of a county's distance from the Atlantic Coast in 1850 (a), 1900 (b) and 1950 (c), holding all other covariates at their mean. Each model includes state fixed effects. The sample for all figures on the left are counties in the 9 BAS; all figures on the right are counties in 4 PAS. The estimates are reported in Appendix C.

at independence tended to overrepresent the same counties nearly 200 years later in the 9 BAS, and a persistent geographic bias in favor of coastal counties. By contrast, and crucial for our argument, the empirical evidence shows that the initial choice following independence to open up representation removed this previously beneficial source of political inequality in the counties of 4 PAS for approximately 100 years after independence.

6 The Long Run Consequences of Political Inequality on Public Goods

The third empirical implication of our argument is that the persistent political inequality identified in the previous section shaped public goods provision in the long run. Our primary empirical strategy for testing this implication is to measure whether over-representation in the state legislature is correlated with state transfers to the counties, with a specific emphasis on state transfers for public education, over various time periods.

Our choice to focus on state inputs to public education is for a number of reasons. As outlined above, the public provision of education is one of the primary public goods used in the historical political economy literature (Lindert, 2004), and therefore does not represent a choice of public good that simply fits our data. It is also a public good that can more easily be measured across units (in this case counties). Crucially for this study, the initial choice of representation occurred before state governments were involved in publicly supporting education (Goldin and Katz 2009: 137). This downplays concern of reverse causation from more education to more egalitarian state-level institutions. Another strategy we employ is to use state-level inputs into public education provisioning as opposed to measures of educational outcomes, such as illiteracy rates (which we use as a control). By using inputs into public goods provisioning, as opposed to outcomes which could be determined by many hard-to-observe factors, our estimates are less likely to suffer from omitted variable bias.

To show that our source of political inequality affected long-term public goods provisioning, we require consistently measured variables of state transfers for public education over time. As far as we know, this data is available in both 1850 and circa 1950 (right before the Supreme Court ruled state-legislative malapportionment to be unconstitutional). Using the data from 1850, we first test the implication that over-

represented counties in the 9 BAS should receive significantly greater per capita transfers. Furthermore, there should be no relationship *RRI* and per capita state transfers in the 4 PAS. Second, we provide several robustness tests on the relationship using alternative specifications, placebo tests, and an instrumental variable approach. Finally, we replicate the analysis using data on state transfers circa 1950. Due to data limitations, we use a proxy for state inputs into public education circa 1900.⁴⁵ Each test provides evidence consistent with our argument on the durable consequences of the choice of initial representation and its effect on long-term public goods provisioning.

6.1 The Impact of Political Inequality on Public Goods Provision in 1850

For our first test of the effects of political inequality on the distribution of public goods, we use county-level spending on education that is derived *from state sources* in 1850. This value is then divided by the county's white school-aged (5-19) population in 1850 to generate a measure of state spending per (white) capita at the county level. This data was located in the 1850 Census, and is the only systematic nation-wide measure of education spending, both public and private and by level of government (i.e., state and local), across the U.S. that provided county-level information during the antebellum era. Through this indicator we capture early investments in public education, which economic historians have found to be correlated with contemporary public goods and development (Nunn 2014, Lindert 2004). Moreover, these data tap a critical time of the development of the US public education system. Goldin and Katz (2009: 129) argue that, "the key features of US education institutions – which we term virtues – that were present in 1900.....had emerged prior to the Civil War. These virtues would determine US educational development in the 20th Century."

Estimation Framework

We compare public education investments from state sources between counties in BAS as opposed to PAS by estimating equation (2) below:

$$S_i = B_S + B_1(RRI1850) + B_2BAS + B_3(RRI1850 * BAS) + B_S X_i + SFE + \varepsilon \quad (2)$$

⁴⁵We are unaware of a source providing complete county-level data on state transfers for public education between 1850 and 1950.

where S_i is county-level education spending from state sources per white school-aged capita, ages 5 to 19, in 1850 in county i , RRI in 1850 is the measure of political inequality of county i in 1850, BAS is a binary measure of whether the county is in a fixed-apportioned state, X_i is a vector of county-level controls, and SFE are state fixed effects.

The choice of covariates aims to control for variation across counties in both demand for public education and the ability to supply higher levels of public subsidies. While these choices are also based on factors that have been identified in the economic history literature to have influenced education spending in this era, most seem more appropriate to understanding the determinants of *locally*-provisioned public education spending. We include a county's total population, the share of a county's population living in urban areas of 5000 people or more, and the county population density of whites, ages 5 to 19, in 1850. Each is a proxy for economic development and the demand for (and possible economies of scale of) provisioning education. We also include a variable measuring the total county value of capital invested in manufacturing per its AWM population. This is another measure of the county's demand for and ability to supply public goods. Numerous studies have shown a negative relationship between public goods and ethnic diversity (e.g., Alesina, Baqir and Easterly 1999), which justifies controlling for the share of foreign-born among each county's white population in 1850. Similarly, greater economic inequality, in particular, land inequality in largely agricultural economies, has been shown to negatively affect public goods provision (e.g., Ramcharan 2010, Galor, Moav and Vollrath 2009). We control for this by including a measure of county inequality of land ownership (Nunn 2008). To address the possibility that the importance of "good" institutions simply reflect the effects of existing human capital on development (e.g., Glaeser et al. 2004), we control for the adult illiteracy rate among native-born whites in 1850. To control for the possible unobserved harmful influences of slavery on local politics, we also include a variable measuring the share of a county's total population that was enslaved in 1850. Finally, SFE are state fixed effects, which are included to control for unobserved state-level heterogeneity that might affect the *levels* of state spending per white school-age child.⁴⁶

⁴⁶Within states, there is no reason to think errors are not independent. Furthermore, our models are cross-sectional, and state dummies are included to control for differences across states. That said, the estimates are robust to clustering the standard errors at the state level (see Appendix A-Table A6). The estimates (as shown in Appendix Table E1) are also robust to including county-level (AWM) turnout by using the

Results

Column 1 of Table 2 reports the estimates for Equation 2. The coefficient on the interaction of *RRI in 1850* and the dummy indicating whether a county was in an BAS shows that representation in the 9 BAS has a large effect on a county's allocation of state educational revenues. A 10% increase in *RRI in 1850* is correlated with a county receiving roughly 6% more in state education spending per white youth capita in the 9 BAS. The estimate of B_1 indicates that there is no appreciable relationship in the counties of the 4 PAS. We find similar results when this model is estimated separately on the counties from the 9 BAS and 4 PAS, respectively. These estimates are reported in Columns 2 and 3 of Table 2 (and in Figure 5a).⁴⁷ When estimated on only the counties of the 9 BAS, the coefficient on *RRI in 1850* is statistically significant at the 99% level with a similarly large magnitude. A one standard deviation increase in a county's value for *RRI in 1850* in the 9 BAS is associated with an increase in state-level spending per white school aged capita of 36% controlling for the covariates in Equation 2. By comparison, the coefficient of *RRI in 1850* in the 4 PAS is actually negative. As predicted, it is statistically insignificant, and the magnitude is small.

Robustness Checks

Due to the possibility that *RRI* in the 9 BAS is correlated with unobservables unaccounted for by these controls, we conduct a number of additional robustness tests to further validate the results. First, we perform a placebo test by estimating the same regressions in the 17 states that were admitted between independence and 1850. While we do not attempt to similarly explore the determinants of the system of representation initially adopted in these states, we can say that it was *not* due to the colonial legacy of British policy. In each case, the representative institutions in these states were created *de novo* after independence. Therefore, we should not observe the same patterns as with the 9 BAS. We further address concerns that these estimates are biased by omitted factors by using an instrumental variable strategy in which *RRI in 1850* is instrumented with geographic factors that are plausibly unrelated to choices on how to allocate state

average of county turnout in the 1848 and 1852 Presidential elections (Go and Lindert 2010).

⁴⁷The bivariate relationship of each models, as well as those for all models presented in this section, are reported in Appendix A - Table A7.

Table 2: Public Education Spending and *RRI in 1850*

	Interaction Model	Split Sample		Placebo Tests	
	13 States (1)	9 BAS (2)	4 PAS (3)	17 New States (4)	New Slave (5)
<i>DV: County Educ. Spending per White Cap, 5-19, from State Sources, 1850</i>					
<i>RRI in 1850</i>	0.04 (0.21)	0.67*** (0.14)	0.01 (0.23)	0.01 (0.17)	-0.14 (0.25)
<i>BAS</i>	2.5*** (0.27)				
<i>(RRI in 1850)x(BAS)</i>	0.50** (0.22)				
1850 Covariates	Y	Y	Y	Y	Y
N (Counties)	452	308	144	633	317

Notes: Column 1 reports OLS estimates using all the counties of the 13 states. Columns 2 and 3 report estimates when the sample is split into counties from the 9 BAS and 4 PAS, respectively. Columns 4 and 5 report the estimates of the placebo regressions, which is the same specification used in columns 2 and 3, but run on the 17 states admitted between independence and 1850 (column 4) and the 9 slave states created in this same period (column 5). Each model includes state fixed effects and standard errors clustered at the state level. See the text for the covariates used in each model.

*** p < 0.01, ** p < 0.05, * p < 0.1

education revenues. Lastly, we estimate the same specification using a number of additional measures of public education spending. Taken together, these help mitigate concerns that the estimates from Equation 2 are being driven by omitted factors.

Placebo tests

Our first robustness test is to estimate the same regression using the sample of 17 states admitted between 1787 and 1850. Following the adoption of the Constitution, which included the *New States Clause* (Article IV, Section 3, Clause 1), the admission of new states followed a particular process. Once a territory's population reached a certain threshold, the people in the territory would petition Congress to be admitted as a state. Congress then permitted this territory to create a state constitution, which among other institutional arrangements, always included the basis of apportionment in the state's legislature. If accepted by Congress, statehood would be granted on an equal footing with the other states. While Congress occasionally rejected the proposed constitution (e.g., Kansas' proposed pro-slavery 'Lecompton' Constitution), it never rejected a state's admission due to its basis of apportionment. This indicates each new state's basis of representation

was endogenously determined.⁴⁸ In fact, almost every new state initially adopted a population basis of representation (Thorpe 1909). As with the 4 PAS, we should therefore not observe the highly significant relationship between *RRI in 1850* and the allocation of state public education resources as measured in the 9 BAS.

Our sample is the counties in the 17 states admitted following independence and 1850, the year of the dependent variable in Equation 2. As before, we use the apportionment in the legislature of each of these states to construct a measure of *RRI in 1850* for each county. The sources for the dependent variable and each control are also the same. One check on our claim is that a county's relative representation in each new state's legislature should not be correlated with the county's distance from the Atlantic Coast. As expected, there is no relationship whatsoever (p-value=0.57). We then run the same regression using the controls in Equation 2 on these states. As reported in Column 4 of Table 2, there is no relationship between and the allocation of state education resources (p-value=0.95). This null finding is consistent with the claims of Ansolabehere and Snyder (2008) that the incidence of malapportionment across state legislatures emerged in the late 19th Century with the acceleration of urbanization and industrialization. That said, we may be concerned that pooling the counties of all 17 new states obscures important regional differences. In column 5, we report the estimates on *RRI in 1850* if run only using the counties of the 9 slave states admitted after independence. Again, we can see that there is no relationship (p=0.74). If we reduce the sample further to include only states whose territory were once part of the Original 13 states (i.e., Kentucky (1792), Maine (1820), Tennessee (1796), and Vermont (1791)), we still observe no significant relationship between *RRI in 1850* and state public education spending per white capita in 1850 (p=0.19). These various placebo regressions allay concerns that the significant relationship estimated in Equation 2 are due to unobserved factors other than the choice to maintain the biased colonial basis.

Instrumental variable estimates

To allay concerns that our variable of county-level political inequality (*RRI*) is measured with error

⁴⁸This is not to claim that the original framers in each new state were not influenced by the institutional choices made in the Original 13 states, but rather the status quo at the time of each new state's founding did not reflect a legacy of colonial policy.

or that the OLS estimates are biased by omitted factors, we estimate the effects of *RRI* using a two-stage least squares (2SLS) model separately on the counties of the 9 BAS and 4 PAS. As an exogenous source of variation in *RRI* at the county level, we use the aforementioned county distance from the Atlantic coast as an instrument for each county's *RRI*. While the F-statistic for the first stage is very large in the 9 BAS (F=68, p-value 0.000), it is less than 1 in the 4 PAS.⁴⁹ We find that the IV coefficient on *RRI in 1850* in the 9 BAS is highly statistically significant, and is very similar to the OLS coefficient presented in column 2 of Table 2. The estimates and discussion of the validity of this instrument are provided in Online Appendix B.

Alternative specifications and additional tests

To provide further validation of our empirical strategy, we now ensure that the findings reported in Table 2 do not depend on the choice of a particular indicator. In particular, we also run the same specification on three additional measures of county-level public education provision, each derived from the 1850 Census: a) total public (state and *local*) education spending per white youth, b) public school teachers per white youth and c) share of public school spending from rate bills.⁵⁰ Each of these allows us to explore whether over-representation in the state legislature is correlated with better overall public education provision. As shown in Online Appendix E - Table E3, *RRI in 1850* is strongly correlated with each measure in the 9 BAS, while exhibiting no correlation in the 4 PAS.

As a further check, we ran these same three specifications replacing *RRI in 1850* with the dependent variable from equation 2: *county public education spending from state sources per white youth in 1850*. Here we are measuring whether greater state education revenues per white youth are positively correlated with greater overall county-level public education provision. If public education revenues are mostly financed locally, then we would not expect state revenues to significantly affect overall levels of public education provision. Another possibility is that poorer counties received greater per capita state education revenues (as is true now), in which case we may expect to see a negative relationship (as richer counties would provide greater overall provisioning through greater local-level provisioning). Instead, the observed strong positive

⁴⁹This is reassuring. Representation in the state legislatures of the 4 PAS is supposed to be proportional to population, and there should not be an exogenous source of variation that is correlated with its *RRI*.

⁵⁰It was common in this era for public revenues to subsidize a portion of the costs of public education, and the pupil to pay the rest, which were known as rate bills (Goldin and Katz 2009).

relationship between state revenues and overall county public education spending in the 9 BAS indicates the importance of this source of political inequality on public transfers. Figure 5b shows the expected county-level values of state & local public education spending per white youth, ages 5-19, across variation in county public education spending from state sources per white youth in 1850.⁵¹ In the 9 BAS, a 10% increase in state education spending per white youth is correlated with a nearly 9% increase in total county public education spending per white youth, respectively. By implication, the determinants of the allocation of state education revenues nearly fully explain the level of overall public education provision at the county level in the 9 BAS in 1850. Similarly, Figure 5c (left) shows a significantly positive correlation between state spending per white school-age capita and teachers per white school-age capita in the 9 BAS (p-value<0.000). By comparison, in the 4 PAS, this relationship is slightly negative and insignificant.

6.2 *The Persistent Effect of Initial Political Inequality and Public Goods (1850-1960)*

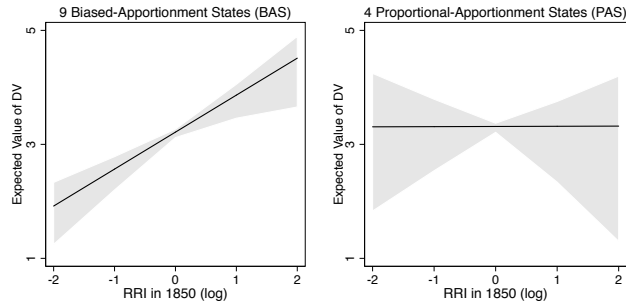
The findings in this paper confirm a strong and robust relationship between persistent political inequality due to an early institutional choice to preserve colonial-era malapportionment and the distribution of state-level education spending 75 years after the end of colonialism. We now show that *RRI* continued to be correlated with state transfers for public education for another 100 years. This is particularly important in the 9 BAS, as the state provided a majority of the public education funding for most of the period we are examining. In the 9 BAS, the unweighted average of public education spending in 1850 paid from state, as opposed to local, revenues was 60%. By comparison, this figure was only 17% in the 4 PAS.⁵² Figure 6a indicates that the 9 BAS states continued to finance a large share of public education revenues at the state level until the US Supreme Court ended systematic malapportionment in 1964. If the over-represented areas continued to receive a disproportionate allocation of state transfers, then the consequences of this initial choice are magnified in the 9 BAS as we showed that that the distribution of representation in the 9 BAS remained systematically biased through the mid-20th Century.

⁵¹The remaining results are shown in Appendix E – Table E3.

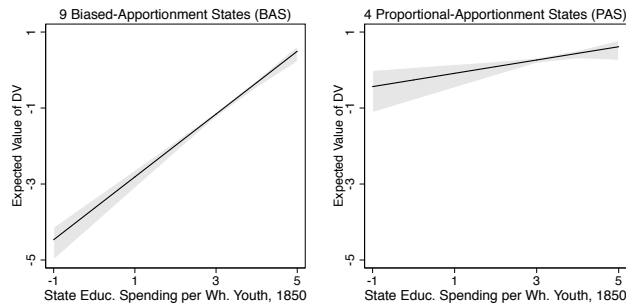
⁵²Then, as now, there was great variation across and within states over time in the share of public education revenues that were financed by local vs. state revenues. Online Appendix E provides more details regarding public education financing in the Original 13 states following the end of colonialism.

Figure 5: Early Effect of Initial Political Inequality on Public Goods

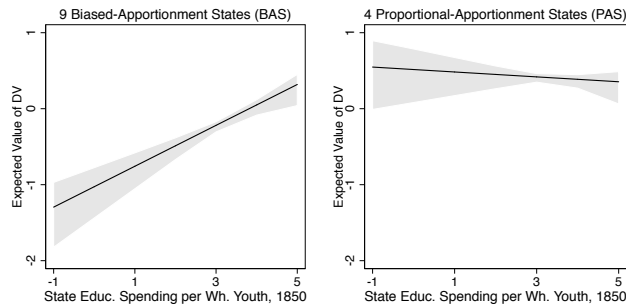
a) DV: County Educ. Spending per Whites, 5-19, from State Revenues, 1850 (log)



b) DV: State & Local County Pub. Educ. Spending per Whites, 5-19, 1850 (log)



c) DV: Public School Teachers per Whites, 5-19, 1850 (log)



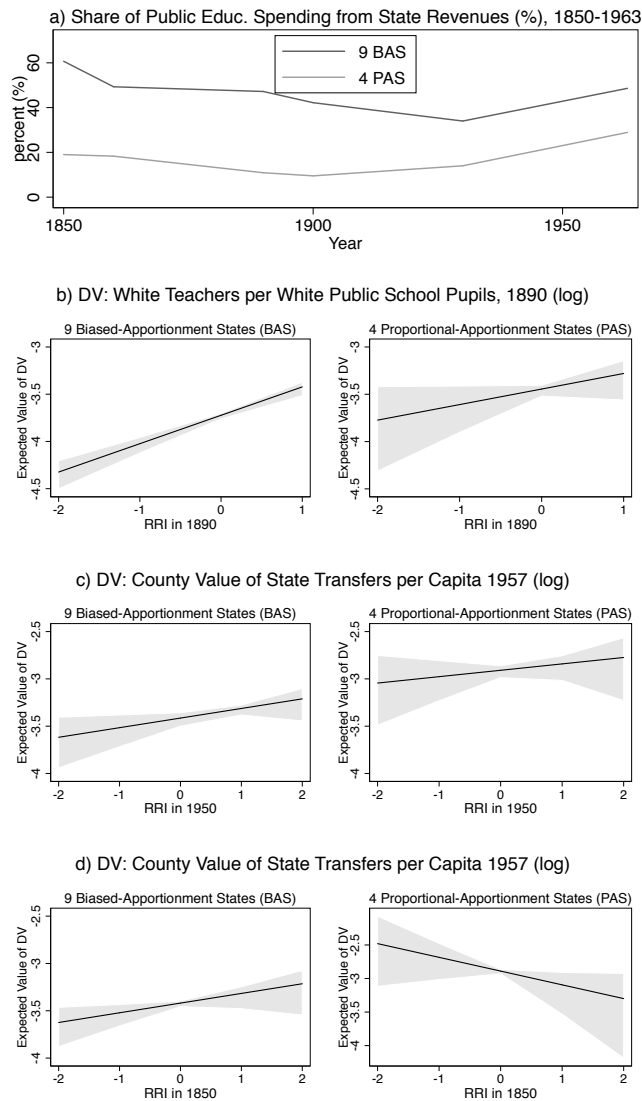
Each model includes state fixed effects and 1850 county-level controls

Note: Each figure was generated with Clarify, and show the expected value of each dependent variable with (shaded) 95% confidence intervals against the values of *RRI* in 1850 (a), state education spending per white youth in 1850 (b and c), holding all other covariates at their mean. Each model includes state fixed effects. The sample for all figures on the left are counties in the 9 BAS; all figures on the right are counties in 4 PAS. See the main text for the covariates included. The estimates are reported in Appendix A.

To test whether this systematic source of political inequality continued to affect the allocation of state education revenues, we regress the same specification in Equation 2 on subsequent periods between 1850 and the Supreme Court's ending of state legislative malapportionment in the 1960s. Unfortunately, the Census only provided county-level data on the amount of state transfers for public education in 1850. To the best of our knowledge, no other data sources exist that systematically collect state-level revenues specifically allocated for education at the county level. We instead use two proxies that capture the county-level allocation of state transfers for public education from 1890 and 1957, respectively, collected by the same sources. For the latter, the Census of Governments began collecting in 1957 county-level data on the amount of total state transfers to each county. According to Ansolabehere, Gerber and Snyder (2002: 769), these state transfers comprised a little more than a third of all state revenues, and approximately half of these direct transfers from the state were allocated for educational purposes. Hence, this is a good proxy of state transfers to the counties for public education. As an intermediate measure of state transfers, we use white teachers per white public school pupils in 1890. This is an appropriate proxy for state transfers to counties for public education for the simple reason that in this period salaries for teachers comprised a majority of education spending (Go and Lindert 2010). It is also the same measure that we used above for 1850. This data is provided by the 1890 Census, and is the only source that provided a comparable measure across all of the counties in the 13 states in the same time period. In this specification, we control for county-level total population, manufacturing capital per capita, share of the county's population who are black and foreign born, respectively, and include state dummies. Figure 6b shows that the expected value of white public school teachers per white pupils in 1890 is strongly positively correlated with *RRI in 1890* when holding all other 1890 county-level covariates at their mean. In the 9 BAS, a 10% increase in *RRI in 1890* is correlated with a 3% increase in county white public school teachers per white pupils. While positively correlated, there is no significant relationship in the 4 PAS.

As mentioned above, the Census of Government began reporting the amount of state transfers received by each county in their 1957 report, of which approximately half were allocated for educational purposes. Figure 6c shows that the expected value of county-level transfers from the state in 1957 is significantly positively correlated with *RRI in 1950* in both the 9 BAS and 4 PAS. This is consistent with Ansolabehere,

Figure 6: Persistent Effect of Initial Political Inequality on Public Goods



Note: Figure 6a shows the average share of total (state & local) public education revenues derived from *state* sources across the 9 BAS and 4 PAS, respectively, in 1850, 1860, 1890, 1900, 1925, and 1963. Figures 6b, c, and d were generated with Clarify, and show the expected value of each dependent variable with (shaded) 95% confidence intervals against the values of *RRI* in 1890 (b), in 1950 (c) and 1850 (d), holding all other covariates at their mean. Each model includes state fixed effects.

Gerber and Snyder (2002) findings that the malapportionment of state legislatures, which was widespread by the mid 20th Century and had originated following industrialization in the late 19th Century, strongly affected the allocation of state resources. Yet, our data shows that systematic malapportionment in the 9 BAS far predates industrialization. Figure 6d shows the the same specification as in 6c, but with *RRI in 1850* in place of *RRI in 1950*. In support of our argument, we find a strongly positively correlation between *RRI in 1850* and state transfers per capita in 1957. By contrast, the expected value of state transfers is negatively correlated with *RRI in 1850* in 4 PAS, indicating that the source of malapportionment present by 1950 in the 4 PAS was either not persistent over time or only emerged after 1850. While addressing the endogeneity of the degree of fiscal decentralization across these states is beyond the scope of this paper, we can infer that the greater state-level centralization of public goods provisioning as demonstrated in Figure 6a combined with the observed unequal allocation of state-level resources strongly suggests that the consequences of being underrepresented in the state legislature were much more significant in the 9 BAS than the 4 PAS. A key implication of our argument is that the Supreme Court's decision in 1964 to require the apportionment of state legislatures be equalized across districts according to population should have resulted in a significant reallocation of state public resources towards the previously underrepresented counties within each state. Crucially, Ansolabehere, Gerber and Snyder (2002) demonstrate that this is precisely what occurred.

CONCLUSION

This paper has shown how the preservation of legislative malapportionment after independence carried the legacy of colonialism and slavery well after their demise. Two exogenous factors – state size and climate and geography – explain whether constitution-makers in each of the original 13 states created legislatures in which representation was apportioned according to white population or whether it was fixed to preserve the interests of the coastal and rural elites. This initial choice created systematic political inequality in the nine biased-apportionment states, a variable for which we provide a new measure here, that in turn shaped public education provisioning after independence. Finally, our analysis reveals that the effects of this political institution continue to loom large to this day. This persistence is all the more striking when one considers the massive economic and social changes that have occurred within the US over the two centuries under study,

the fact that labor movement is unrestricted, and the significant increase in federal-level redistribution. The paper makes an important contribution to the vast literature on the importance of political institutions, by examining the impact of historically determined malapportionment – an understudied attribute of many legislatures – on public goods.

This study also speaks to the literature on politico-economic transitions, and, in particular, the ability of elites to design institutions that preserve their political power even after major political and economic changes (e.g., Acemoglu and Robinson 2008, Albertus and Menaldo 2018). Our findings suggest that pre-transition representative institutions work to lock in elites' power long after the initial period of change. Despite implementation occurring prior to industrialization, state-legislative malapportionment persisted through the early 1960s, when an exogenous federal-level decision of the Supreme Court ended it. Most importantly to the comparative political economy literature, we provide evidence of a politico-institutional channel through which the effects of colonialism and slavery continue to be relevant today long after the demise of each. The literature on American politics has generally failed to engage with the broader comparative politics literature on the impact of historically-determined institutions.

Finally, our paper points to additional ways in which comparative institutional development can benefit from the study of American institutional development, and vice versa. In particular, we envision additional efforts in two directions. The first one concerns the politics of taxation to fund the provision of public goods such as the ones studied in this paper, and the role biased representation played both in the allocation of the tax burden across and the scope of tax centralization in the original 13 states. These analyses will make a significant contribution to the comparative politics of the origins of effective fiscal states. The second one concerns the specific strategies elites use to preserve their relative power and the economic and political conditions under which malapportionment versus limiting franchise are complements or substitutes across space and time. This is an important question that deserves a study in its own right.

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