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Chapter 4: The Mechanism

In this chapter, we argue that the occupational composition of the state elite is the mechanism through which initial conditions act on politics. As we will show, a more favorable climate caused a greater share of the state elite to derive their wealth from farming-related enterprises. Given the dominance of agriculture during most of the nineteenth century in the United States, it is not surprising that farmers were the largest group among the elite of many states. We also show that better access to water transportation caused a greater share of the elite to derive their wealth from commercial enterprises such as trade, manufacturing, banking, and insurance. Thus, states with favorable climates and limited access to water transportation had more homogeneous elites than states with less favorable climates and greater access to water transportation.

The hypothesized link between the composition of the elite and political competition is straightforward. In places where the state elite were more homogenous, typically because their wealth was derived from the same occupations, we expect to find less state political competition. With less political competition, institutions can be designed to promote the interests of the dominant group within the state elite, at the expense of other groups both in and outside the elite. This will lead to poorer quality state institutions on average. In contrast, in places where the state elite have lower occupational homogeneity, we expect to find more state political competition. This greater political competition will force the state to design institutions that promote the

interests of a wider variety of occupations. On average, these institutions will be of higher quality.

The mechanism we propose is different than the mechanisms proposed by Engerman and Sokoloff and by Acemoglu, Johnson, and Robinson. Engerman and Sokoloff (1997, 2000) argue that countries with greater historical inequality in the distribution of wealth have lower quality political institutions. Engerman and Sokoloff (1997) write:

> In this chapter we have highlighted the relevance of substantial differences in the degree of inequality in wealth, human capital, and political power in accounting for the variation in the records of growth. Moreover, we suggest that the roots of these disparities in the extent of inequality lay in differences in the initial factor endowments of the respective colonies. Of particular significance for generating extreme inequality were the suitability for the cultivation of sugar and other crops in which there were economies of production in the use of slaves, as well as the presence in some colonies of large concentrations of Native Americans. Both of these conditions encouraged the evolution of societies where relatively small elites of European descent could hold highly disproportionate shares of the wealth, human capital, and political power – and establish economic and political dominance over the mass of the population.[1]

Thus, they argue that elite dominance led to lower quality political institutions.

In Engerman and Sokoloff (2000), they describe how elite dominance led to lower quality political institutions:

> Specifically, in those societies that began with extreme inequality, elites were better able to establish a legal framework that insured them disproportionate shares of political power, and to use that greater influence to establish rules, laws, and other government policies that advantaged members of the elite relative to nonmembers – contributing to persistence over time of the high degree of inequality (Kousser, 1974; Acemoglu and Robinson, 2000). In societies that began with greater equality or homogeneity among the population, however, efforts by elites to institutionalize an unequal distribution of political power were relatively unsuccessful, and the rules, laws and other governmental policies that came to be adopted, therefore, tended to provide more equal treatment and opportunities to members of the population.[2]

Although Engerman and Sokoloff focus on countries and not states, in the United States context we take their work to imply that states with historically more unequal distribution

[1] Engerman and Sokoloff (1997), pp. 289-290.
[2] Engerman and Sokoloff (2000), pp. 223-4.

of wealth will have more limited political competition than states with more equal distribution of wealth.

Acemoglu, Johnson, and Robinson (2001) argue that a poor colonial health environment, as measured by high settler mortality, led to extractive institutions. Like Engerman and Sokoloff, a theory of the European elite dominating the legislative branch in regions with high settler mortality underlies their story. They state:

> Specifically, in our theory – and in the data – it is not the identity of the colonizer or legal origin that matters, but whether European colonialists could safely settle in a particular location: where they could not settle, they created worse institutions. … Overall, there were few constraints on state power in nonsettler colonies. The colonial powers set up authoritarian and absolutist states with the purpose of solidifying their control and facilitating the extraction of resources.[3]

Acemoglu, Johnson, and Robinson also focus on countries and not states. However, in the context of the United States, we take their work to imply that states with higher European mortality will have more limited political competition than states with lower European mortality. The early-settler-mortality hypothesis makes predictions about the quality of political institutions that limit the power of governments to expropriate private assets. It does not make predictions about political competition specifically. However, political competition does relate to a government's ability to expropriate, because a divided state government is less able than a one-party government to expropriate private assets.[4]

Some strands of the political science literature have also emphasized the elite. Much of this work originated with Charles Beard's classic 1914 book, An Economic Interpretation of the Constitution of the United States, although the idea of elite power certainly predates Beard. Later, a related line, which focused on interest groups, emerged

[3] Acemoglu, Johnson, and Robinson (2001), pp. 1373 (up to ellipsis), 1375 (after ellipsis).
[4] See Lowery, Gray and Fellowes (2005).

in writings such as V.O. Key's Politics, Parties, and Pressure Groups. Recent work by Acemoglu and Robinson (2006) builds on this older strand of political history that emphasizes the role of elites in politics. In their paper, they construct a model in which the elite chose institutions that may not lead to socially optimal outcomes; instead they promote the interests of the elite.[5]

A skeptic might ask whether the economic elite are really the most important players in this context. Perhaps, as the median voter theorem and the associated literature on the median voter hypothesize, the median individual was more relevant for state politics than the economic elite.[6] Initial conditions would then be acting through the occupational homogeneity of the median. To the degree that the occupational homogeneity of the elite and the median are correlated, any effect we find for the elite might potentially be a reflection of the homogeneity or heterogeneity of the median voter.

In this chapter, we have three goals. The first goal is to construct, for the antebellum period, measures of occupational homogeneity of the state economic elite and the state economic median and of the wealth shares of the state economic elite. We also present data from Mitchener and McLean (2003) on soldier mortality at forts in the state during the antebellum period. The second goal is to present evidence on the relationship between these four measures and state initial conditions. The third goal is to demonstrate

[5] See also Acemoglu and Robinson (2000, 2001, 2005 and 2006).

[6] It is worth noting that work on the elite and interest groups is distinct from later work, which argued that individuals vote along class-based lines. In part in response to the focus on the elite in the older strand, a second strand of the political history literature developed that has focused on voters – their participation in the political process, their identification with parties, and their reaction to policy outcomes. Formisano (1994) presents a review of the largely quantitative voting studies and the strengths and weaknesses of specific works. In a later review article, Formisano (2001) discusses later work on political culture that has focused more on close readings of primary sources to identify political beliefs and motivations. See Formisano (1994) for a discussion of Richard McCormick's critique of voting studies: "Private motives of elites, as well as long-range patterns of social and economic development, are ignored as sources of economic policy". McCormick (1974), p. 375.

that, the occupational homogeneity of the state economic elite is a much more powerful predictor of the evolution of political competition in state legislatures during 1866-2000 than the occupational homogeneity of the median, the wealth shares of the elite, or soldier mortality.

Several caveats regarding our findings are in order. First, the geographic limitations of our findings are worth emphasizing. We can only speculate about how our measure would perform in international settings. Second, our findings regarding the importance of occupational composition of the elites should not be taken as directly refuting Engerman and Sokoloff's mechanism or Acemoglu, Johnson, and Robinson's mechanism. We have put forward a related causal mechanism that is somewhat more specific. Third, the data that we have at our disposal to evaluate the mechanism are less than ideal for a number of reasons, which we will discuss later. The primary data that we do use are Census of Population data on the wealth of white adult males for 1860. Fourth, we will use the data to identify the state economic elite. Yet these individuals were not necessarily part of the state political elite. We will, however, present evidence on the links between state economic and political elites during the mid-nineteenth century.

Data and Data Limitations

To examine the relationship between the occupational homogeneity of the state economic elite and state-level political competition, we would ideally like to have individual-level wealth data for every state in every decade, or even more frequently, from the colonial period onward. Unfortunately, we have little colonial or early state data. The best early data are part of the 1798 census of housing values, which covers the small

number of extant states. The next available wealth data are contained in the Censuses of Population for 1850, 1860 and 1870. From 1870, there is no national data at all until 1913, when wealthy individuals began to pay income tax. Wealth data can be reconstructed for many years based on estate tax returns starting in 1916. Occupational data is generally not available and is not available at the state-occupation-wealth/income level.[7] The next data of potential interest is in the 1940 and 1950 Censuses, which include income from wages (1940) and income from all sources (1950). In addition to not covering wealth, in these years a very large fraction of the individuals in the top 1 percent are in a single occupational group, 'merchants, officials, and proprietors'.

We will use the 1860 Census of Population to examine the occupational homogeneity of the state economic elite, because we believe that the 1860 data are more reliable than either the 1850 or the 1870 data. A word on all three censuses is in order. The 1850 Census asked about real property but not personal property. So it provides a much less complete measure of wealth distribution than the later two censuses, which asked about both real and personal property. The 1850 Census also included fewer states. The 1870 Census was conducted relatively soon after the Civil War. The War almost certainly altered the occupational distribution of the elite in the South. It may have altered the distribution of the elite in the North as well because of profits from supplying the Union Army. This leaves us with the 1860 Census, which has the advantage of being conducted prior to the Civil War and of including both real and personal property. The data from the 1860 Census of Population are not entirely ideal for examining the occupational homogeneity of the state economic elite. Reasons include: i) the measures

[7] An occupational breakdown at the national level for income is available in Piketty and Saez (2003) for 1916.

of real and personal property are gross and not net of debt; ii) these are unverified, self-reported data; iii) the sample we have is a 1 percent sample and not a more detailed sample; and iv) because of the relatively early date, the data cover only 28 states. Lest we sound unduly pessimistic, however, we should note that we are very lucky to have a relatively high quality national sample this early in American history.

One criticism of the 1860 Census of Agriculture in the slavery literature is that the cotton harvest in 1859 was unusually large. This criticism of the 1860 Census of Agriculture is relevant for the 1860 Census of Population, because it implies that the wealth for southern planters with large cotton production may be somewhat inflated. This would be true if the good season lead them to invest in real property or additional personal property such as slaves. As long as the cotton harvest in 1859 did not unduly affect the composition of the elite, our measures of occupational homogeneity will not be substantially affected. We mention this here, however, because to examine the Engerman and Sokoloff hypothesis, we will compute measures of the wealth distribution. Measured inequality may have been somewhat higher in 1860 than if it had been measured in an earlier year or (in the absence of the Civil War) in a later year.

Occupational Homogeneity of the Elite

Who were the state economic elite? We examine the top 1 percent of the state wealth distribution for white adult males in 1860, where wealth is defined as the sum of real and personal property reported in the 1860 Census of Population. This choice was made largely for pragmatic reasons. First, white adult males held the vast majority of the economic wealth and were the only segment of the population that could vote. Second,

other scholars have examined the top 1 percent of the state wealth distribution for white adult males.[8] We will discuss results of these studies shortly. Third, given that we have a 1-100 sample, our data cannot support examining shares smaller than 1 percent. As it is, we restrict attention to states with at least 600 white adult males in the 1-100 sample to ensure that we have at least 6 men in the top 1 percent. One could expand the definition of the economic elite to the top 2 percent or the top 5 percent. However, at some point the individuals who were included would not be part of the state economic elite.

The top panel of Table 4.1 presents the average share of state wealth held by the state economic elite in four regions – the Common North, the Civil North, the Common South, and the Civil South. The shares ranged from 23 percent in the Civil North to 30 percent in the Civil South. We also report the share of state wealth held by the median, where the median is defined as the 40th to the 60th percentile of the wealth distribution.[9] The shares held by the median were small, ranging from 2 percent in the Common South to 5 percent in the Civil North.

Our estimates of the share of the wealth held by the state economic elite are largely in line with Soltow's (1975) estimates. Soltow (1975) is the work closest to ours, in that it examines the entire United States. Using a random sample of the 1860 Census of Population different than the one we use, Soltow found that the top 1 percent in the North and the South each controlled 27 percent of the total assets and that the top 1 percent in

[8] See Atack and Bateman (1981), Campbell and Lowe (1977), Conley and Galenson (1998), Gallman (1969), Pessen (1973), Soltow (1975), and Wright (1970) and more recently Steckel and Moehling (2001), and Kopczuk and Saez (2004).

[9] In some states, the 40th percentile held zero total property. In that case, we restrict attention to individuals who held positive total property.

the United States as a whole controlled 29 percent of the total assets.[10] These numbers differ from those in Table 4.1 for two reasons. First, he included the entire free male population over the age of 20, whereas we include the white male population ages 21 and older. Second, he aggregates at the national or super-regional level rather than the state level. If we replicate his procedure using our sample, we find that the top 1 percent in the United States as a whole controlled 32 percent of the total assets, which is in line with our estimate. Soltow does not report state-level measures, and so, unfortunately, we cannot compare our state-level estimates with his.

Table 4.1 here.

Our findings are also consistent with the findings of studies of specific states and regions. For example, Pessen (1973) used tax records to construct wealth distributions for three cities – New York, Brooklyn, and Boston – during the 1840s. He finds that the top 1 percent of the wealth distributions in New York, Brooklyn, and Boston controlled 40 percent, 42 percent and 37 percent of the non-corporate wealth. Using the Bateman-Foust sample of rural households from the 1860 Census of Population for the northern-tier states, Atack and Bateman (1981) found a "much more equal distribution [of wealth] in the rural north," which would roughly correspond to the Civil North, than in other parts of the United States. Using tax records from townships in Massachusetts, Steckel

[10] We have a sample that is more than four times larger than Soltow's sample. Soltow, however, over sampled persons worth more than $100,000 at 40 times the rate of individuals below $100,000, so he has a larger and possibly more accurate sample of the very rich.

and Moehling (2001) found that the top 1 percent held 27 percent of the total taxable wealth in 1860.[11]

In a later book, which examined the 1798 distribution of wealth and made comparisons with the 1860 distribution of wealth, Soltow (1989) concluded that "There is evidence that inequality [of wealth] within states remained stable during both the eighteenth and nineteen centuries."[12] This is useful from our perspective, because it suggests that the wealth distribution is largely persistent and that the 1860 Census tells us something about wealth distribution for earlier periods.

Having identified the economic elite, we turn to the question of their occupations. Conveniently, occupations are systematically classified in the 1860, 1-100 public-use sample. The distribution of occupations for the state economic elites is shown in Table 4.2. Because 43.5 percent of the economic elite were farmers (a category which also includes ranchers and plantation owners) and 28.8 percent were 'merchants, officials, and proprietors (n.e.c.)', we designated each as an occupational category. We experimented with allowing other groups such as lawyers and judges (4.6 percent) and physicians and surgeons (2.7 percent) to have their own groups. In the end, we simply created a catch-all group, 'other'.[13]

Table 4.2 here.

[11] Using estate tax records from the twentieth century, Kopczuk and Saez (2004) find that the top 1 percent of all households held 40 percent of total wealth. This declined sharply in the 1930s and 1940s to 22.5 percent of total wealth in 1949.
[12] Soltow (1989), p. 190
[13] Our results are robust to using alternate specifications.

We use a Herfindahl-Hirschman index (HHI) to compute the occupational homogeneity of the state economic elite. The measure is the sum of the squares of the occupational shares of the state economic elite. An HHI of 1.0 would mean that all of the members of the economic elite shared the same profession. An HHI of 0.33 would mean that the members of the economic elite were evenly divided among i) farmers, ii) merchants, officials, and proprietors, and iii) other. The average HHI was 0.51 and the values ranged from 0.34 in Illinois to 1 in Arkansas and South Carolina. Table 4.1 shows the average values of the HHI of the elite for each of the four regions, along with the shares of farmers and the shares of managers, officials, and proprietors. The Civil North had the lowest HHI of the elite (0.39). The Civil South had the highest (0.74).

At various points we will discuss the occupational homogeneity of the state economic median. Foreshadowing our later results, we do so to make two points. First, the occupational homogeneity of the median is not the same as the occupational homogeneity of the elite. Second, in predicting state political competition, it generally does not perform as well as the occupational homogeneity of the elite. This suggests that the initial conditions were probably influencing political competition through the elite and not through the median.

The distribution of occupations for the state economic medians is shown in Table 4.3. At 36.6 percent of the total, farmers are by far the largest occupational group in the median. In contrast to the state economic elite, only 3.1 percent of the median are managers, officials and proprietors. Since the all-other category is comprised of many different occupations, it is difficult to know whether to combine or separate them into different occupational groups.

To maintain comparability with our analysis of the elite, we retain the previous three-category classification. The average HHI was 0.59 and the values ranged from 0.47 in Illinois to 1 in California. Table 4.1 shows the average values of the HHI of the median for each of the four regions, along with the shares of farmers and the shares of managers, officials, and proprietors. The Common South had the lowest HHI of the median (0.52), and the Common North had the highest (0.64).The HHI of the median and the elite are correlated, but at -0.16 the correlation is very low. [14]

Table 4.3 here.

The Economic and Political Elite

One concern is that the economic elite were not necessarily the same as the political elite. Consequently, measures of the occupational homogeneity of the economic elite may not have predictive power for state political competition. At a theoretical level, we find this concern unlikely to be significant, because we believe that the economic elite will buy access to a sufficient number of the political elite to ensure that their interests are represented. Buying access can take a variety of forms from direct payment to campaign contributions to having a family member sit in the state legislature to marrying into the family of an influential politician.

At an empirical level, this concern raises the interesting question of who were the political elite. Wooster's outstanding books (1969, 1975) on the Upper and Lower South

[14] If we use the nine main occupational groupings used by IPUMs, then the correlation between the HHI of the elite and the median is much higher 0.56. Given the diffuseness of the other occupations, however, this amounts to a measure of the share of farmers. We will present results where we use the share of farmers in the median instead of the HHI of the median.

provide detailed evidence on the wealth of state legislators in 1860. Table 4.4 shows that the median state legislator in the Upper and Lower South held substantially more assets than the 90th percentile of the wealth distribution. With few exceptions, the median wealth of members of the state house fell between the 90th and the 95th percentile, and the median wealth of members of the state senate fell between the 95th and the 99th percentile. One reason why these men fell below the 99th percentile is that many were in their early forties and so had not yet finished accumulating assets. Some of these men would go on to be the economic elite or had fathers or brothers in the elite. Others would be cultivated by those in the elite, as one did not have to be in the legislature to have influence.

Table 4.4 here.

Unfortunately, other studies rarely offer the level of detail of Wooster's work or cover more than one city or state. In a review of the available historical evidence on the characteristics of officeholders, Pessen (1980) concluded:

> The resultant picture inevitably is not uniform. Humble county and town officials, for example, were less likely to be drawn from the highest levels of wealth and from the most prestigious occupations than were men who occupied more exalted state and federal positions. Alderman and councilmen usually did not match the mayor either in wealth or in family prestige. But the relatively slight social and economic differences found between men at different levels of government or between men nominated by the parties that dominated American politics from the 1830s to the 1850s were not differences between the North and the South. In the South as in the North, men similar in their dissimilarity to their constituencies held office and exercised behind the scenes influence. In contrast to the small farmers, indigents, laborers, artisans, clerks, and shopkeepers – the men of little or no property who constituted the great majority of the antebellum population – the men who held office and controlled the affairs of the major parties were everywhere lawyers, merchants, businessmen and relatively large property owners.[15]

[15] Pessen (1980), pp. 1137-8.

So, while the less affluent could and did vote, the people they elected were wealthy.[16] Thus, it is quite plausible that political variables would be more highly correlated with the characteristics of the elite than with the characteristics of the median.

Initial Conditions and Occupational Homogeneity, Wealth Inequality, and Mortality

In this section, we first discuss our measures of state mortality and state wealth inequality and then examine the relationships between state initial conditions and occupational homogeneity, wealth inequality and mortality. To measure state mortality, we use Mitchener and McLean's (2003) estimates of soldier mortality at forts in the state from 1829-1838 and 1839-1854. These rates are likely to reflect the endemic mortality in the state, since few locations had water and sewer treatment, and a relatively small fraction of the population was urban.[17]

An alternative way to measure state mortality would be to use the state mortality rate from the 1860 census.[18] Deaths were recorded by census enumerators, who asked if anyone in the household had died in the previous year. These data may be biased to some degree, since individuals had to be i) part of a household and ii) reported as having died in the last year.[19] The soldier sample is somewhat more homogenous than the census, because it consisted of white males of similar ages living under similar conditions.

[16] See Watson (1997).
[17] What Acemoglu, Johnson, and Robinson (2001) were trying to capture, however, is something like the endemic rate for settlers. One concern is that mortality rates are endogenous in the sense that they are higher as population density increases and lower as water and sewer infrastructure are put in place. In 1860, even in the New England and the mid-Atlantic, the two census regions where urbanization was the most prevalent, less than 15 percent of the population lived in towns with populations of 2,500 or more. Thus, our measures are likely to be similar to the endemic rates that the settlers would have faced.
[18] Mortality rates are also available for 1850 and 1870. In 1850, many states were still in the settlement phases, so mortality rates are less accurate than later when households were less mobile. In 1870, many states were suffering from the demographic shock of the Civil War. 1860 appears to be the most reliable of the three census measures.
[19] In places such as California, mortality is likely to be understated, because households were unstable over time.

Further, unlike the census, it is available for every state. The correlation between two measures of mortality is 0.68, which suggests that they are capturing similar effects.

To measure state wealth inequality, we focus on share of wealth controlled by the state economic elite. In other contexts, the Gini index, the 90-10 ratio, and the 90-50 ratio may have also been used to measure wealth distributions. The problem in this context is that a very large fraction of white men report zero wealth. This makes it difficult to compute ratios and the Gini Index.[20]

If common factors are driving state mortality, state wealth inequality, and the occupational homogeneity of the state elite and median, one might expect the measures to be correlated. Interestingly in the 28 states for which we have data, the occupational homogeneity of the state elite and the share of wealth held by the state elite are essentially uncorrelated (-0.04). Recall that the occupational homogeneity of the state elite is also relatively uncorrelated with the occupational homogeneity of the state median (-0.18). The occupational homogeneity of the state elite is correlated with soldier mortality (0.40), but the correlation is not all that high.[21]

The other issue of interest is the correlation between these four measures and our four state initial conditions. These correlations are reported in Table 4.5. Climate and culture exhibit very similar patterns of correlation. Both are strongly and positively associated with HHI of the elite, the elite's share of state wealth, and soldier mortality in the states. Thus, in states with more favorable climates for agricultural production, the

[20] One issue to keep in mind with respect to all of these measures is that if certain occupational groups systematically carried greater debt than other groups, it would affect both our measure of the composition of the elite and our measure of their share of wealth. Unfortunately, we have not been able to find any systematic evidence on the debt levels of different occupational groups.

[21] In the international context, these variables may be more highly correlated.

elite tended to be drawn from more homogeneous occupations, the elite controlled a greater share of the wealth, and soldier mortality was higher.

Table 4.5 here.

Perhaps less obviously, a state's access to water transportation is negatively related to its occupational homogeneity of the elite, positively related to the occupational homogeneity of its median, positively related to the wealth share of its elite, and negatively related to soldier mortality. The effect of water transportation on the elite and the median becomes evident when we examine the location of the 20 largest cities in 1860.[22] Seven of the cities were ocean ports where rivers met the sea (Baltimore, Boston, Brooklyn, New York, Newark, Providence, and San Francisco); five of the cities were ports where rivers met the Great Lakes (Albany, Buffalo, Chicago, Detroit, Milwaukee, and Rochester); two of the cities were on the Mississippi River (St. Louis and New Orleans); three of the cities were on the Ohio (Cincinnati, Louisville, and Pittsburgh); two of the cities were on rivers that were close to the Atlantic (Philadelphia and Washington) and one city (Albany) was on a major river upstream from New York. These cities were located in states where a large share of the counties had access to water transportation. Further, much of the trade and small-scale manufacturing that occurred in the United States occurred in, or was mediated by, these cities. Indeed, just four of these

[22] This discussion relies heavily on Glaeser and Kohlhase (2003), which discusses water access of the major cities in 1900.

states, New York, Massachusetts, Pennsylvania, and Ohio, produced more than half of the value of manufactured products in the United States in 1860.[23]

Thus, access to water was correlated with trade and manufacturing occupations. This implies that access to water would tend to diversify the economic elite away from agricultural occupations and so lower the occupational homogeneity of the elite by increasing the share of the elite in the managers, officials, and proprietors (nec) category and in the all-other category. Similarly, it would tend to increase the occupational homogeneity of the median by increasing the share of the median in the all-other category.[24] Trade and manufacturing could also plausibly increase the share of wealth held by the elite relative to its share in other locations. One open question is why soldier mortality is negatively associated with water transportation. We speculate that access to water transportation may have been correlated with ability to dispose of human waste and with access to relatively clean water during the period in which soldier mortality was measured.[25]

Civil law exhibits low correlation with everything except soldier mortality. Here the correlation seems to be capturing the fact that civil-law states were located on the frontier. Not surprisingly, soldiers were more likely to die on the frontier than in states that were located away from the frontier.

We more systematically investigate the relationships between state initial conditions and our four variables – the occupational homogeneity of the state elite and

[23] Pessen (1973), in his work on antebellum wealth in the Northeast, focused on New York, Brooklyn, Boston, and Philadelphia, because this is where the richest men lived.
[24] Recall that because the share of managers, officials, and proprietors is substantial for the elite (0.29) and small for the median (0.03), increasing trade and manufacturing occupations will tend to decrease the HHI of the elite and increase the HHI of the median.
[25] Note that most of the forts would have been in the interior and so away from locations with high population density (i.e., major cities).

the state median, state wealth inequality, state mortality as measured by soldier mortality – in Tables 4.6 and 4.7. In column (1) of Table 4.6, we regress the occupational homogeneity of the state elite in 1860 on climate, transportation, and civil. In column (2), we run the same regression, but add culture as well. In column (1), both climate and transportation are statistically significant. The elite in states with warmer, wetter climates were more homogeneous, while the elite in states with greater access to water transportation were less homogeneous. In column (2), adding culture renders both climate and culture statistically insignificant. The F-test for the joint exclusion of climate and culture shows that, although individually insignificant, they cannot jointly be dropped from the regression.

Table 4.6 here.

In columns (3) and (4) of Table 4.6, we replace the occupational homogeneity of the elite in 1860 with the occupational homogeneity of the median in 1860 and run the same regressions before. In both regressions, only one variable – transportation – is statistically significant. The median in states with greater access to water transportation were more homogeneous. Further, in contrast to column (2), the F-test for joint exclusion of climate and culture shows that they can jointly be dropped from the regression.

In columns (1) and (2) of Table 4.7, we examine the relationship between initial conditions and the share of wealth held by the top 1 percent in 1860. In column (1), we regress the share of wealth held by the top 1 percent on climate, transportation, and civil. Both climate and transportation are positive and statistically significant. Elites in states

with warmer, wetter climates and greater access to transportation held a greater share of state wealth. In column (2), adding culture renders both climate and culture statistically insignificant. As in column (2) of Table 4.6, the F-test for joint exclusion of climate and culture shows that they cannot jointly be dropped from the regression.

In columns (3) and (4) of Table 4.7, we examine the relationship between initial conditions and soldier mortality. In column (3), climate and transportation are both statistically significant. States with warmer, wetter climates had higher soldier mortality, while states with greater access to water transportation had lower mortality. In column (4), when we add culture, both culture and climate are positive and statistically significant, and transportation is no longer significant. Given that culture is unlikely to have been related at this stage to the disease environment, we interpret the significance of culture as indicating that climate had a nonlinear effect on soldier mortality.

Table 4.7 here.

It is worth explicitly noting that the four measures we examined in Tables 4.6 and 4.7 – occupational homogeneity of the state elite and state median, state wealth inequality state mortality as measured by soldier mortality – exhibited quite different relationships with state initial conditions. This is consistent with the correlations that we observed among the variables. The fact that these variables exhibited different relationships to state initial conditions and are relatively uncorrelated is extremely useful, because it will make it possible to test which of them is the likely mechanism through which state initial conditions acted on state political competition.

Political Competition

One thing we have been relatively silent on is the mapping from the occupational homogeneity of the elite to political competition. We hypothesize that different occupational groups supported different parties and that, for example, most of the agricultural elite supported one party while remaining elements of the elite supported the other party. The occupational homogeneity of the elite might have little or nothing to do with observed political competition if other divisions occurred. For example, all of the elite may have supported one party while all other voters supported another. Or the elite occupational groups may have each divided equally between the two parties. Then

Is there historical evidence that different elite occupational groups supported different parties? Historical evidence suggests that elite occupations played a role in politics. In his study of revolutionary Philadelphia, Doerflinger (1986) writes:

> The destruction of traditional [British] political elites, the upsurge in popular political participation, and the emergence of divisive economic issues during the war had eroded the values of mixed government and converted occupational groups into organized, articulate political factions … The recasting of political participation along occupational lines was remarked on by contemporaries and seemed to be a fundamental trait of modern republics. As James Madison observed in Federalist 10, "The most common and durable source of factions has been the various and unequal distribution of property … A landed interest, a manufacturing interest, a mercantile interest, a moneyed interest, with many lesser interests, grow up of necessity in civilized nations, and divide them into different classes, actuated by different sentiments and views."[26]

Both Dalzell (1987) and Pessen (1973) discuss the political activities of the elite merchants they study. These merchants on average tended to be Whigs. Goodman (1986) writes, "Central to any understanding of Rhode Island Politics in the Jacksonian era was polarization between the northern industrial towns, with Providence at the center, which favored the Whigs, and the rural towns in southern Rhode Island, which favored the

[26] Doerflinger (1986), p. 276. See also Benson (1955, 1960, 1961), Campbell (1980), Wilentz (1982).

Democrats and had dominated the state owing to an antiquated colonial charter that favored the landholders."[27] Thus, political competition within the elite ran along occupational lines in some times and places.[28]

Contemporary evidence also suggests that occupation and wealth or income play a role in party affiliation.[29] For example, Day and Hadley (2001) find important occupational differences among donors to Democratic and Republican political action committees devoted to the election of women. Further, Hout, Brooks and Manza (1995) find changes in the voting behavior of six occupational groups over the period 1948-1992. They find, for example, that managers' party affiliations remained relatively constant and Republican, while professionals' party affiliations shifted rapidly from Republican to Democratic over time.

Occupational Homogeneity of Elite and Political Competition

In this section we document that the occupational homogeneity of the state elite in 1860 is strongly related to the evolution of the state Ranney index during 1866-2000. We then test our hypothesis against the three alternative hypotheses. Because of data limitations, in most instances we are only able to test the hypotheses using data for 28 states.

One question is whether the patterns we found in Chapter 3 hold when we restrict the sample to 28 rather than 48 states. To address this issue, in columns (1) and (2) of

[27] Goodman (1986), p. 44.
[28] Formisano (1994) also writes on p. 474 "Economic and political elites at the local, regional, or national level were not always united and self-conscious about their goals, but on balance they were distinctively more conscious and cohesive in pursuit of their goals than artisans, workers, and laborers."
[29] Although most of the emphasis in the voting literature has been on income to the exclusion of occupation, a few studies examine occupation.

Table 4.8 we run the baseline specification from Chapter 3 on the relationship between initial conditions and the Ranney index for the full sample of 48 states and for our subsample of 28 states. The results at the bottom of the table on joint exclusions provide evidence that the same state initial conditions are relevant in both samples. In both samples we reject the null hypothesis that the climate variables can be jointly excluded at the 1-percent level. We also reject the null hypothesis that the transportation variable can be jointly excluded at the 1-percent level. We fail to reject the null hypothesis that civil law can be jointly excluded in both cases. And, while culture is marginally significant in the full sample, we fail to reject the null hypothesis that culture can be excluded in the subsample. The final result is that in both the full sample and sub-sample, a state's climate and access to water transportation are strongly associated with the evolution of the state's Ranney index. The state's legal origins and culture are less strongly associated with its evolution.

Table 4.8 here.

In addition to being jointly significant in both samples, the effects of climate and transportation are of similar magnitude in the full sample and in the sub-sample. In the two samples in 1866, the point estimates for the influence of climate are very close. The sum of the effects of climate and culture in 1866 and the point estimates for the influence of transportation are also very close. Further, the marginal influence of climate on the change in the Ranney index has the same sign and is of similar magnitude during the sample periods 1866-1896, 1896-1960 and 1960-2000. The marginal influence of

transportation on the change in the Ranney index also has the same sign and is of similar size during the three sample periods.

In Table 4.9, we estimate the same baseline model used in Table 4.8, but we now replace the full set of initial conditions with one of these four variables from the antebellum period. Results regarding the influence of HHI of the elite in 1860, the HHI of the median in 1860, wealth share of elites in 1860 and soldier mortality during 1829-1854 are reported in columns (1), (2), (3) and (4) respectively. The main point we take from these columns is that, as measured by R-squared, HHI of the elite is a much better predictor of the future evolution of political competition than the other three variables. The R-squared on HHI of the elite is 0.481. The next best variable in terms of fit is soldier mortality, which has an R-squared of 0.318.[30] HHI of the median and the wealth shares of the elite provide noticeably poorer fits with R-squares of 0.224 and 0.209. It is worth pointing out that HHI of the elite is not only a better predictor of the future evolution of political competition than the other three variables. It is also almost as good a predictor as the four initial conditions in column (2) of Table 4.8. The R-squared of HHI of the elite is 0.481, while the R-squared for the four initial conditions is 0.510.

Table 4.9 here.

One question in the literature has been the extent to which initial conditions have persistently influenced institutions. The time-varying point estimates in Table 4.10 (constructed from the results in Table 4.9) show that HHI of the elite and soldier

[30] The results are qualitatively similar if we use soldier mortality for 48 states, although the fit for the full sample is marginally poorer, as measured by R-squared, than for the subsample.

mortality – the two variables with the best fit in Table 4.9 – appear to have influenced the Ranney index over the entirety of the period that we study. The effect of both variables is approximately constant over the period 1866-1960. The point estimate of the magnitude of the effect of HHI of the elite falls from -20.20 to -11.17 between 1960 and 2000. The point estimate of the magnitude of the effect of soldier mortality reaches its peak in 2000, after rising from -11.75 in 1960 to -13.34 in 2000. It is also notable that the effects of the wealth distribution are never significant and are positive in 1880, 1920 and 1960. We will return to this point later.

Table 4.10 here.

One other thing to note with respect to Table 4.9 is that the effects of soldier mortality are qualitatively the same in columns (4) and (5), which use data from 28 and 48 states. This supports our finding in Table 4.8 that the effects of the initial conditions were qualitatively similar for the 28 and 48 state samples.

To provide further evidence for occupational homogeneity of the elite hypothesis, we report results in Table 4.11 from a "horse-race" between HHI of the elite and the other three variables. Column (1) reports how HHI of the elite performs alongside HHI of the median. Columns (2) and (3) report how HHI of the elite functions against the wealth share of elites and soldier mortality. We will begin by discussing the results for HHI of the elite and then discuss the results for the other three variables. The inclusion of other variables with HHI of the elite tends to increase the R-squares by a small amount – from 0.481 in column (1) of Table 4.9 to 0.509-0.512 in columns (1)-(3) of Table 4.11 –

relative to the specification that uses HHI of the elite alone. Further, in each of the three sample periods in each column in Table 4.11, the point estimates and significance levels for HHI of the elite and HHI of the elite*t_i are very close to the point estimates in Table 4.9 column (1), where the influence of HHI of the elite was estimated by itself. Thus, the influence of HHI of the elite is similar whether or not we control for one of these three plausible historical determinants of politics. Finally, the test statistics for joint exclusions at the bottom of Table 4.11 always reject the null hypothesis that the HHI of the elite variables can be excluded at the 1-percent level. Thus, HHI of the elite is critical even when we account for three plausible alternative explanations and the influence of HHI of the elite is very similar, if we control for any of these three historical variables or we exclude them.

Table 4.11 here.

The HHI of the median in 1860 captures the possible importance of the occupational characteristics of the median voter. In column (1), we evaluate whether this measure has greater explanatory power than the HHI of the elite. Although the improvement in the R-squared relative to using HHI of the elite alone is fairly small, the F-test indicates that the HHI of the median cannot be excluded. Consistent with this, the time interaction effects for HHI of the median are all statistically significant. The effects of the HHI of the elite and the HHI of the median on the Ranney index are plotted in Figure 4.1. Not surprisingly, the negative effect of the HHI of the elite is larger in absolute terms than the positive effect of the HHI of the median.

Figure 4.1 here.

In column (2) we evaluate whether the wealth shares of the elite in 1860, the variable hypothesized by Engerman and Sokoloff to be critical, has explanatory power in this context in addition to the HHI of the elite. Although the improvement in the R-squared relative to using HHI of the elite alone is fairly small, the F-test indicates that the wealth shares of the elite cannot be excluded. Consistent with this, two of the three time interaction effects for wealth shares of the elite are statistically significant. The effects of the HHI of the elite and the wealth share of the elite on the Ranney index are plotted in Figure 4.2.

Figure 4.2 here.

The positive effect of the wealth share of the elite on the Ranney index in Figure 4.2 runs counter to the Engerman and Sokoloff hypothesis. Recall that the Engerman and Sokoloff hypothesis predicts a strong negative association between wealth shares of elites and the quality of political institutions as proxied by political competition. They argue that, as their shares of wealth increase, the elites are better able to use political institutions to further their narrow interests, often at the expense of social welfare. Our concern is that the small sample of states or the measure of wealth that we use may drive our finding. We will consider alternative measures later in this discussion.

In column (3) we evaluate whether, in addition to the HHI of the elite, soldier mortality, the variable hypothesized to be critical by Acemoglu, Johnson and Robinson (2001), has explanatory power in this context. Here the improvement in the R-squared is small, and the F-test indicates that soldier mortality can be excluded. These results suggest that much of the explanatory power of soldier mortality in Table 4.9 was probably a result of its correlation with HHI of the elite.

Next, we further explore the Engerman and Sokoloff hypothesis that initial wealth distributions influence the quality of subsequent political institutions through their persistent influence on the distribution of wealth. Ideally, we would investigate this by examining the evolution of wealth distribution. Because state-level wealth distribution data is not available, we use the data from Sommeiller (2006) on state-level income distributions during 1913-2003 as a proxy for wealth. In column (1) of Table 4.12, we regress the share of state income held by households in the top 1 percent of the state income distribution during 1913-2000 on HHI of the elite and wealth shares of elites in 1860. If Engerman and Sokoloff are correct in asserting that initial elite wealth concentrations are indeed persistent, then the wealth share of elites in 1860 should be a powerful predictor of elite income shares during 1913-2000.

Table 4.12 here.

Column (1) suggests that the influence of initial elite wealth shares on the evolution of state income distribution is strong and highly persistent for the 28 states we examine. In 1913 a one-standard-deviation increase in elite wealth shares in 1860 was

associated with a 0.55 percentage point increase in the income shares held by the top 1 percent. The influence of elite wealth shares and HHI of the elite during 1913-2000 is illustrated in Figure 4.3. The influence of elite wealth shares in 1860 increases after 1913, and reaches almost 0.70 percentage points in 1960. Then it gradually declines after 1960, reaching 0.47 percentage points in 2000.

Figure 4.3 here.

Column (1) and Figure 4.3 show that the effect of the HHI of the elite was also highly persistent and grew over time. States with more occupationally diverse elites in 1860 had elites with lower income shares, particularly during the latter half of the twentieth century.

In column (2) we estimate how HHI of the elite, wealth share of elites in 1860, and contemporaneous income shares of the top one percent of the state income distribution influence political competition over the same period. Even though initial elite wealth shares have a persistent influence of income shares of elites, column (2) shows that contemporaneous income shares of the top 1 percent are positively associated with political competition, which is the opposite of what the Engerman and Sokoloff theory would predict. Figure 4.4 shows that the occupational homogeneity of elites in 1860 had a persistent and large negative influence on political competition. The influence of elite wealth shares in 1860, while negative, is typically much weaker. This is additional evidence that the occupational homogeneity of elites in 1860 is a more powerful predictor

of political competition than initial elite wealth distributions in the case of the American states.

Figure 4.4 here.

Conclusion

In this chapter, we had three goals. The first goal was to construct for the antebellum period measures of occupational homogeneity of the state economic elite and the state economic median. We also wanted to construct a measure for the wealth shares of the state economic elite and provide data on soldier mortality. Each of these measures represents a different hypothesis regarding the mechanism through which state initial conditions have influenced state political competition. We constructed the first three measures using data from the 1860 Census of Population. The fourth measure – soldier mortality for 1829 to 1854 – was taken from Mitchener and McLean (2003).

The second goal was to present evidence on the relationship between state initial conditions and these four measures. We showed that the four measures are relatively uncorrelated. Moreover, we demonstrated that the relationships between these four measures and state initial conditions are very different. This finding was important because it made it feasible to distinguish among the four hypothesized mechanisms.

The third goal was to demonstrate that the occupational homogeneity of the state economic elite is a much more powerful predictor of the evolution of political competition in state legislatures during 1866-2000 than the occupational homogeneity of the median, the wealth shares of the elite, or soldier mortality. Indeed, its predictive

ability was quite close to the predictive ability of the initial conditions. Consistent with our hypothesis, the results showed that states with greater occupational homogeneity of the elite in 1860 had lower levels of state political competition from 1866-2000. The magnitude of the negative effect was substantial and roughly constant from 1866 to 1960. It then declined. However, it remained negative in 2000. When occupational homogeneity of the elite was used in combination with the other three measures to predict the Ranney index, we found that in two cases – occupational homogeneity of the median and share wealth of the elite – the effects of other measures were also statistically significant. However, their inclusion only marginally increased the fit, and their predicted effect was small. In the third case, when soldier mortality was combined with the HHI of the elite, the effects of soldier mortality on the Ranney index were no longer statistically significant.

Thus, the available evidence supports our hypothesis that the mechanism through which initial conditions acted on political competition was the occupational homogeneity of the elite. As we noted in the introduction, there are a number of important caveats. The most important caution is that we only have data for 28 states. However, the consistency of the relationships between initial conditions and the Ranney index for the full set of 48 states and our sub-sample of 28 states suggests that our results for 28 states are likely to hold more broadly. The fact that we find similar relationships between soldier mortality and the Ranney index for the full set of 48 states and our sub-sample of 28 states also supports this view.

Table 4.1: State Wealth Distribution in Four Regions for Men ages 21+ in 1860

Percentile Wealth Distribution	Common North	Civil North	Common South	Civil South
	Wealth			
Share wealth held by elite	0.24	0.23	0.27	0.30
Share wealth held by median	0.04	0.05	0.02	0.02
	Occupation			
Share elite Farmers	0.36	0.49	0.74	0.85
Share elite Managers, officials, and proprietors	0.26	0.42	0.11	0.07
Occupational concentration (HHI) of elite	0.43	0.39	0.62	0.74
Share median Farmers	0.28	0.42	0.60	0.57
Share median Managers, officials, and proprietors	0.03	0.03	0.02	0.03
Occupational concentration (HHI) of median	0.64	0.58	0.52	0.57
Number of states	13	5	5	5

Notes: Calculations based on the IPUMs public use sample of the 1860 census of population. The Common North includes Connecticut, Iowa, Kentucky, Ohio, Pennsylvania, Maine, Maryland, Massachusetts, New Jersey, New Hampshire, New York, Vermont and Wisconsin. The Common South includes Georgia, North Carolina, Tennessee, and Virginia. The Civil South includes Alabama, Arkansas, Louisiana, Mississippi, and Texas. The Civil North includes California Illinois, Indiana, Michigan, and Missouri.

Table 4.2: Distribution of Elite Occupations

Occupation	Number	Share
Farmers (owners and tenants)	302	0.435
Managers, officials, and proprietors (nec)	200	0.288
Other non-occupational response	36	0.052
Lawyers and judges	32	0.046
Physicians and surgeons	19	0.027
Operative and kindred workers (nec)	11	0.016

Notes: All occupations as coded by IPUMs with at least 10 individuals in the elite are listed. Nec is short for not otherwise classified. There are 695 individuals in the sample. All individuals were white men and all were in the top 1 percent *of their own state*.

Table 4.3: Distribution of Median Occupations

Occupation	Number	Share
Farmers (owners and tenants)	4,732	0.366
Laborers (nec)	1,648	0.127
Farm laborers, wage workers	786	0.061
Carpenters	716	0.055
Operative and kindred workers (nec)	530	0.041
Shoemakers and repairers, except factory	429	0.033
Managers, officials, and proprietors (nec)	404	0.031
Other non-occupation	360	0.028
Blacksmiths	303	0.023
Craftsmen and kindred workers (nec)	204	0.016

Notes: All occupations as coded by IPUMs with at least 200 individuals in the median are listed. Nec is short for not otherwise classified. There are 12,926 individuals in the sample.

Table 4.4: Wealth of State Legislators in the Upper and Lower South

State	Median Wealth of Legislator in 1860	90th Percentile of Wealth Distribution in 1860	95th Percentile of Wealth Distribution in 1860	99th Percentile of Wealth Distribution in 1860
Alabama, House & Senate	21,000 (H) 58,500 (S)	13,370	27,000	86,000
Arkansas, House & Senate	9,000 (H) 18,000 (S)	6,000	13,900	80,000
Florida, House & Senate	9,000 (H) 52,000 (S)	7,400	14,500	44,000
Georgia, House & Senate	13,000 (H) 21,000 (S)	8,500	18,360	62,000
Kentucky, House & Senate	9,250 (H) 12,000 (S)	6,000	11,010	38,000
Louisiana, House & Senate	18,000 (H) 35,839 (S)	10,000	25,000	191,130
Maryland, House & Senate	11,250 (H) 33,150 (S)	6,000	14,000	40,870
Mississippi, House & Senate	22,000 (H) 27,500 (S)	19,270	37,000	103,000
Missouri, House & Senate	8,300 (H) NA (S)	4,750	8,460	30,000
North Carolina, House & Senate	17,000 (H) 31,000 (S)	6,800	16,000	54,300
South Carolina, House & Senate	32,000 (H) 70,000 (S)	20,000	33,300	110,000
Tennessee, House & Senate	14,000 (H) 11,500 (S)	8,000	16,030	50,960
Texas, House & Senate	18,600 (H) 25,000 (S)	9,600	16,630	62,000
Virginia, House & Senate	17,000 (H) 35,000 (S)	11,460	21,500	72,600

Notes: Data for the Upper South are from Wooster (1975) Table 6 (p. 35) and Table 8 (p. 38). Data for the Lower South are from Wooster (1969) Table 4 (p. 39) and Table 5 (p. 40).

Table 4.5: Correlations

	HHI Elite	HHI Median	Elite Share of Wealth	Soldier Mortality
Climate	0.56	0.02	0.42	0.74
Culture	0.54	-0.11	0.38	0.81
Transportation	-0.56	0.54	0.26	-0.32
Civil	0.21	-0.07	0.11	0.44

Table 4.6: Initial Conditions and Occupational Homogeneity in 1860

Dependent Variable	HHI elite	HHI elite	HHI median	HHI median
	(1)	(2)	(3)	(4)
Climate	0.554***	0.539	0.187	0.333
	(0.19)	(0.32)	(0.24)	(0.28)
Transportation	-0.602***	-0.598***	0.724***	0.692***
	(0.19)	(0.20)	(0.18)	(0.19)
Civil	-0.076	-0.075	-0.079	-0.090
	(0.33)	(0.34)	(0.49)	(0.49)
Culture		0.016		-0.155
		(0.27)		(0.22)
Constant	-0.0386	-0.037	-0.281	-0.295
	(0.20)	(0.21)	(0.21)	(0.21)
Observations	28	28	28	28
R-squared	0.53	0.53	0.31	0.32
Joint Exclusions	p-value for F-test			
Climate = 0, Culture = 0		0.03		0.50

Notes: Standard errors are corrected for heteroskedasticity: and, the notation *, **, and *** denotes statistical significance at the 10-percent, 5-percent, and 1-percent levels.

Table 4.7: Initial Conditions, Wealth in 1860, and Mortality

Dependent variable	Elite Wealth	Elite Wealth	Soldier Mortality	Soldier Mortality
	(1)	(2)	(3)	(4)
Climate	0.580**	0.290	0.769***	0.289**
	(0.27)	(0.56)	(0.094)	(0.13)
Transportation	0.465**	0.528***	-0.243***	-0.0932
	(0.20)	(0.17)	(0.086)	(0.087)
Civil	-0.005	0.014	0.339	0.314
	(0.40)	(0.40)	(0.26)	(0.26)
Culture		0.308		0.537***
		(0.34)		(0.14)
Constant	-0.407*	-0.379*	-0.0926	-0.0854
	(0.21)	(0.21)	(0.11)	(0.096)
Observations	28	28	48	48
R-squared	0.30	0.33	0.63	0.71
Joints Exclusions	p-value for F-test			
Climate = 0, Culture = 0		0.01		0.00

Notes: Standard errors are corrected for heteroskedasticity: and, the notation *, **, and *** denotes statistical significance at the 10-percent, 5-percent, and 1-percent levels.

Table 4.8: Initial Conditions and Political Competition with Structural Breaks

Dependent Variable	Ranney Index, 1866-2000	
Column	(1)	(2)
Sample	Full set of 48 States	Subsample of 28 States
Climate	-20.80***	-18.72***
	(4.11)	(6.73)
Climate*t_1	0.102	0.224
	(0.169)	(0.156)
Climate*t_2	-0.200**	-0.212**
	(0.076)	(0.089)
Climate* t_3	0.453**	0.068
	(0.213)	(0.166)
Civil	2.33	2.62
	(7.37)	(9.57)
Civil* t_1	0.461**	0.168
	(0.205)	(0.193)
Civil* t_2	-0.090	0.076
	(0.114)	(0.092)
Civil* t_3	0.092	-0.057
	(0.223)	(0.276)
Transportation	7.90***	9.94**
	(2.80)	(4.00)
Transportation* t_1	0.214*	0.152*
	(0.127)	(0.079)
Transportation* t_2	0.179***	0.118**
	(0.057)	(0.055)
Transportation* t_3	-0.191	-0.466***
	(0.114)	(0.119)
Culture	5.47	1.88
	(3.59)	(5.40)
Culture* t_1	0.094	-0.012
	(0.175)	(0.143)
Culture* t_2	0.088	0.093
	(0.064)	(0.072)
Culture* t_3	-0.377**	-0.219
	(0.178)	(0.161)
Observations	3795	2334
R-squared	0.395	0.510
Joint Exclusions	P-values for F-statistic	
Climate=0, Climate*t_i=0 (all periods)	0.000	0.000
Civil=0, Civil*t_i=0	0.135	0.592
Transportation=0, Transportation*t_i=0	0.000	0.000

Culture=0, Culture*t_i=0	0.064	0.499

Notes: The model controls for annual national time effects. Standard errors are corrected for heteroskedasticity and are clustered at the state level, and, *, ** and *** denotes significance at the 10-percent, 5-percent and 1-percent levels.

Table 4.9: Mechanisms and Political Competition with Structural Breaks

Dependent Variable	Ranney Index, 1866-2000				
Column	(1)	(2)	(3)	(4)	(5)
Sample	Subsample	Subsample	Subsample	Subsample	Full Sample
Independent Variable (I. Var.)	HHI-elite, 1860	HHI-median, 1860	Wealth Shares of Elite, 1860	Soldier Mortality, 1829-54	Soldier Mortality, 1829-54
I. Var.	-19.18*** (2.47)	3.72 (3.76)	-1.40 (4.95)	-10.13*** (3.54)	-8.51*** (3.05)
I. Var.*Δyear; 1866-1895	0.077 (0.091)	0.109 (0.064)	0.199** (0.092)	0.044 (0.081)	0.155 (0.095)
I. Var.*Δyear; 1896-1959	-0.052 (0.036)	0.135** (0.066)	0.041 (0.054)	-0.046 (0.068)	-0.063 (0.062)
I. Var.*Δyear; 1960-2000	0.226 (0.134)	-0.319*** (0.105)	-0.268** (0.113)	-0.040 (0.102)	-0.001 (0.088)
Observations	2334	2334	2334	2334	3795
R-squared	0.481	0.224	0.209	0.318	0.246
Joint Exclusions	P-values for F-statistics				
I.Var.=0, Δyear*I.Var=0	0.000	0.000	0.003	0.026	0.035

Notes: The model controls for annual national time effects. Standard errors are corrected for heteroskedasticity and are clustered at the state level, and, *, ** and *** denotes significance at the 10-percent, 5-percent and 1-percent levels.

Table 4.10: Time Varying Effects from Table 4.9

Year	HHI of the elite, 1860	HHI of the median, 1860	Wealth Shares of Elites, 1860	Soldier Mortality, 1829-54
Column in Table 4.9	(1)	(2)	(3)	(4)
1866	-19.18*** (2.47)	3.72 (3.76)	-1.40 (4.95)	-10.13*** (3.54)
1880	-18.10*** (2.55)	5.25 (3.44)	1.39 (4.73)	-9.51** (3.33)
1920	-18.11*** (3.65)	10.24*** (3.12)	5.55 (5.30)	-9.91** (4.07)
1960	-20.20*** (4.55)	15.64*** (4.30)	7.18 (6.49)	-11.75* (5.93)
2000	-11.17* (5.82)	2.89 (5.97)	-3.55 (6.66)	-13.34** (5.24)

Table 4.11: Horse Race of Mechanisms and Political Competition with Structural Breaks

Dependent Variable	Ranney Index, 1866-2000		
Column	(1)	(2)	(3)
Independent Variable (I. Var.) along with HHI of the elite	HHI of the median, 1860	Wealth Shares of Elites, 1860	Soldier Mortality, 1829-54
I. Var.	-0.070 (3.04)	-2.38 (3.55)	-3.92* (2.25)
I. Var.*t_1	0.129* (0.069)	0.176* (0.096)	0.034 (0.096)
I. Var.*t_2	0.131* (0.066)	0.051 (0.053)	-0.019 (0.067)
I. Var.*t_3	-0.276** (0.106)	-0.250** (0.099)	-0.139 (0.097)
HHI of the elite	-19.15*** (2.52)	-19.28*** (2.68)	-17.46*** (2.14)
HHI of the elite*t_1	0.107 (0.091)	0.087 (0.081)	0.071 (0.110)
HHI of the elite*t_2	-0.028 (0.032)	-0.050 (0.036)	-0.046 (0.039)
HHI of the elite*t_3	0.174 (0.122)	0.218** (0.103)	0.288** (0.130)
Observations	2334	2334	2334
R-squared	0.509	0.511	0.512
Joint Exclusions	P-values for F-statistics		
I.Var.=0, I.Var*t_i=0 (all periods)	0.001	0.007	0.125
HHI of the elite=0, HHI of the elite*t_i=0 (all periods)	0.000	0.000	0.000

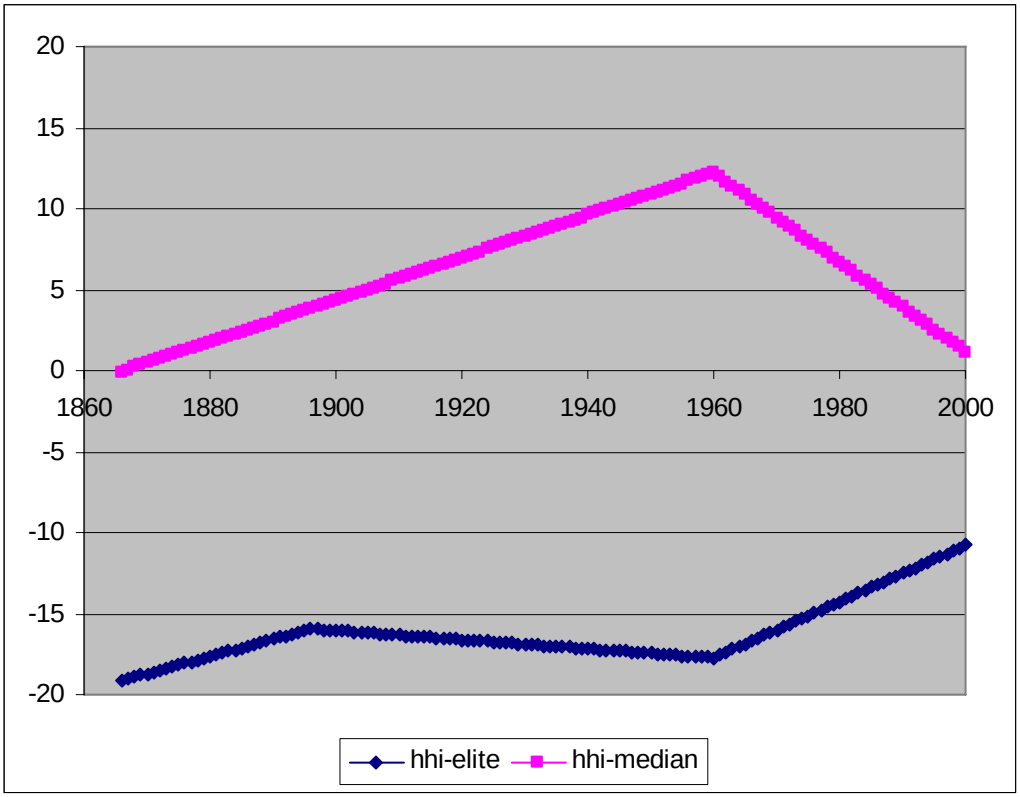
Notes: The model controls for annual national time effects. Standard errors are corrected for heteroskedasticity and are clustered at the state level, and, *, ** and *** denotes significance at the 10-percent, 5-percent and 1-percent levels.

Table 4.12: Wealth Distributions, Income Distribution and Political Competition during 1913 to 2000

Dependent Variable	Contemporary share of state income held by top 1% of income distribution	Ranney Index of Political Competition
Column	(1)	(2)
Contemporary share of state income held by top 1% of income distribution	X	2.11* (1.23)
Wealth held by top 1% of wealth distribution (elites) in 1860	0.556** (0.206)	-8.73* (4.79)
Wealth shares*t2	0.003 (0.002)	0.159*** (0.046)
Wealth shares*t3	-0.006 0.008	-0.055 (0.119)
HHI of the elite	-0.086 (0.134)	-24.94*** (4.24)
HHI of the elite*t2	-0.004** (0.002)	0.089* 0.050
HHI of the elite t3	-0.005 (0.005)	0.435*** (0.129)
Additional Controls in columns (1) and (2)	Yearly time effects	
Observations	1589	1589
R-squared	0.812	0.575
Joint Exclusions	P-values for F-statistic	
HHI of the elite = 0, HHI of the elite*ti=0	0.018	0.000
Wealth Shares= 0, Wealth Shares* ti=0	0.027	0.002

Notes: The model controls for annual national time effects. Standard errors are corrected for heteroskedasticity and are clustered at the state level, and, *, ** and *** denotes significance at the 10-percent, 5-percent and 1-percent levels.

Figure 4.1 – HHI of the Elite, HHI of the Median and the Ranney

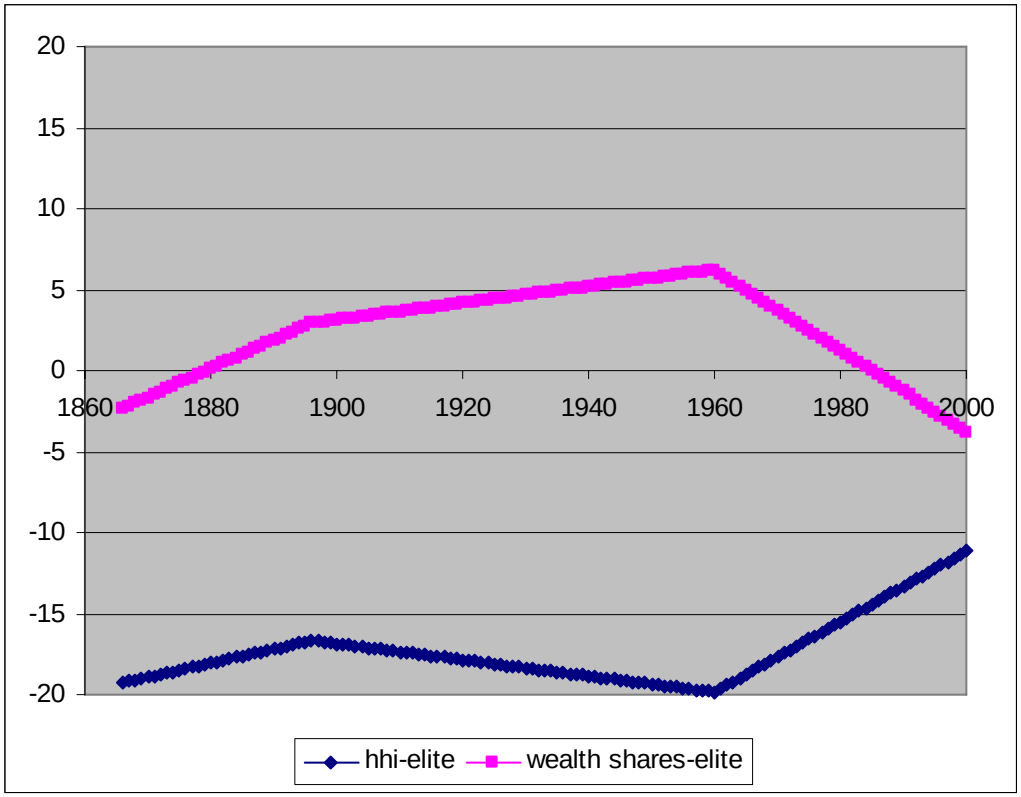


Influence of HHI of the Elite and HHI of the Median – Selected Years

Year	HHI of the Elite in 1860	HHI of the Median in 1860
1880	-17.65*** (2.50)	1.73 (2.68)
1920	-16.62*** (3.39)	6.94*** (2.22)
1960	-17.74*** (4.06)	12.20*** (3.51)
2000	-10.78* (5.88)	1.15 (5.55)

Notes: Standard errors are in parentheses. *, ** and *** denote significance at the 10-percent, 5-percent and 1-percent levels.

Figure 4.2 – HHI of the Elite, Elite Wealth Shares and the Ranney

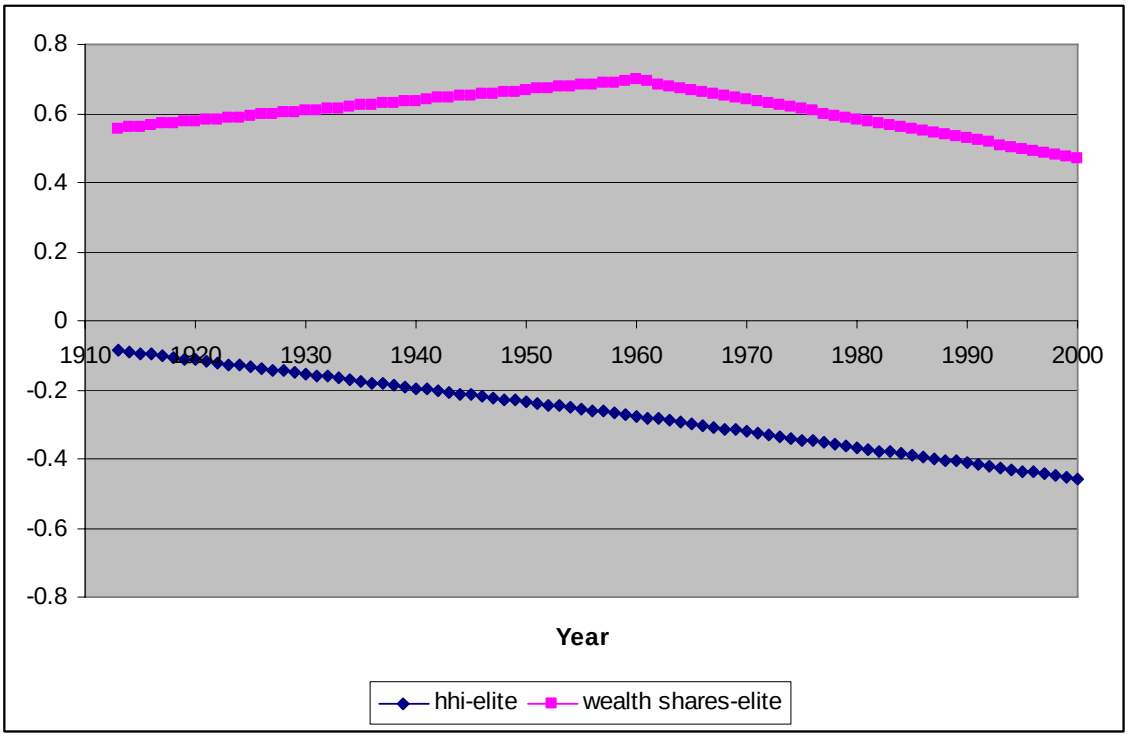


Influence of HHI of the Elite and Wealth Shares of Elite – Selected Years

Year	HHI of the Elite in 1860	Wealth Shares of Elite in 1860
1880	-18.06*** (2.58)	0.085 (2.98)
1920	-17.86*** (3.27)	4.14 (3.25)
1960	-19.86*** (4.06)	6.20 (4.52)
2000	-11.15* (5.67)	-3.79 (5.10)

Notes: Standard errors are in parentheses. *, ** and *** denote significance at the 10-percent, 5-percent and 1-percent levels.

Figure 4.3 – HHI and Wealth Shares of Elite in 1860 and Contemporaneous Income Shares of the Elite

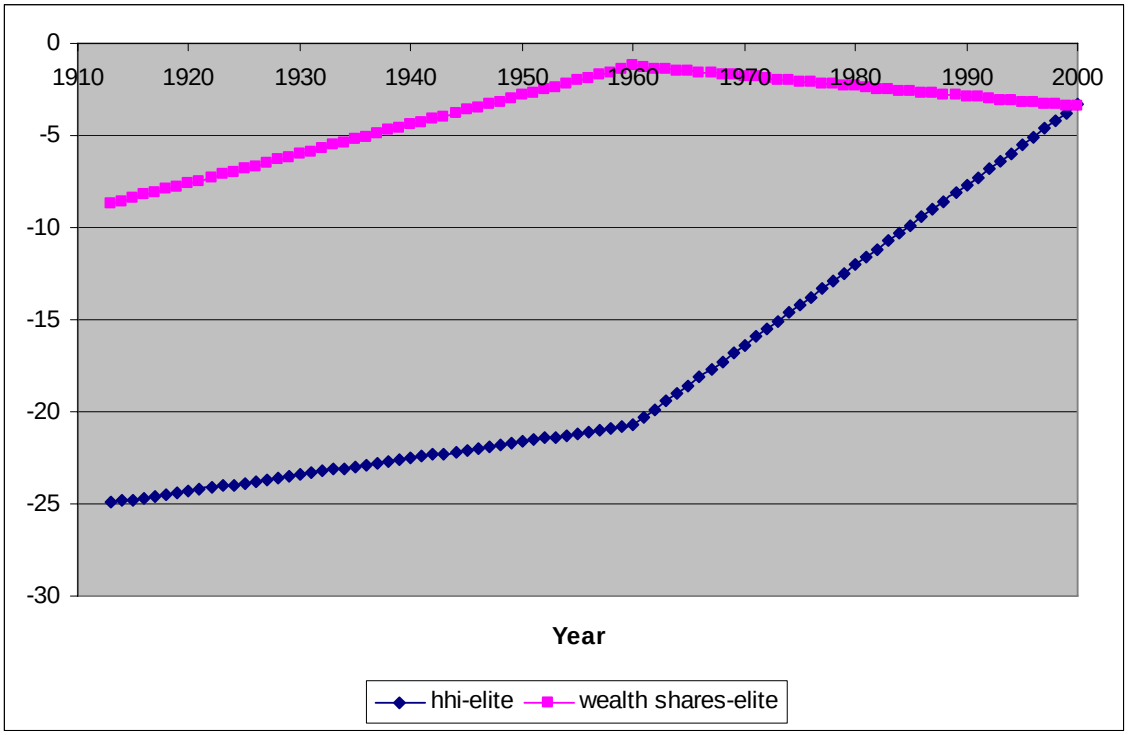


Influence of HHI of the Elite and Wealth Shares of Elite – Selected Years

Year	HHI of the Elite in 1860	Wealth Shares of Elite in 1860
1913	-0.086 (0.134)	0.556** (0.206)
1920	-0.114 (0.129)	0.557*** (0.203)
1960	-0.276*** (0.117)	0.696*** (0.214)
2000	-0.458** (0.190)	0.469 (0.308)

Notes: Standard errors are in parentheses. *, ** and *** denote significance at the 10-percent, 5-percent and 1-percent levels.

Figure 4.4 – HHI and Wealth Shares of Elite in 1860, Contemporaneous Income Shares of the Elite, and the Ranney



Influence of HHI of the Elite and Wealth Shares of Elite – Selected Years

Year	HHI of the Elite in 1860	Wealth Shares of Elite in 1860
1913	-24.94*** (4.24)	-8.73* (4.79)
1920	-23.31*** (4.01)	-7.61 (4.63)
1960	-23.73*** (3.16)	-1.25 (4.14)
2000	-3.35 (4.61)	-3.43 (2.51)

Notes: Standard errors are in parentheses. *, ** and *** denote significance at the 10-percent, 5-percent and 1-percent levels.

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