Initial Conditions and the Antebellum Economy

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Abstract

To shed new light how initial conditions might effect economies and institutions, we examine the cross sectional relationship between state-level initial conditions and outcomes in the late antebellum United States. We find that in 1860 the wealth share of the elite and the median and their occupational distributions are closely related to the average state temperature and the share of counties with access to an ocean, lake, or navigable river. Cultural factors as defined by Elazar's classification of states appear to have had an effect on the wealth shares of the elite and the median and the occupational diversity of the median. The political variables for 1840-1855 are explained by both the initial conditions and the wealth shares and occupational distribution of the elite and the median in 1860. Finally, state and local tax rates and poor and school taxes per capita appear to be driven by both by the wealth shares and occupational diversity of the elite and the median and by political variables.

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1. Introduction

Various literatures within economics have recently focused on historical initial conditions as explanatory factors for contemporary growth rates and other outcomes (see Engerman and Sokoloff (2001, 2002), La Porta et al (1997, 1998), Hall and Jones (1999), Acemgolu, Johnson and Robinson (2001) Rodrik, Subramanian and Trebbi (2004) and Acemoglu and Johnson (2006)). Their work, like our work, builds on Douglass North's path breaking work on institutions. One open question is how initial conditions affect outcomes. To better understand the link between initial conditions and outcomes, we turn to the experience of the American states and ask how initial conditions affected three dimensions of the antebellum economy – the wealth distribution, political competition, and taxation and redistribution.

2. Initial Conditions

Individual American states had two distinct types of initial conditions – geographic endowments that included soil, climate, and access to major bodies of water and cultural endowments that arose from the earliest setters. Within cultural endowments, we will examine both the legal system that was a legacy of the nation that ultimately settled the state and, more broadly, the culture of the early settlers. All of these initial conditions were largely exogenous, and we will argue that they had lasting effects on the legal and political development of the states.

It is important to be clear that we do not believe that these initial conditions were the sole determinants of the economic, political, and legal evolution of the American states. They almost certainly played important roles, but people and events mattered too. At the national level, it is difficult to know what would have happened in the absence of Hamilton, Monroe, and Jefferson. Each state had its important leaders, and it is unclear how these states would have evolved in their absence. Similarly, if Stephen Girard or Thomas Edison had been from different states or had never been born, perhaps history would have been different.

Consider one of the seminal events of the nineteenth century – the American Civil War. States that joined the Confederacy had geographic endowments that were in many ways similar. They had warm climates, with adequate rainfall, and rich soil. Their

particular endowments ensured that agricultural endeavors would be successful and that individuals living there would exploit this comparative advantage. Yet, ultimately it was people and not endowments, however much the endowments might have influenced the people, who chose to side with the Union or the Confederacy in the Civil War. Indeed, people played a particularly important role for the Confederate states that were in the second wave of secession – Virginia, North Carolina, Arkansas, and Tennessee – and in the Border States – Kentucky, Maryland, Delaware, West Virginia, and Missouri – that did not join the Confederacy.

Geographic Endowments

The forty-eight states in the Continental United States received geographic endowments that differed on many dimensions. The regions' agricultural production reflects their endowments. New England produced hay, but relatively little corn or wheat and no cotton, reflecting the relatively poor quality of the soil and the cold climate. New England also had the lowest agricultural output per capita.[1] The more fertile Mid-Atlantic produced hay and wheat. The East North Central and more recently settled West North Central produced corn, wheat, and to a lesser degree hay. Only parts of the South Atlantic, East South Central, and West South Central had warm enough climates and the requisite number of frost free days necessary for cotton production. The more recently settled East and West South Central also had relatively higher agricultural output per capita, as settlement had occurred in richer agricultural areas first.

A related dimension on which the states differed that has received considerable attention in the academic literature is the mortality rate. Mortality is related to the geographic endowment, because of its close relationship to both temperature and precipitation. Colonial mortality statistics are only available in scattered locations and for a few time periods. Although we will rely on later statistics to examine mortality, mortality played an important role in colonial development. Gloria Main (1982) describes the importance of mortality in her book on colonial Maryland:

[1] The census regions encompass the following states: New England (Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island), Mid-Atlantic (New York, New Jersey, and Pennsylvania), East North Central (Illinois, Indiana, Michigan, Ohio, and Wisconsin), West North Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota), South Atlantic (Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia), East South Central (Alabama, Kentucky, Mississippi, and Tennessee), West South Central (Arkansas, Louisiana, Oklahoma, and Texas)

> New England, for instance, had received within the single decade of the 1630s an infusion of some twenty thousand immigrants and almost none thereafter. Yet by the year 1700, the region could claim a total white population almost four times the size of its initial immigration. In the Chesapeake, by contrast, over a hundred thousand arrived during the century, but fewer than seventy thousand whites were living there at its close. This extraordinary discrepancy between the demographic experiences of the two regions can be explained by two factors: age at first marriage for women and the difference in mortality of adults.[2]

She notes that the average age at death in the Chesapeake was roughly forty for immigrants and fifty for the native born, whereas it was close to sixty in New England.

The mortality rates from the 1860 census and soldier mortality rates spanning 1829-1854 present a story that is consistent with the colonial evidence. Mortality rates were roughly twice as high in the southern census regions – the South Atlantic, the East South Central and the West South Central – as they were in the northern census regions. These mortality rates are likely to reflect the endemic mortality rates in the state, since few locations had water and sewer treatment, and a relatively small fraction of the population was urban. 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.

In addition to climate, soil, and mortality, states differed in their access to navigable rivers, lakes, and oceans. These initial conditions affected antebellum trade, because water was still the most economical form of transportation. Important strides had been made in roads, canals, and railroads, but these alternatives had emerged in the 1820s and 1830s and had not yet reached their peak. In fact, much of the revolution in transportation during the antebellum period was in river and ocean transport, as steam engines began to power boats. The Mid Atlantic had the highest percentage of counties – 88 percent – with access to water transportation. Most census regions fell in between, with 34-64 percent of the counties having access to water transport. At the bottom were the West North Central and Mountain & Pacific regions in which 13 and 16 percent of counties had access to water transport.

[2] Main (1982), pp. 11-12.

Cultural Endowments

We examine two distinct types of cultural endowments. The first is the legal endowment. The legal endowment is determined by whether a state was initially settled by a country with a civil law legal system such as France, Spain, or Mexico or a country with a common law legal system such as England or the United States. The legal endowment is a very narrow measure of culture, because it compares the relatively small number of states that had civil law legal systems to the large number of states that had common law from inception. We present a second broader measure of the culture of early settlers.

In Berkowitz and Clay (2006) we discuss state legal endowments in detail. In Table 1 we present information on the number of years that states had civil law. All of the states except Louisiana adopted common law around the time of statehood. Based on the information in Table 1 and supporting historical evidence, we define thirteen states – Alabama, Arizona, Arkansas, California, Florida, Illinois, Indiana, Louisiana, Michigan, Mississippi, Missouri, New Mexico, and Texas – as civil law states. The remaining thirty-five states in the continental United States are classified as common law states.

Many scholars have argued that the nationality of people who initially settled particular states was important, because of the effects of specific cultures on the evolution of the economy and political institutions. We are clearly sympathetic to this view in that we argue the original effects of having a civil law legal system have persisted. For example, we believe that the channels through which the effect of civil law may have persisted include the law, judges, attitudes of the state legislature towards the judiciary, and popular norms about the law and judges. Both norms and attitudes about government can be considered cultural.

One criticism of the focus on civil law is that it is too narrow. The cultural composition of early settlers might be an initial condition in its own right. This raises two questions: First, could culture be as important as, or possibly even more important than, the geographic endowment in determining economic, political and legal outcomes? Second, is any effect that we find of the legal endowment really just picking up broader effects of French or Spanish culture or their Catholic religious beliefs? Neither question can be answered conclusively. Below we offer some thoughts on both.

Could culture be as important as, or possibly even more important than, the geographic endowment in determining economic, political and legal outcomes? The available evidence suggests that geographic endowment is important in the sense that has explanatory power even when we control for culture. For example, in the cross country literature, measures of geographic endowment such as settler mortality or latitude are uniformly significant, even when authors control for country of settlement or legal origin.[3] These results suggest that both geography and culture play important roles in the development of economies.

Is any effect that we find of the legal endowment really just picking up broader effects of French or Spanish culture or their Catholic religious beliefs? There is an emerging literature on the importance of culture for economic outcomes.[4] The problem in the antebellum era is how to quantify culture. Is it ethnic background, religion, or are other factors important? Even if we could quantify culture, one question is whose cultural background matters. Is it the cultural background of the first small band of settlers, the cultural background at the time of the revolution, or the cultural background today? Is it the cultural background of the largest ethnic group in the state or might other cultural backgrounds matter too?

As the foregoing questions imply, the set of all possible cultural classifications is large. For the sake of parsimony, we examine Elazar's classification of culture, which has been widely used in the political science literature.[5] Elazar calls his variable political culture, because he is interested in using it to explain differences in political systems. His classification is, however, based on the culture and religion of early settlers as well as later migration streams, and so can be interpreted as measuring culture more broadly. His classifications are quite fine – including eight main categories – but they can be consolidated into three categories that correspond loosely to a northern strip (17 states), a middle strip (17

[3] See Acemoglu, Johnson and Robinson (2001), table 5.
[4] For a survey of this work, see Guiso, Sapienza, and Zingales (2006).
[5] Elazar p. 117 of American Federalism. Other competing classifications exist, but as Lieske (1993) notes, only Elazar's classification has been widely used empirically. One drawback of Elazar's classification is that it in principle could change over time. Indeed, he constructed it to explain the political behavior of states in the mid twentieth century. The point, however, was to capture fundamental, persistent differences rooted in culture. So his classification may not have been substantially different earlier. Berman (1988) presents evidence that Elazar's classifications have explanatory power in the progressive era.

states), and a southern strip (16 states). He labels these as moralistic, individualistic, and traditionalistic.[6] We show the location of these states in Figure 1

3. Initial Conditions and the Antebellum Wealth Distribution

Ideally one would be able to begin the investigation in the colonial period and follow colonies – later states – up to 1860. We have, however, relatively little information on residents, much less about their wealth, prior to the first modern census in 1850. The 1850-1870 censuses of population were unique among censuses in that they collected information on wealth. In 1850 the census only asked about real estate wealth, whereas in 1860 and 1870, the census asked about both real estate and personal property. We will use the more complete 1860 data.

In the 1860 Census of Population, individuals were asked to report the gross values of their real and personal estate. The instructions to the enumerators regarding real estate were as follows: "You are to obtain this information by personal inquiry of each head of a family, and are to insert the amount in dollars, be the estate located where it may. You are not to consider any question of lien or encumbrance – it is simply your duty to enter the value as given by the respondent." The instructions regarding personal estate were: "Here you are to include the value of all the property, possessions, or wealth of each individual which is not embraced in the column previous, consist of what it may; the value of bonds, mortgages, notes, slaves, live stock, plate, jewels, or furniture; in fine, the value of whatever constitutes the personal wealth of individuals. Exact accuracy may not be arrived at, but all persons should be encouraged to give a near and prompt estimate for your information. Should any respondent manifest hesitation or unwillingness to make a free reply on this or any other subject, you will direct attention to Nos. 6 and 13 of your general instructions and the 15th section of the law."

Although taken together the sum of the real and personal estate represent assets and not net worth, we will refer to the sum of the two as an individual's wealth. Whether these estimates are accurate or not is difficult to tell. The aggregate numbers reported in

[6] We don't expand our four part classification of states to include Elazar's political culture classification directly in for two reasons. First, Elazar's tripartite classification would add considerable complexity to what are meant to be simple descriptive categories. Second, Elazar's traditionalistic category includes the eleven members of the Confederacy and five adjacent states. Thus, it is largely captured by the North (Union) - South (Confederacy) classification.

1860 by county are higher than the aggregate assessed values used for tax purposes, which the Census collected by county for comparison purposes. This seems reasonable given that assessed values of real estate are often lower than market values and that all elements of the personal estate may not have been taxed. As long as the reported values are reasonably correlated with the actual values, they are useful for understanding state-level wealth distributions.

We use the values from the public use sample of the 1860 Census of Population to construct four measures of a state's wealth distribution. We restrict attention to white males ages 21-60, who both held the vast majority of the wealth and represented the pool of potential voters. The first two measures are the share of the wealth held by the 99th percentile (the elite) and wealth held by the 40th to 60th percentile (the median). The next two measures are the occupational heterogeneity of the elite and the median. The two most common occupational categories for the elite were i) farmer and ii) managers, officials, and proprietors. Farmer was also the most common occupational category for the median. The occupational category of farmer encompassed everything from small farmers to plantation owners and ranchers. The occupational category managers, officials, and proprietors included manufacturers, merchants, and other business owners. It is worth noting that individuals may not have accurately reported their occupation. Pessen (1973) gives an example where a man reported his original occupation, which was ship carpenter, even though he was now a very wealthy shipbuilder.[7] Since we are focusing on quite broad categories of occupation, inaccurate reporting is unlikely to have a significant affect on our measures.

We construct an index of the occupational concentration (HHI) of the elite and the median by summing the squares of the occupational shares of i) farmers, ii) managers, officials, and iii) proprietors, and all other occupations. So a state where the elite or the median were entirely composed of farmers would have a HHI equal to 10,000. In contrast, a state where the elite or the median were equally divided among the three categories would have an HHI equal to 3,333.

The measures are inherently noisy and made more so by two additional factors. First, because the public use sample is 1-100, we are effectively sampling only 1 percent of the

[7] Pessen (1973), pp. 49ff.

99th percentile. The sampling is random, but given the small numbers involved it is always possible, for example, that we have drawn a sample that includes far more farmers than the 99th percentile as a whole.[8] Second, we are sampling economies at different points in their development. This becomes apparent when we examine population growth. In 1790 the Common South and Common North were already heavily populated – each had more than 1 million people in 1790. In contrast, in 1800, the two frontier regions each had less then 10,000 people. Population grew rapidly on the frontier, and in 1860 was still growing rapidly in some places. To control somewhat for states' stages of development, we only report statistics for states that had at least 60,000 men who were 21-60 years of age in 1860.

Table 2 shows that the share of wealth held by the elite and the median varied across the four regions. The elite in the Common and Civil North held 24 percent of the reported wealth, whereas the elite's shares were 29 percent and 30 percent for the Common and Civil South. The wealth held by the median was small everywhere – 4 percent or less – but was especially small in the Common and Civil South.

The occupational concentration varied as well, with the Common and Civil North having lower occupational concentration in the elite than the Common and Civil South. The elite in the Civil South is extremely concentrated. If we examine the occupational concentration of the median, the pattern is different than for the elite. The three more agricultural areas – the Common South, the Civil South, and the Civil North – had lower HHIs of the median than the more industrialized Common North.

Finally, the share of the median and the elite that were foreign born and born outside the state varied widely. For example, nearly all of the elite and the median in the Civil North and Civil South were born outside the state, whereas few were born outside the state in the Common South. For foreign born, the shares in the elite and the median in the Common and Civil North were higher than in the Common and Civil South. Persons born outside of the state were typically roughly equally represented in the median and the elite, whereas persons born abroad were more heavily represented in the median than the

[8] The results are similar if we expand the sample to the 98th or the 95th percentile.

elite. This, at least in part, reflects the fact that most of the foreign born had arrived in the 1840s and 1850s and so were still relatively young.

One question is whether the four measures of the wealth distribution are actually distinct. Correlations suggest that three of the four measures are distinct. The HHI and wealth share of the elite are basically uncorrelated (-0.01) in our sample, which is striking. It indicates that the two measures really do capture different aspects of the wealth distribution. The wealth shares of the elite and the median are, not surprisingly, strongly negatively correlated (-0.80). Higher wealth held by the elite, almost mechanically implies lower wealth holding by the median. The wealth share of the median is also negatively correlated with the HHI of the median (-0.65). So in later analysis we will drop the wealth share of the median. The correlation between the HHI of the median and the HHI of the elite is low (-0.21). Although the correlation between the HHI of the median and the wealth share of the elite is higher (0.52), it is low enough to warrant retaining HHI of the median as a separate measure.

A number of other people have worked on the antebellum wealth distribution.[9] The closest work to ours, in that it examines the entire United States, is Soltow (1975). Soltow, using a different random sample of the 1860 Census of Population than the one we use, 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 the United States as a whole controlled 29 percent of the total assets.[10] Our numbers are largely in line with Soltow's numbers. Unfortunately, Soltow does not report state-level measures.

Studies of specific states and regions also appear to be consistent with what we find. For example, Pessen (1973) uses 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 for the northern tier states, Atack and

[9] See Atack and Bateman (1981), Conley and Galenson (1998), Pessen (1973), Gallman (1969), Wright (1970), Soltow (1975), and Campbell and Lowe (1977).

[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.

Bateman (1981) find a "much more equal distribution [of wealth] in the rural north" than in other parts of the United States.

In a later book that examined the 1798 distribution of wealth and made comparisons with the 1860 distribution of wealth, Soltow (1989) concluded "There is evidence that inequality [of wealth] within states remained stable during both the eighteenth and nineteen centuries."[11] This is useful from our perspective, because it suggests that the wealth distribution is largely persistent and that using the 1860 Census tells us something about wealth distribution for earlier periods.

Having constructed the measures of the wealth distribution, we turn to the question of their relationship with the initial conditions. We expect geographic initial conditions to be important determinants of wealth, because they dictate the types of crops that can be grown, the relative success of agriculture, and relative ease of transportation. In places with richer agricultural conditions, we expect more farmers. In other locations, we expect to see a more diversified occupational base. Depending on the relative economies of scale in farming and other occupations, this may also have implications for the share of wealth held by the elite and thus the median.

We do not expect the legal initial conditions – whether a state is classified as civil or common law – to be important for explaining wealth in the antebellum period. In principle, state courts could and sometimes did affect wealth. Certainly the *Charles River Bridge* (1837) case which came up through the Massachusetts courts before reaching the United States Supreme Court affected wealth. Court decisions were, however, noisy, because judges had limited legal training and were largely under the control of state legislatures. And most state economies were largely agricultural. Thus, the scope for courts – as distinct from state legislatures – to affect wealth in the antebellum period was more limited than it would be later, as state economies moved away from agriculture and towards other enterprises.

It is less clear whether cultural initial conditions such as Elazar's measures will affect our measures of wealth. If they do, they may act through one of three channels. The first channel is through climate and slavery. Being a state with a traditionalistic political culture is highly correlated with having a warmer, wetter climate and with the existence

[11] Soltow (1989), p. 190

of slavery. A second channel, which is likely more relevant for the individualistic and moralistic states, is that some cultures or religions may put more emphasis on family, religion, or community, leaving less time for occupational success. This can lead to a flatter distribution of wealth. Some cultures may also value some occupations more than others, which could potentially affect occupational distribution of the elite and the median. A third channel through which culture may matter is politics, with the political system affecting the wealth distribution through taxation or limitations on the elite's ability to extract concessions or other things of value from the state. We will explore this possibility further when we examine the relationship between wealth and politics.

To examine the effect of initial conditions on the wealth distribution, we first need to reduce the number of variables, because we only have observations on the wealth distribution for 27 states in 1860. We do three things. First, we use principal component analysis to reduce the five climate conditions – temperature, precipitation, depth of soil, floods, and droughts – to a single variable, which we call climate.[12] Second, we drop the mortality measures because of their strong positive correlation with the climate variable.[13] Third, we aggregate the share of counties with access to navigable rivers, lakes, and oceans, into a single transportation variable by summing the three values.[14]

The baseline regressions for all of the analysis in this chapter and the next include just three variables – climate, transportation, and civil law. We do not include the Elazar variables in the baseline regression because of the correlation between having a traditionalistic political culture and our climate variable.

The top panel of Table 3 presents the baseline regressions relating initial conditions to our three measures of the wealth distribution. As expected, both climate and transportation have significant explanatory power for the wealth distribution, and civil

[12] Principle component analysis allows us to build a weighted average based on the correlations between these five climate conditions. In order to make these five variables comparable, we convert all of them to standard normal variables, where std(x) is the standardize normal version of a variable x. Because the average absolute correlation between these five variables is 0.52, the first component accounts for almost two-thirds of the variance between these five variables. Thus, we compute climate using the first component: climate = 0.8445*std(temperature) + 0.8232*std(precipitation) – 0.8173*std(flood frequency) + 0.8262*std(depth of soil) – 0.5880*(months of drought per decade). Thus, the climate variable is higher in states that are hotter, or rainier, or have deeper soil, or have less flooding, or less droughts.

[13] The correlation between climate and 1860 deaths per capita is 0.89. The correlation between climate and soldier mortality is 0.75

[14] The values are not mutually exclusive, but the number of counties having access to lakes and navigable rivers or oceans and navigable rivers is small. See Rappaport and Sachs (2002).

law does not. Both the occupational homogeneity of the elite and the wealth of the elite are increasing in climate. A one standard deviation increase in climate increases HHI of the elite by 43 percent of a standard deviation and the wealth share of the elite by 51 percent of a standard deviation. Thus a climate more favorable for agriculture leads to a more homogeneous and wealthier elite.

Access to water transportation has the effect overall of diversifying the economy and increasing the wealth of the elite. The fact that water transportation has different effects on the HHI of the elite and the HHI of the median is largely a measurement issue. In the case of the elite, diversification increases the share of the elite in the managers, officials and proprietors category as well as those in the other category, thus lowering the HHI. Recall that unlike the elite, very few members of the median were managers, officials and proprietors. Thus increasing diversification increases the share of the median in the other category. Since the sample average of the other category is 63 percent, increasing diversification amounts to an increase in the HHI of the median. The quantitative effects of water transportation on the three measures of the wealth distribution are all large. A one standard deviation increase in transportation decreases the HHI of the elite by 47 percent of a standard deviation, increases the HHI of the median by 63 percent of a standard deviation, and increases the wealth share of the elite by 42 percent of a standard deviation.

The bottom panel adds the dummy variables for Elazar's cultural variables. The omitted classification is Elazar I (individualistic). We use stepwise regressions that only retain variables that are significant at the 10 percent level or better. Transportation continues to be significant in all three regressions, and the coefficients are of roughly the same magnitude as they were in the upper panel.

For the HHI of the elite, climate is no longer significant. It has been replaced by dummy variable for Elazar T (traditionalistic). Recall that Elazar T includes the eleven states in what would later be the Confederacy and five adjacent states. The effect on the HHI of the elite of being a traditionalistic state is very large – 101 percent of a standard deviation. At one level, this reflects the fact that these states had climates and soil that were well suited to agriculture and so had homogeneous, largely agricultural economic elites. It may also reflect the cultural preferences of those with the energy and

background to become members of the economic elite. Unlike the HHI of the elite, the HHI of the median does not appear to be affected by the cultural variables.

For the wealth share of the elite, climate was replaced by both of the Elazar variables. Unlike the first two regressions, where introducing the cultural variables improved fit marginally if at all, adding the cultural variables here improved fit substantially. The effect on the wealth of the elite of being a traditionalistic state relative to being an individualistic state is 77 percent of a standard deviation. As we discussed previously, the positive effect on the wealth of the elite may reflect a number of factors such as economies of scale associated with large slave plantations, favorable taxes relative to other locations, and the rapid growth in the prices of both cotton and slaves. Interestingly, the effect on the wealth of the elite of being a moralistic state relative to being an individualistic state is -77 percent of a standard deviation. This may reflect a variety of factors including climate and cultural views on wealth and taxation.

We are hardly the first to observe that initial conditions, notably whether a region was suited for cotton, had an impact on wealth. Virtually anyone who has worked on the South or tried to explain the South's dismal performance after the Civil War has discussed initial conditions and wealth in some way. The thing that sets our work apart is that we examine the quantitative effect of a broad range of initial conditions on a number of different dimensions of antebellum wealth. In the American context, Mitchener and McLean (2003) take a similar approach to examine the labor productivity of American states at twenty year intervals between 1880 and 1980. They find that state-level labor productivity is largely explained by mining, access to rivers and oceans, and whether a state had slaves in 1860.

In sum, both geographic and cultural initial conditions appear to be important determinants of the wealth held by the elite and the occupational diversity of the elite and the median.

4. Initial Conditions, Wealth, and Political Competition

One of the pathways through which we believe political competition may reflect initial conditions is the wealth distribution. The story we have in mind is that the elite will at some point have used their resources to capture state-level political institutions. If the elite are homogenous, they may be more likely to coalesce around a single party,

whereas if they are heterogeneous they may split across multiple parties. Thus, greater occupational homogeneity of the elite will be associated with lower levels of political competition. The political process may then become self-reinforcing in the sense that political institutions ensure the continued dominance of the relatively homogeneous elite.

Before discussing the relationship between state-level political variables and the wealth variables, it is useful to begin with some background on state-level politics. Political participation has two components – eligibility to vote and actual voting behavior. When the first states entered the union, most had property, wealth or tax requirements to vote. In most states these were relaxed or abandoned altogether in the 1820s. We will discuss those that continued on and were changed during the constitutional conventions of the 1840s and 1850s in the next section.

The fact that the right to vote was universal or nearly universal in most states does not tell us anything about whether white males actually exercised this vote. The available evidence from gubernatorial elections between 1840 and 1860 suggests that the majority of white males actually did exercise this right.[15] Of the states with available data, only Massachusetts at 45 percent had an average turnout rate of less than half. Three states – Indiana, Tennessee, and Georgia – had turnout rates of more than 70 percent.

While political participation is one facet of state-level politics, key political outcomes are driven by the state legislature. To examine political differences across the regions, we begin by examining the share of Democrats in the state lower house. We focus on the state lower house, because it tended to be the more diverse of the two houses. Until the split over slavery in the mid 1850s, the frontier regions of the Civil North and South tended to have more Democrats and the Common North and South tended to have more Whigs in the state lower house. Subsequent to the split over slavery, the Civil and Common North tended to have more Republicans and the Civil and Common South tended to have more Democrats.

We now turn to the question of the relationship between our wealth variables and state-level political competition. One of the challenges of measuring political competition, especially more than 150 years after the fact, is that we cannot observe political competition directly. What we can observe are indications that a state may have

[15] Ginsburg (1986), Table 10, p. 603.

a competitive political environment. For example, we may observe that the state legislature is evenly split between Democrats and Whigs. Or we may observe a change in control from one party to another. Both suggest the political environment is competitive. The problem arises when we do not observe direct evidence of competition. Is a state legislature where 80 percent of the seats are held by Democrats competitive? It could be if two factions in the party compete for voters. More likely it is not. A second challenge arises because the events leading up to the Civil War caused a sectional split beginning in the mid 1850s. Thus we end our examination of state politics in 1855. Data for some states go back to the 1835, but we begin in 1840 to increase the comparability of our measures across states.

We compute three measures of political competition for the period 1840-1855. The first measure is the folded Ranney index, which is widely used in the political science literature to measure state-level political competition.[16] The folded Ranney ranges from 0.5, which indicates complete dominance by a single party, to 1, which indicates that the two parties were perfectly competitive. Our second measure of political competition is whether the state legislature experienced a change in party control during this period. We compute a third measure of competition that is analogous to the first but is measured at the level of a state's delegation to Congress. A Congressional Ranney of 0.5 denotes that all of the state's Congressmen were from a single party, whereas a Congressional Ranney of 1 denotes that the delegation was evenly split across the two parties.

In Table 4 we examine the relationship between wealth and political competition. The baseline specification yields somewhat tepid results in the sense that few variables are significant and the fit is relatively poor. Warmer climates lead to more state political competition.[17] Nothing predicts the Congressional political competition. And transportation is associated with changes in political control.

[16] The folded Ranney index is calculated as: 1 – |unfolded Ranney index – 0.5|. The unfolded Ranney index is traditionally computed by averaging the proportion of seats held by Democrats in the upper and lower houses of the legislature, the Democratic proportion of the gubernatorial vote, and the percentage of the time that the governorship and both houses of the state legislature were controlled by the Democratic Party. Because we have information on the party of the governor, but not the share of the vote, we substitute the share of the time that the governorship was held by the Democratic Party.

[17] Political competition will refer to the Ranney Index, with modifiers indicating whether it is the state or Congressional Ranney.

In the second panel we add the two cultural variables and the three measures of the wealth distribution. We also include the share of farmers in the median in the second panel of regressions. The reason is that, because very few members of the median are managers, officials and proprietors, we have essentially two groups – farmers and all other. Thus a state with 40 percent farmers and 60 percent other would have the same HHI as a state with 60 percent farmers and 40 percent other. Yet because the other group is very heterogeneous at the median, it is not obvious that we should consider it to be a cohesive political group. Farmers, on the other hand, are likely to be a relatively more cohesive political group.

The results are in line with our thesis. One caveat is in order. When interpreting the effects of the wealth distribution, it is important to recall that we are regressing measures of political competition from 1840-1855 on the wealth distribution in 1860. To the extent that the shares of wealth held by the elite and the median were largely stable over the early part of the nineteenth century, as Soltow (1989) suggested was likely the case, the wealth distribution in 1860 should be highly correlated with the distribution in 1840. Unlike the wealth distribution, the occupational distributions of the elite and the median almost certainly were changing over this period. As long as the rate of change was similar across locations over time, then the occupational distribution in 1860 should be highly correlated with the distribution in 1840.

At both the state and the Congressional level, increased occupational homogeneity of the elite is associated with decreased political competition. A one standard deviation increase in HHI of the elite decreases both state and Congressional political competition by 51 percent of a standard deviation. Note that neither the HHI of the median nor the share of wealth held by the elite is significant in these regressions. Further, the HHI of the elite has low correlation with these two variables, so the HHI of the elite is not capturing the effect of either variable. This suggests that HHI of the elite may actually be driving political competition.[18]

Other factors matter as well for antebellum state and Congressional political competition. At the state level, a one standard deviation increase in climate increases

[18] The fact that political variables are not significant when we include them in the regressions in Table 3.5 suggests that the direction of causality probably runs from wealth to political competition.

antebellum state political competition 52 percent of a standard deviation. The fact that competition is increasing in climate is a bit surprising, since it is often thought to produce the reverse effect (references). Those analyses do not, however, control for the HHI of the elite. At the congressional level, having a moralistic culture is associated with higher political competition. The effect is very large, 0.70 of a standard deviation.

Changes in control remain positively associated with transportation, but are also negatively influenced by having a moralistic political culture, having more farmers, and having a more homogenous elite. One standard deviation increases in transportation, HHI of the median, and the share of farmers at the median, yield changes in the probability of a change in control of: 0.16, -0.35, and -0.39. The biggest effect, however, is having a moralistic culture, -0.58.

Is there historical evidence to support our findings that political competition is related to the occupational distribution of the elite? The short answer is yes. First, historical evidence indicates that it was the elite broadly speaking that largely controlled state and local politics during the antebellum period (Pessen ****, Wooster 1969, Wooster 1975). 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.

Second, historical evidence suggests that occupation played at 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."[19]

Both Dalzell (1987) and Pessen (1973) discuss the political activities of the elite merchants they study. These merchants on average tended to be Whigs. Thus it is

[19] Doerflinger (1986), p. 276.

quite plausible that occupational homogeneity or diversity of the elite might play a role in politics.

5. Taxation and Redistribution

Having established associations between initial conditions and wealth variables on the one hand and measures of political competition on the other, we turn to political outcomes. Our thesis is that taxes and transfers will be a function of initial conditions. This may occur directly or through at least two possible pathways. The first is through the wealth distribution. Irrespective of the political environment, we would expect the elite to oppose transfers and possibly taxes.[20] Their success may increase with the share of the wealth that they control. The second is through politics. Political competition may constrain the elite, keeping transfers and possibly taxes higher than they otherwise might be.

The 1860 Census collected data on taxes, paupers and education.[21] In the top panel of Table 5, we examine the relationship between the three baseline initial conditions – climate, transportation, and civil law – and taxes and transfers. Interestingly, none of the three variables offers significant explanatory power for state taxes, either per capita or the average tax rate. School attendance was related to climate, as the averages above suggested. And pauper support per capita was lower in warmer, wetter climates and in civil law states. The latter probably reflects the fact that the civil law states were on the frontier and not their legal system.

In the bottom panel of Table 5, we add Elazar's cultural variables, two measures of state political competition, and three measures of state income distributions. Many more variables are significant, and the fit improves substantially. Either climate or Elazar T is significant in all four regressions, and the effects are generally large.[22] Not surprisingly, political competition appears to play a role in what are essentially political outcomes. Change in control is significant in two cases – average state tax rates and school attendance – and the signs are the opposite of the signs on state political competition.

[20] Elite opposition to taxes will depend on their level and what they support, since the elite derive benefits from some public goods such as roads and courts.
[21] All per capita numbers in the bottom panel of Table 3.9 are based on the free population, since no transfers were being made to slaves.
[22] Statements regarding the magnitudes of the effects refer to the absolute values of the magnitudes.

Finally, the share of wealth held by the elite and the HHI of the median in 1860 also offer explanatory power for 1860 taxes and transfers.

State taxes per capita were increasing in climate, civil law (frontier effect), having a moralistic culture, state political competition, and the share of wealth controlled by the elite. It seems reasonable that taxes would be higher in states on the frontier, with moralistic cultures or with higher state political competition. The surprises are the positive effects of climate and the share of wealth controlled by the elite. One should keep in mind, however, that states with high state taxes also tended to have low local taxes and lower than average total taxes. A one standard deviation increase in climate, state political competition, or the share of the wealth controlled by the elite increased state taxes per capita by 0.35, 0.32, or 0.69 of a standard deviation. A change from 0 to 1 in the dummy variables for civil law or Elazar M increased state taxes per capita by 0.62 or 1.20 of a standard deviation.

Like state taxes per capita, average state tax rates were increasing in civil law, political competition and the share of wealth held by the elite. In addition, they were decreasing in Elazar T, changes in control of the state legislature, and the HHI of the median. A one standard deviation increase in state political competition, the share of the wealth controlled by the elite, or HHI of the median changed average state tax rates by 0.52, 0.93, or -0.57 of a standard deviation. A change from 0 to 1 in the dummy variables for civil law, Elazar T, or change in control changed average state tax rates by 0.71, -1.27, or -0.95 of a standard deviation.

The share of children in school is decreasing in civil law, Elazar T, political competition, and the HHI of the median. The only positive effect is of changes in control of the state legislature. The negative effect of political competition is surprising, but it may reflect the fact that the New England states with the highest fraction of children in school also had relatively low levels of political competition. The negative effect of civil law likely indicates that fewer children went to school on the frontier. Places with a less occupationally diverse median (high HHI of the median) had fewer children in school. A one standard deviation increase in state political competition or HHI of the median changed the share of children in school by -0.42 or -0.33 of a standard deviation. A

change from 0 to 1 in the dummy variables for civil law, Elazar T, or change in control changed average state tax rates by -0.56, -1.35, or 0.39 of a standard deviation.

Pauper support per capita is decreasing in civil law, Elazar T, and state political competition. The only positive effect is from the HHI of the median. The negative effect state political competition is surprising. Pauper support may be one dimension through which less competitive states buy off voters. A one standard deviation increase in state political competition or HHI of the median changed pauper support per capita by -0.49 or 0.28 of a standard deviation. A change from 0 to 1 in the dummy variables for civil law or Elazar T changed average state tax rates by -0.85 or -0.91 of a standard deviation.

Overall, taxes and transfers appear to be best explained by a combination of initial conditions, political competition, and the wealth distribution.[23] Our findings complement Besley and Case (2003), who show that in the second half of the twentieth century, increased state-level political competition is associated with more taxes per capita and tax payments for redistribution in the form of workers' compensation and family assistance per capita. Our results, however, highlight the role that initial conditions play in influencing taxes and transfers both directly and through political competition.

[23] In unreported regressions where we included just initial conditions and political competition, the fit remained relatively poor. The fit was better if we included just initial conditions and the wealth distribution. But the combination of all three yielded substantially better results.

Figure 1: Elazar's Moralistic, Individualistic, and Traditionalistic Political Cultures

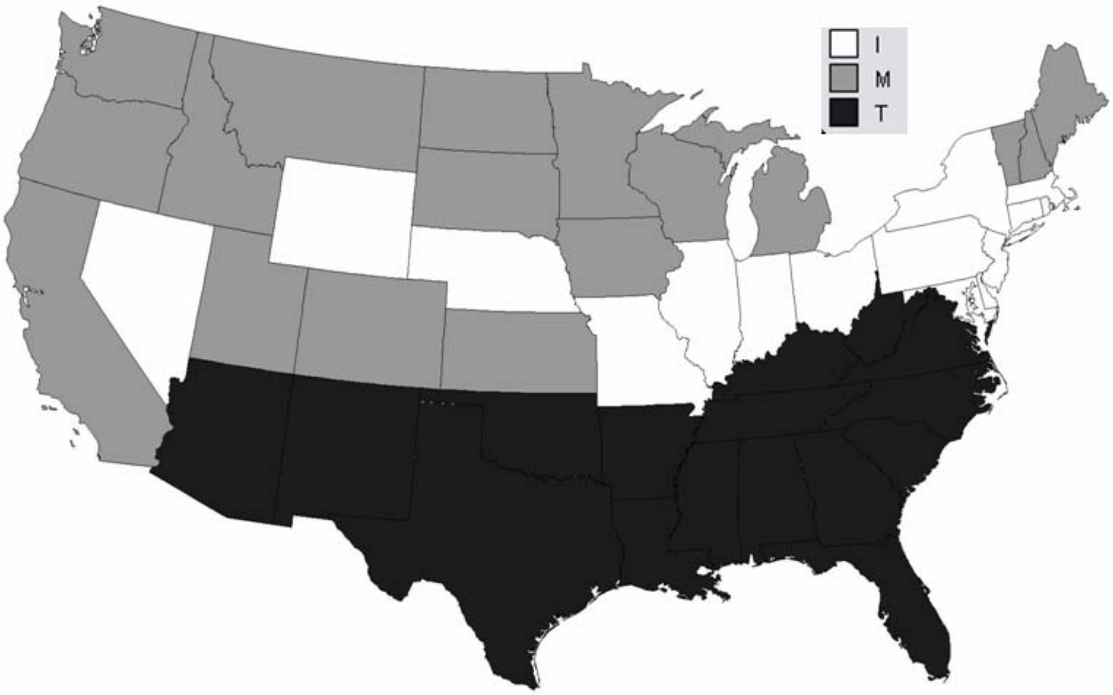

Table 1: Duration of Civil Law

	Approximate Date of First Permanent Settlement	Approximate End of Civil Law	Duration of Civil Law
British acquisitions from Dutch			
Dutch New Netherland (DE, NY, NJ, PA)	1624	1665	41
British acquisitions from French (Old Northwest Territory)			
Illinois	1700	1790	90
Indiana	1732	1790	58
Ohio		1790	
Michigan	1668	1790	122
Wisconsin	1764	1790	26
American Acquisitions from France, Spain, and Mexico			
Alabama	1702	1813	111
Arizona	1700	1848	148
Arkansas	1686	1803	117
California	1769	1848	79
Florida	1565	1821	256
Louisiana	1715	1803	88
Mississippi	1699	1813	112
Missouri	1735	1803	68
New Mexico	1700	1848	148
Texas	1718	1836	118

Notes: All dates are approximate. The dates of settlement for the Old Northwest Territory are taken from Ekberg (1998). Ohio is included because there were some foreign land grants there, although the location of these grants and the associated settlement date could not be determined. Dating the end of civil law in the Old Northwest Territory is difficult, because at the time of the 1790 census, the Northwest Territory was de facto under British control and the British had permitted the continued use of civil law under the Quebec Act. The date of first settlement for Alabama was taken from http://www.alabamamoments.state.al.us/sec02det.html. The data of first settlement for Louisiana was taken from http://www.state.la.us/about_history2.htm Dates for all other states are taken from the settlement section of the state histories in Encyclopedia Britannica online version.

Table 2: State Wealth Distribution in Four Regions for Men ages 21-60 in 1860

Percentile Wealth Distribution	Common North	Common South	Civil South	Civil North
	Wealth			
Share wealth held by elite	0.24	0.29	0.30	0.24
Share wealth held by median	0.04	0.02	0.02	0.04
	Occupation			
Share elite Farmers	0.35	0.75	0.84	0.48
Share median Farmers	0.30	0.54	0.55	0.41
Share elite Managers, officials, and proprietors	0.28	0.15	0.09	0.27
Share median Managers, officials, and proprietors	0.03	0.02	0.03	0.03
Occupational concentration (HHI) of elite	4277	5931	7188	3889
Occupational concentration (HHI) of median	6439	6106	6058	5598
Number of states	13	4	5	5

From: 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. Smaller states were dropped because they did not have at least 600 white men ages 21-60 in the IPUMs sample.

Table 3: Wealth Distribution and Initial Conditions

	HHI Elite	HHI Median	Wealth Elite
Climate	266.21***	53.24	0.015**
	79.87	106.45	0.006
Transport	-2655.09***	3057.75***	0.110**
	811.21	583.96	0.044
Civil	214.99	-201.34	-0.011
	519.55	677.53	0.027
Constant	5939.14***	4438.41***	0.185***
	618.83	427.414	0.025
Obs	27	27	27
R-squared	0.49	0.40	0.37
	HHI Elite	HHI Median	Wealth Elite
Climate			
Transport	-2059.41***	3046.47***	0.118**
	898.76	547.61	0.048
Civil			
Elazar M			-0.059*
			0.030
Elazar T	1676.67**		0.059*
	595.17		0.034
Constant	5428.19***	4438.15***	0.189***
	700.17	291.19	0.035
Obs	27	27	27
R-squared	0.51	0.40	0.50

Notes: The top panel includes regressions with robust standard errors. The bottom panel includes stepwise regressions with robust standard errors where the threshold for inclusion is significance at the 10 percent level or better.

Table 4: Political Competition and Initial Conditions

	Folded Ranney (State Political Competition)	Congressional Folded Ranney	Change in Control (State Political Competition)
Climate	0.009* 0.004	-0.011 0.008	-0.023 0.038
Transport	0.018 0.035	0.124 0.087	0.866*** 0.218
Civil	-0.040 0.027	-0.048 0.054	0.073 0.220
Constant	0.725*** 0.023	0.758*** 0.057	-0.001 0.182
Obs	26	27	26
R-squared	0.16	0.20	0.27
	Folded Ranney (State Political Competition)	Congressional Folded Ranney	Change in Control (State Political Competition)
Climate	0.013*** 0.003		
Civil			
Transport			0.553* 0.321
Elazar M		0.098** 0.040	-0.576*** 0.186
Elazar T			
Sh Wealth Elite			
HHI Elite	-0.00002*** 5.77e-06	-0.00004*** 0.00001	
HHI Median			-0.00024*** 0.00007
Share Farmers Median			-0.016*** 0.004
Constant	0.816*** 0.032	0.977*** 0.076	2.567 0.645
Obs	26	27	26
R-squared	0.26	0.37	0.52

Notes: The top panel includes regressions with robust standard errors. The bottom panel includes stepwise regressions with robust standard errors where the threshold for inclusion is significance at the 10 percent level or better.

Table 5: Taxes and Transfers and Initial Conditions

	1860 State taxes	1860 State tax / all wealth	1860 School attendance	1860 Pauper taxes per capita
Climate	0.253 0.168	0.013 0.117	-0.058*** 0.013	-0.029*** 0.006
Transport	0.776 0.932	-0.106 0.716	0.015 0.090	0.080 0.060
Civil	0.497 0.404	0.734 0.485	-0.051 0.078	-0.060* 0.033
Constant	0.154 0.573	1.286*** 0.419	0.900*** 0.071	0.184*** 0.051
Obs	27	27	27	27
R-squared	0.37	0.13	0.49	0.52
	1860 State taxes	1860 State tax / all wealth	1860 School attendance	1860 Pauper taxes per capita
Climate	0.173** 0.074			
Transport				
Civil	0.812** 0.292	0.983*** 0.320	-0.136** 0.052	-0.118*** 0 .027
Elazar M	1.576*** 0.532			
Elazar T		-1.529*** 0.360	-0.325*** 0.059	-0.125*** 0.026
Folded Ranney	6.324*** 2.081	5.767*** 1.700	-1.544*** 0.384	-1.034*** 0.227
Ch. Control		-0.879** 0.358	0.093* 0.051	
Sh Wealth Elite	11.616*** 2.949	12.282*** 2.402		
HHI Elite				
HHI Median		-0.0004*** 0.0001	-0.000055*** 0.000016	0.00003*** 9.69e-06
Constant	-7.474*** 2.156	-2.859* 1.424		0.855*** 0.181
Obs	26	26	26	26
R-squared	0.74	0.63	0.79	0.77

Notes: The top panel includes regressions with robust standard errors. The bottom panel includes stepwise regressions with robust standard errors where the threshold for inclusion is significance at the 10 percent level or better.