Tell Me What You Grow, and I'll Tell You What You Think: Crop Mix and Slavery in the US South*

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Abstract

Slavery had long dominated world labor relations before its demise in the nineteenth century. This paper shows that changing economic interests determined shifts in the political support for slavery within the US South. We exploit the competitive forces generated by the US Westward territorial expansion between 1810 and 1860 to identify changes in local economic incentives to the use of slave labor. We show that areas losing comparative advantage in the production of cotton with respect to wheat (i) changed their production decisions and reduced their use of slavery (ii) became less likely to politically defend slavery as indicated by the likelihood of legislators to vote against slavery in Congress and of counties to vote against secession (iii) experienced changes in political outcomes as shown by electoral returns of presidential and gubernatorial candidates and roll-call behavior of Congressional representatives (iv) experienced a broader social transformation as shown by an increase in the free black population and changes in local newspapers' supply of slavery-related content. We rule out migration as the main channel. Results are in part driven by changes in preferences and social norms.

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You tell me whar a man gits his corn
pone, en I'll tell you what his 'pinions is.

Unnamed Slave, Missouri, 1850
Mark Twain, *Corn Pone Opinions*

1 Introduction

Slavery has been one of the most widespread and long-lasting labor institutions in the world. Most of the ancient civilizations— Greece, Rome and Egypt, among others — as well as most of the colonial societies, regarded slavery as essential to their economy (Patterson, 1982; Acemoglu and Wolitzky, 2011). In these societies, slave labor was not only the primary productive technology but also at the core of the social order. Southern US is one of the most prominent examples. Hinging on the labor of 4 million enslaved African Americans, it constituted, at the eve of the Civil War, "the greatest center of slavery in the New World and the bulwark of resistance to abolition" (Fogel, 1989 p. 34). The stability of the slavery system rested on a broad consensus on political and social norms (Wright, 2006). By the end of the 19h century slavery was abolished in most of the world. This institutional transformation was accompanied by ideological changes that challenged the morality of slavery itself. What accounts for these changes is still heavily debated.

On the one hand, the rise of abolitionist movements and humanitarian ideas has often been regarded as the fundamental driver of the demise of slavery during the nineteenth century (Fogel, 1989). On the other, as pointed out by Williams, the rise of these abolitionists movements shows a "curious affinity with the rise and development of new interests and the necessity of the destruction of the old."[1] According to this view, changes in economic incentives had been a precondition for the social and institutional changes experienced by slave economies. In line with this argument, this paper shows that shifts in agricultural comparative advantage in the Antebellum US South determined changes in the political and ideological support for slavery. These changes occurred within few decades despite the profoundly entrenched character of slavery in the US South.

We study changes in economic incentives to slave-ownership by analyzing one of the central aspects of the evolution of slavery in the US South: the Westward territorial expansion. While at the beginning of the nineteenth century, Southern states developed around the Atlantic shore, in the following decades, the Westward expansion shifted the epicenter of production toward the Mississippi valley. At the same time, about one million slaves were forcibly moved throughout the South, profoundly transforming its economic landscape. This paper examines the impact of the Westward expansion on slave relocation and emphasizes a link between economic incentives to slave-ownership and the political and ideological support for the institution of slavery.

Our strategy exploits two facts. First, the Westward expansion, between 1810 and 1860, produced

[1] Williams, 2014, p. 211. The idea has recently been revisited by Wright (2020). See Fogel (1989) for the role of humanitarian sentiments in the demise of slavery.

a threefold increase in the quantity of land where slavery was legal. Second, the share of the enslaved population remained constant at the 1810 levels[2] because of the end of the Atlantic Slave Trade in 1807. The exposure of a county to the competition generated by the newly available land depends on the characteristics of the soil of this county relative to the ones found in the West. We leverage this variation by computing changes in the county-level comparative advantage for the production of cotton with respect to wheat.[3] We first show that changes in agricultural incentives affected crop production decisions and local reliance on slave labor. We then show that these transformations caused broader political and ideological changes. Finally, we provide a quantification of the potential channels and rule out migration as the main one. This shows that our results are at least partially due to changes in preferences and social norms.

We compute county-level changes in the comparative advantage for the production of cotton with respect to wheat using detailed information on soil characteristics at the county level (FAO-GAEZ, 2002). Each decade, we determine the comparative advantage of a given county comparing its relative productivity to the other available counties. We then exploit the fact that the addition of land caused by the Westward expansion produced a shift in the distribution of relative productivity of cotton with respect to wheat, therefore, affecting the comparative advantage of the older counties. Given that most of the land with high relative productivity of cotton with respect to wheat is located to the West, almost all counties suffered a reduction in their comparative advantage for the production of cotton with respect to wheat as the frontier expanded to the West.

The Westward expansion generated an increase in competition that differed from county to county, depending on their position in the distribution of relative productivity. Those counties that remained at the top of the distribution through the decades maintained a high comparative advantage in the production of cotton with respect to wheat. Other counties saw their position changed. For a given county, the size of the change between two decades depends on the relative productivity of this county with respect to the ones of the newly added counties. Because of the competitive forces generated by the Westward expansion, we expect an effect on crop production decisions. Since higher comparative advantage should imply higher relative production, we expect counties with a larger drop in the ranking of relative productivity to display a larger effect. The higher the decrease in the ranking of the relative productivity of cotton with respect to wheat, the larger the shift in the production of the two crops. Finally, we refer to the literature that studies the link between crop production decisions and slave use (Fogel and Engerman, 1974; Earle, 1978; Fenoaltea, 1984; Hanes, 1996; Wright, 2006) to establish a link between changes in the comparative advantage in the production of different crops and slave labor allocation.

The key identifying assumption behind our econometric model is the absence of unobservable county-specific and time-varying characteristics that affect the use of slave labor and are correlated

[2]Total number of slaves over total number of white people between 1810 and 1860 was 34% from 1810 to 1840, 33% and 32% in 1850 and 1860 respectively.

[3]In our baseline specification, we focus on cotton, the most important crop that extensively uses slave labor, and wheat the main crop grown by free laborers. Section 2.2 provides a theory that links crop characteristics to their propensity to use slave or free labor. In Appendix C.3, we expand our analysis to include tobacco and sugar.

with the changes in comparative advantage generated by the Westward expansion. To ensure and assess the validity of our identification, we take several steps. First, we control for county fixed effects absorbing all the time-invariant county characteristics that could potentially affect the number of slaves in a county and census year. Second, year fixed effect captures common changes brought by the Westward expansion. In this way, we only exploit the differential effect that the Westward expansion had on counties with different relative productivity of cotton with respect to wheat. Second, we always control for the distance to the northern border (non-slave states) interacted with year fixed effects, and Census region fixed effect interacted with year fixed effects.

We allow for different trends depending on the share of slaves before the end of the Atlantic slave trade (1807) when the amount of slave labor available was not restricted, including year fixed effect interacted with the share of slaves in 1800. We further decompose the land expansion into crop-specific variation and propose alternative specifications using changes in prices and linear individual trends. Finally, we show that our estimates are robust to restricting the analysis to the sample of those counties belonging to the US in 1810 and to the one of counties formed during the Westward expansion.

In the first part of the paper, we look at the effect of agricultural shocks on slave relocation and production decisions. We find that when a county loses comparative advantage in the production of cotton with respect to wheat, it reduces the use of slave labor. A county that in 1810 had a median relative productivity of cotton with respect to wheat experienced a substantial loss in the comparative advantage between 1810 and 1860. Overall, almost 1 million Km^2 of land with higher relative productivity were added in this period. Due to the competition generated by this new land added, this county experienced a 10.7 percentage points reduction in the share of the enslaved population. This reduction is substantial when taking into account that 28% is the sample average of the enslaved population. Overall, our estimates imply that between 1810 and 1860, almost 800'000 slaves were relocated due to the competitive forces generated by the Westward expansion.

Exploiting the information in the Census of Agriculture — available for 1840-1860 — we show that these results are associated with changes in the crop production. As expected, we show that counties that lost comparative advantage in the production of cotton with respect to wheat reduced their production of cotton and increased their production of wheat. A county that in 1840 had a median relative productivity of cotton with respect to wheat experienced between 1840 and 1860 a 71% reduction in the production of cotton and a 58% increase in the production of wheat due to the loss in comparative advantage.

In the second part of the paper, we study the effects of changes in economic conditions on the politics of slavery. Here we analyze two newly collected datasets: Legislators' voting behavior for all the 222 votes regarding slavery held in the history of the House of representatives. Voting behavior by the secession convention delegates to ratify the Ordinance of Secession for 9 secessionist states. We show in both instances that changes in the local comparative advantage in the use of slave labor influenced the politics of slavery. A congressman that in 1810 was representing a

congressional district with a median relative productivity of cotton with respect to wheat by 1860 doubled the probability of voting against slavery in Congress due to the loss in comparative advantage in the cotton sector. These large changes in the voting behavior regarding slavery are present even when comparing legislators' behavior with the same party affiliation. When studying the secession conventions, a one standard deviation increase in the relative productivity of cotton with respect to wheat made the likelihood that a county voted in favor of secession 11 percentage points higher. This result is particularly striking given that in all but 3 states, the secession conventions were decided by less than 10 percentage points.

We then study how changes in agricultural comparative advantage determined broader changes in the political equilibrium by looking at parties' vote shares and legislators' ideology (captured by the DW-Nominate score). To discipline our analysis, we first show that while both the main opposing parties in the South (Democrats and Whig)[4] were partial towards the defense of slavery, some differences existed. Our estimates show that southern members of the Whig party were consistently more willing to compromise on slavery. With these party differences in mind, we use county-level electoral returns to study how economic conditions not only affect the politics of slavery but had much broader political effects. Counties that lost comparative advantage in the use of slave labor saw a decrease in the share of votes for the Jacksonian\Democratic party both in the presidential and gubernatorial elections. The vote share in favor of these parties, in a county with median relative productivity in 1828, dropped by 12 percentage points between the 1828 and the 1860 elections due to the loss in comparative advantage. The effect is large if compared to the average Jacksonian\Democratic share of 54%. We then examine the full roll-call history of all Congressional representatives to study the ideological transformation of elected members of Congress. We show that congressional districts that lost comparative advantage in the use of slave labor were represented by legislators more ideologically distant from the Jacksonian\Democratic party and closer to the Anti-Jacksonian\Whig party, independently on their actual party affiliation. This result is both due to the selection of new politicians and to changes in the voting behavior of re-elected representatives.

In the last part of our empirical analysis, we look at the transformation of the public debate on slavery, studying newspapers' behavior; and changes in social norms, studying patterns of the free black population. We first create a unique dataset of 282 Southern local newspapers spanning from 1810 to 1860 and including about 2.6 billion words. Using text analysis techniques, we investigate changes in the narrative related to slavery. We build on Gentzkow and Shapiro (2010) to model newspapers' supply of ideological content. Two are the key ingredients of the model: first, because readers have preferences for like-minded newspapers, outlets minimize the distance between their ideological slant and the preferences of their potential readers. Second, partisan newspapers can not change political position on a given topic but can strategically modify its level of supply to move toward the reader's preferences. Under these conditions, a partisan newspaper located in an area were citizens become less pro-slavery reacts by modifying the supply of content related to slavery. We

[4]Democrats and Whig were preceded by the Jacksonian and Anti-Jacksonian parties

expect a newspaper affiliated to a pro-slavery party to reduce their supply of slavery-related content as its position on the topic become less aligned with the preferences of potential readers. Partisan newspapers affiliated to political parties more critical towards slavery should instead increase their supply of content related to slavery. With these theoretical predictions at hand, we show that differences in the use of slave labor imply different underlying ideological patterns. The empirical analysis shows that pro-slavery newspapers decreased the discussion of slavery-related topics when located in an area losing comparative advantage in the use of slave labor. The effect is the opposite in the case of newspapers on the other side of the political spectrum.

Finally, we show results on the dynamics of the free black population. Because free blacks were considered a threat to the institution of slavery, we interpret an increase in the number of free blacks as a decline in social norms in support of the institutions. Our estimates suggest that places that lost comparative advantage in the use of slave labor experienced an increase in the free black population.

In the last section, we discuss a few potential interpretations of our results. We show that our findings cannot be fully explained by slave-owners migration. We estimate that the upper-bound of the change in voting behavior that can be explained by slave-owner migration is 30%. The rest of the effect has to be due to other mechanisms. We propose two complementary interpretation. First, the idea that the local decline of a slave-based economy reduces incentives to patronage for the local planters. This, in turn, relaxes local constraints to political behavior and might lead to a decline of the social norms in support of slavery. Second, we rely on the theory of cognitive dissonance to argue that a decline in the incentives to slave-ownership might have reduced individual commitment to a pro-slavery ideology.

Taken together, our results show that changes in economic conditions had significant political and ideological consequences on the US South, suggesting that material payoff can determine changes in attitudes and non-material constraints. These findings are consistent with an economic tradition that sees changes in the economic environment as the basis for changes in beliefs, values, and preferences.

In particular, with these results, we contribute to a classic debate in social science on the role of the relationship of production in shaping institutions and ideology. Karl Marx has famously proposed a view in which material conditions determine both the political and ideological structure of society: "It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness."[5] More recently a similar approach has been interpreted by the Chicago school — "Marxian in spirit, but without class-struggle"[6] — where Becker and Stigler (1977) treated consumer's preferences as endogenous and by North (1990) who maintained that relative prices determine both institutional change and preferences: "fundamental changes in relative prices over time will alter the behavioral pattern of people and their rationalization of what constitutes standards of behavior."[7] Very close to our interpretation, Greif (1994) has explicitly pointed to mechanism of motivated cognition to explain how changes in economic conditions can affect value

[5] Preface to a Contribution to the Critique of Political Economy, 1859. In Marx, 1977.
[6] Guiso et al., 2006, 27
[7] See North, 1990, 84.

systems: "different patterns of social and economic interactions lead to the development of distinctive value systems as individuals attempt to find moral justification for their behavior through cognitive dissonance."[8] Our paper contributes to the effort to substantiate this historical and theoretical perspective.

In a related literature, several papers have studied the deep origins of culture and institutions (Nunn and Wantchekon, 2011; Alesina et al., 2013; Grosjean and Khattar, 2019), mechanisms of persistence (Bisin and Verdier, 2001), and their causal effect on economic outcomes (see Guiso et al., 2006, Guiso et al., 2015, and Giavazzi et al., 2019 among others). On this front, our analysis, instead, is closer to a relatively small literature that has engaged in the analysis of the short term effects of technological innovations and changes in the economic environment on institutional and ideological equilibria. Greenwood et al. (2014) look at the role of contraception in determining changes in attitudes toward premarital sex; Doepke and Zilibotti (2008) and Doepke and Zilibotti (2017) study models of cultural transmission where forward-looking parents socialize their offsprings to the optimal cultural traits given the changing economic environment. Di Tella et al., 2007 shows that land squatters randomly granted property rights adopted more "pro-market" beliefs, relative to their less-lucky neighbors. In a more historical setting, Becker and Pascali (2019) argues that the Protestant Reformation opened up competition in sectors previously dominated by Jews, leading to an increase in anti-Semitism. In the same spirit, our analysis shows that a decrease in the economic importance of the institution of slavery led to a decrease in the prevalence of pro-slavery attitudes captured by changes in several types of political and ideological measures.

Our paper also contributes to an extensive literature on the economics of US slavery. The bulk of these studies focused on the profitability of investments in slaves and the relative efficiency of slave and free labor.[9] This debate was intertwined with the problem of slave labor sector specialization. A plurality of competing hypothesis survived the debate — gang labor (Fogel and Engerman, 1974), seasonality of labor requirement (Earle, 1978), risk diversification (Wright, 1979), effort intensity (Fenoaltea, 1984), scale effects (Irwin, 1988), turnover costs (Hanes, 1996).[10]

Building on this literature, we propose a new approach and show the link between agricultural comparative advantage and slave labor allocation. By studying the effect of the Westward expansion on slave relocation, we also complement the research on the ability of the southern economy to efficiently relocate resources in response to changes in demand and the technology of production. Related to the Westward expansion Tadman (1989), Pritchett (2001) and, Steckel and Ziebarth (2013) have quantified the movement of slaves and provided estimates for the Interregional Trade. Fogel (1989) highlights the role of navigable rivers and steamboats in the Westward movement and

[8] See Greif, 1994, 917. Other important contributions to this literature include (Akerlof and Dickens, 1982; Kuran, 1993; Rabin, 1994; Bowles, 1998; Bénabou and Tirole, 2002; Benabou and Tirole, 2006; Di Tella et al., 2007; Di Tella et al., 2015a; Bénabou, 2013; and Bénabou and Tirole, 2016)

[9] The literature is too ample to be surveyed here. Among others, relevant contributions are Conrad and Meyer (1958), Yasuba (1961), Fogel and Engerman (1974, 1977, 1980), Fogel (1989), Wright and Kunreuther (1975); Wright (1975, 1978, 1979, 2006), David and Temin (1979), Schaefer and Schmitz (1979), Haskell (1979).

[10] More recently Esposito (2018) studied the role of Malaria in the rise of slavery in the 17th and 18th century.

quantify its contribution to the Southern growth rate.

Finally, our paper contributes to the literature on the politics of slavery. The sources of political and ideological support (and opposition) to the institution of slavery in the South has been the object of several studies. Although there exists a large literature,[11] recent quantitative analysis are relatively scarce and mainly focus on the events surrounding the Civil War. Calomiris and Pritchett (2016) study slave price fluctuations and news in the month preceding the Civil War; Chacón and Jensen (2019) show that counties with more slaveholders and planters were systematically overrepresented in the secession conventions; Hall et al. (2019) show that slave-owners were more likely to volunteer for the confederacy; González et al. (2017) study the role of slave property as a source of collateral before and after emancipation in Maryland. There is instead a rich literature on the long term effect of slavery both inside and outside the US.[12]

The rest of the paper is organized as follows. Section 2 introduces the historical background and discusses the relationship between slave labor allocation and the choice of crops. Section 3 presents the data. Section 4 lays out the empirical strategy. Section 5 studies the effect of the Westward territorial expansion on crop mix adjustment and slave labor allocation. Section 6 investigates the political consequences of agricultural shocks. Section 7 studies the effects on the supply of slavery-related by newspapers and the changes in the free black population. Section 8 discusses the potential mechanisms that relate changes in economic incentives to our political and ideological results. Section 9 concludes.

2 Historical Background and Slave Labor

2.1 Agriculture and Slavery in the US

During the period of our analysis, 1810 — 1860, slavery was a controversial institution, abolished in the Northern States, and widely used as labor factor in the southern agricultural economy. The number of slaves available to the southern economy was of about one million people in 1810 over a total population of less than three million people. The proportion has been roughly stable, with a slave population of four million people in 1860 over a total southern population of twelve million. The US economy was highly rural, even in the last period of our analysis. For the whole US, in 1800 and 1860, the agricultural sector employed over 74% and 55% of the labor force and accounted for around 45% of 1860 total output (Weiss, 1992). The Southern economy was even more markedly rural, as reflected in the low number of its urban population who never surpassed 8% before the end of the civil war.The main economic activities consisted in the production for the market of few cash

[11] Stampp (1943), Wooster (1958), Genovese (1975, 1989), Cooper (1978), Crofts (1989) Fox-Genovese and Genovese (2008), King and Haveman (2008), Budros (2005), Hammond (1974)

[12] Nunn (2008) on economic development; Bertocchi and Dimico (2014) income inequality; Baiardi (2018) gender division of labor; Bertocchi and Dimico (2019) family structure; Jung (2019) human capital. Dell (2010), Acemoglu et al. (2012); Bobonis and Morrow (2014); **?** for studies on Latin America. Buggle and Nafziger (2018) and Markevich and Zhuravskaya (2018) for the Russian Empire.

crops in which slave labor was both the major capital investment and an important labor input, North (1961). The most relevant product within the Southern economy was cotton, which accounted for 38% of the total agricultural value in 1860, followed by sugar (30%), corn (27%), wheat (8%) and tobacco (5%).[13]

The bounded labor needed for agricultural production was organized through a slave market which grew to maturity after 1808, when the Atlantic slave trade was officially ended, impeding the legal introduction of new slaves from abroad. Between 1810 and 1860, about one million of slaves have been relocated throughout the southern territory (Tadman, 1989, Pritchett, 2001 and Steckel and Ziebarth, 2013),[14] both through the interstate trade and through slaveowners migration. The trade was conducted by professional agents who would purchase slaves through public auctions or advertisements and sell them to the South-western regions.

The Antebellum is a period of profound transformation in the structure of the southern economy, characterized by a sharp increase in agricultural output and a shift of production to the West; between 1810 and 1850 the "cotton crop increased nearly tenfold and the share of the western states leaped from 7 to 64 percent" (Fogel, 1989 p. 64). Cliometricians have shown that the southern economy experienced a period of sustained growth. Fogel (1989) estimated a rate of growth in per capita income of 1.7 percent in the period between 1840 and 1860 which - the author maintains - not only was one third higher than the Northern one but also quite high for historical standards.

During this period, two major forces are at work. First, the increase in the land available for agricultural production through the Westward expansion of the frontier. Between 1810 and 1860, the inhabited land increased by three times in the southern States. Second, the Southern population increased by four times. These two elements, combined with the high international demand for the southern crops (in particular cotton demand grew at approximately 5% per year from 1830 to 1860 (Wright, 1975)), are the economic forces that shaped the evolution of the economy of the antebellum South. Figures depicting this expansion can be seen in Appendix G.

2.2 The Choice of Labour Inputs: Slavery *vs.* Free Labor

That a large share of slaves in the US South was employed in the cultivation of cotton is hardly a controversial statement. In 1860, the average share of cotton in the gross value of farm output varied from 29 percent on slaveless farms to 61 percent on plantations with more than 50 slaves (Wright, 1979; Fogel and Engerman, 1977).[15] Nevertheless, what accounts for such specialization, and more in general for the heterogeneous distribution of slaves across sectors in colonial and Antebellum America, has been the object of extensive debate.

[13] Own computation from the Agricultural Census of 1860. Total agricultural value is given by the sum of crop, orchard, and market garden values as reported in the Census, (Haines and ICPSR, 2010).

[14] On the relative importance between trade and slaveowners migration in the movement of slaves we refer to Tadman (1989), Pritchett (2001) and Steckel and Ziebarth (2013). Different estimates suggest that trading outweighed planters' migration by numerical importance, accounting for more than 50% of the overall movement of slaves.

[15] In the same year 75% of the enslaved population lived in counties that produced more than 1000 bales of cotton.

Different theories have been proposed to explain these patterns of specialization. The idea that certain crops were better suited to the use of gang labor techniques (Fogel and Engerman, 1974; Fenoaltea, 1984) and effort-intensive tasks (Fenoaltea, 1984); the inherent riskiness in the production of non-food cash-crops (Wright and Kunreuther, 1975; Wright, 1979); the number of weeks in a year a crop needs to be attended for (Earle, 1978), and the number of peaks of the labor requirements in a year (Hanes, 1996). In Appendix B, we provide a more detailed discussion of these theories and their implications.

Whether the heterogeneous distribution of slave labor can be explained by one or a combination of several arguments, by revealed preferences, it results that slave labor implied a certain advantage in the production of cotton. On the other spectrum, because of their distinctive seasonality,[16] most of the literature has associated grains to free labor.[17]

Guided by the previous literature, we expect that a change in the crop mix in favor of cotton should result in an increase in the use of slaves. The opposite in case of a change in favor of wheat.[18] In Appendix C.3 we expand our analysis to include sugar and tobacco. We do not consider any other grain since no grain other than wheat was extensively cultivated in the South.[19]

2.3 Westward Expansion and Labour Inputs Adjustments

The theory of comparative advantage predicts that farmers make production decisions based on their land relative productivity, compared to the other producers. Consider that each county, $i \in N$, in the US South, is endowed with a plot of land. Each county has different productivity for cotton and wheat, respectively A^c and A^w. If two counties, 1 and 2, are such that $A_1^c/A_1^w > A_2^c/A_2^w$, then county 1 has a comparative advantage in the production of cotton with respect to wheat. Relative production will reflect the order of relative productivity.[20]

The Westward expansion led to a threefold increase in the size of inhabited land in the US South and induced a shift in the distribution of relative productivity. Figure 1 panel (a) compares the distribution of relative productivity in the counties inhabited in 1810 and those inhabited between 1820 and 1860. Panel (b) plots cotton and slave prices.[21] In Appendix G, figure **??** shows that the total share share of slave remained constant while it declined in the counties below median relative productivity and increased in the ones above. Such a change in the distribution of relative productivity and prices induced changes in the choice of crop mix for each local county.

A drop in the distribution of relative productivity of cotton and wheat implies a decrease in

[16] Figure 23 in section B shows the seasonal patterns of cotton and wheat.

[17] We defer the discussion to section B of the Appendix.

[18] It is important to mention that our argument is not to be considered in absolute terms, but in relative ones. We do not maintain that Wheat and slavery are incompatible per se — counterexamples have been shown in the case of Piedmont Virginia by Irwin (1988) — but that, *ceteris paribus* a cotton (sugar and tobacco) producer has an advantage in the use of slave labor than a grain producer and that this has to be reflected in the allocation of slaves.

[19] While in 1860 wheat accounted for 10.5 of the Southern agricultural output other grains like rye and oats accounted for only 0.6 and 0.8 of the Southern agricultural output respectively.

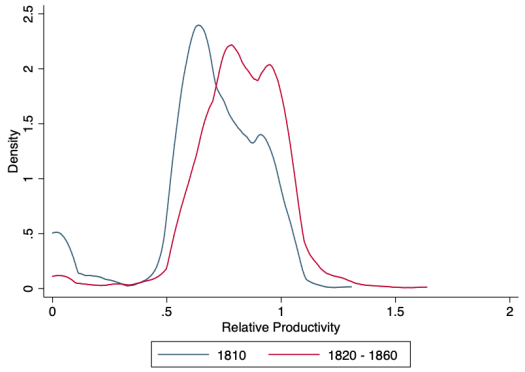
[20] See for example Costinot and Donaldson (2012) for a recent discussion of the theory of comparative advantage.

[21] Figure **??** in Appendix G maps the westward expansion.

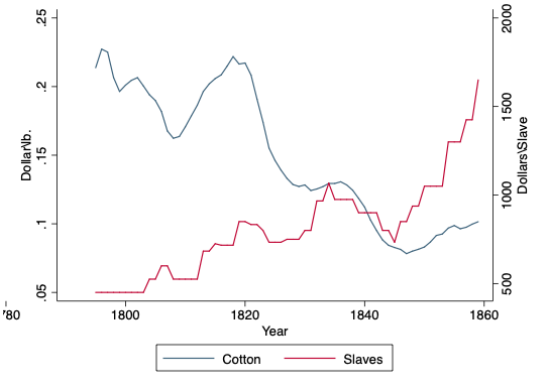
relative production. In our linear approximation, the larger the drop, the larger the decrease in relative production.[22] As we previously suggested, the type of crop chosen maps into the type of labor input chosen. We expect a decrease in the county position in the comparative advantage in the production of cotton as opposed to wheat to result in the adjustment of the crop mix and in a decrease in the share of slaves at the county level.

Figure 1: Change in Comparative Advantage

(a) Relative Productivity



(b) Prices of Cotton and Slaves



The figure on the left plots the distribution of relative productivity of the counties inhabited in 1810 against the one of counties inhabited during the 1820-1860 period. The figure on the right plots 10-years moving average of cotton and slave prices. Cotton prices is for the New Orleans market, in Cole(1938). Slave prices are from Phillips(1905).

3 Data

Our analysis relies on information at the county level from 1790 to 1860. Following the definition of the frontier in Turner (1920) and Bazzi et al. (2017), our sample includes all counties with a population density above two individuals per square mile. To obtain a constant geographical unit over time, we harmonize all historical Census data in the NHGIS to 1860 boundaries, following the procedure suggested in Hornbeck (2010). First, we intersect all the county shapefiles from 1810 to 1850 with the 1860 shapefile. Then for each variable, we sum up all the pieces that constitute an 1860 county weighted by the share of the area the piece had in the original county. We label the data as nonreliable if most of the information of an 1860 county comes from an old county that split in more than four sub-counties. To carry on the analysis, we combine information from several sources.

Land Productivity. We construct county-level measures for crop-specific land productivity using data from the Food and Agriculture Organization's Global Agro-Ecological Zones (FAO-GAEZ)

[22] In appendix we show that the results are similar when we use variation in prices.

database, Fischer et al., 2002. The FAO-GAEZ database constructs indices for each crop based on information on precipitation, frequency of wet days, mean temperature, diurnal temperature range, vapor pressure, cloud cover, sunshine, ground-frost frequency, wind speed, and information on the slope of the land. The result is a suitability measure that goes from 0 to 100. We aggregate this measure of suitability for each crop at the county level, using the average as a baseline variable for crop suitability.[23] The measure we employ has been used in several studies in economics. Recent examples are Nunn and Qian (2011), which uses a suitability measure to estimates the contribution of potatoes to the world population; Bustos et al. (2016) uses the dataset to show that changes in agricultural productivity led to structural transformation in Brazil. In the context of slavery, Baiardi (2018) looks at the effect of the gender division of labor across agricultural sectors in US slavery and Acharya et al. (2016) uses cotton suitability as an instrument in the prediction of slavery's political legacy.

Census data Data are taken from the decennial US Census of Population, made available by Haines and ICPSR (2010), which includes information on white, slaves, and free black from 1790 to 1860. Data on the number of family members and slaves owned per household are from the IPUMS-USA 1790-1840, Full Count Household Level Data, are made available by Manson et al. (2018).

Production data and data on the value of the farmland are from the Census of Agriculture and Manufacture, respectively, Haines and ICPSR (2010). This information is available for 1840, 1850 and 1860.

Prices We collect Antebellum prices from several sources. Adams (1992) provides a series of wages for West Virginia. UK cotton prices are from Clark (2005), US crop prices are from Cole (1938). Finally, we obtain prices of slaves from Phillips (1905).

Geographical controls. We build geographical controls using the Census regions in Manson et al. (2018), and construct variables for counties' distance from the Mason-Dixon line. Data on the network of navigable rivers are from Atack (2017).

Presidential and gubernatorial elections. We obtain data on elections from the ICPSR (1999) which contains county- and state-level returns for all elections to the offices of president, governor, from 1824 to 1860.

Legislators' ideology. We collect data on congressmen's ideology between 1810 and 1860 (11th to 36th Congresses) from Lewis et al. (2019). As suggested by Poole and Rosenthal (1985) and McCarty et al., 2006, we use the first dimension of the Poole-Rosenthal DW Nominate scores as a measure of politicians' ideology.[24] The scores rank members of Congress on an ideological scale from liberal to conservative using voting behavior on previous roll-calls. We use three different ways of computing the score. A first measure, Nominate, computes a single score for each elected member of the Congress and the Senate using votes cast throughout their entire career. This gives a single,

[23] All census data were obtained through the Natural Historical Geographic Information System (NHGIS) available at www.nhgis.org (see Minnesota Population Center, 2011), and the Inter-university Consortium for Political and Social Research (ICPSR) available at www.icpsr.umich.edu.

[24] For papers employing the same methodology see Autor et al., 2017 and Tabellini, 2019

fixed over time, ideological position to each legislator. A second measure, Nominate-NP, computes a score for each member of Congress in a given congress. This measure assigns an ideological position to a legislator which may change from Congress to Congress, capturing the ideological change of a given congressman over time. A third measure, Position, captures the relative position of a congressman with respect to the other legislators in a given congress. Because the boundaries of the Congressional Districts change over time, we use the same technique described in the case of counties to homogenize geographic unit over time, proposed by Hornbeck (2010). We then aggregate at the Congressional District level the information available at the county level. Finally, we use the algorithm proposed by Poole and Rosenthal (1985) to decompose ideological change on different issues.

Legislators' voting behavior. We construct a new dataset on voting behavior by House of representatives when voting for issues related to slavery using roll-call votes database using the Congressional Roll-Call Votes Database Lewis et al. (2019) to study changes in pro-slavery voting behavior. For each vote concerning slavery, we manually code whether a "yea" vote is to be considered in favor of or against slavery. For all 222 votes regarding slavery in the history of the House, for all Representatives, whether they voted in favor or against slavery (or if they abstained from voting).

Secession Votes. We constructed a database on the Secession Conventions' votes using several sources. In the State of Virginia, Tennessee and Texas referenda were held to ratify the Ordinance of Secession. In those cases, we collect information on the popular vote. For the rest of the States, we collect information on delegates' voting behavior or the share of popular votes obtained by the candidates to the secession conventions. Sources of information are the following.[25] In the case of Georgia, Arkansas and Florida, we refer to Wooster (1954, 1956, 1958); for Alabama to the original Journal of the Convention Smith (1861); for Louisiana to Dew (1970); for Mississippi to Rainwater (1938). We collected data for 9 out of 11 secessionists State. We excluded South and North Carolina because the delegates at the secession conventions voted unanimously to secede from the Union. A more detailed description of the secession data is provided in Appendix.

Newspapers. We obtained the full text of 90'000 issues of 282 newspapers published in the Southern US during the Antebellum period. Taken all together, the text of these newspapers sum up to 2.6 billion words. We construct this database using two sources: 19th Century US Newspaper (Gale, 2019) and Chronicling America, a website providing access to information about historic newspapers and select digitized newspaper pages, produced by the National Digital Newspaper Program. Using the information provided by Chronicling America, we coded for each newspaper the party affiliation in case it was reported. We manually coded the remaining newspapers.

[25] The information for the State of Texas are reported in Timmons (1973); in the case of Tennessee the data are available at the link www.arcgis.com/home/item.html?id=377f57406e51466699edf05b41bb7d77data; in the case of Virginia the data are available at the link www.newrivernotes.com/historical_antebellum_1861_virginia_voteforsecession.htm.

4 Empirical Framework

4.1 Measuring Local Changes in Agricultural Incentives

The first empirical challenge we address consists in measuring local changes in agricultural incentives. In our baseline specification, we focus our attention on incentives to the production of the main slave intensive crop (cotton) and the main non-slave intensive crop (wheat).[26] In the Appendix, we expand the analysis by taking into account the other primary crops: sugar and tobacco, and corn.

First, using the FAO-GAEZ database, we compute the county-level measures of crop productivity by taking the average of the grid-cells composing each county.[27] We use these measures of absolute productivity in cotton and wheat to estimate the relative productivity of each county. The relative productivity in cotton compared to wheat of county i is defined as $RP_i \equiv \frac{A_i^{cotton}}{A_i^{wheat}}$. The measure of relative productivity is then used to compute the comparative advantage of each county at a given moment in time. For any two counties $i, j \in \mathbf{N}$. We say that county i has a comparative advantage in the production of cotton with respect to county j if $RP_i > RP_j$. As illustrated in section 2.3, we expect the amount of cotton produced in county i to be higher than in county j.

For a given census year, we define an agriculturally active county as a county with at least 2 individuals per square Km. Considering the full set of agriculturally active counties in a given year, we expect that, according to the theory of comparative advantage, the cotton production with respect to the wheat production in county i to be weakly decreasing with respect to the rank of this county in the relative productivity of cotton with respect of wheat (RP_i).

In our baseline specification, because counties may have different sizes, we the compute land-rank of a county i at time t as the total amount of land (Km^2) with relative productivity higher than RP_i. In other words we define the land-rank of county i at time t (LR_{it}) as:

$$LR_{it} = \sum_{j=1}^{N_t} w_j I_{(RP_j \geq RP_i)}$$

where w_j is the size of county j and N_t is the number of counties in year t.

We use the relationship between land-rank and agricultural production decisions to study the effects of the Westward expansion. As the frontier moved West, new land was added to the US. As already mentioned, in the baseline specification, we include counties with a threshold level of the population higher than two individuals per squared miles. Figure 3 shows that counties with the highest relative productivity were to be found toward the West, therefore, affecting the LR_{it} of most counties. Very few counties at the top of the distribution of relative productivity in 1810 remained at the top of the distribution in 1860. These exceptional counties continued producing high quantities of cotton and remained mostly unaffected by the Westward expansion. These counties are the ones

[26] The most prevalent crop in the Southern economy was cotton, accounting for 38% of the total value produced in the agricultural sector in 1860. Wheat accounted for 8% of the total agricultural value.

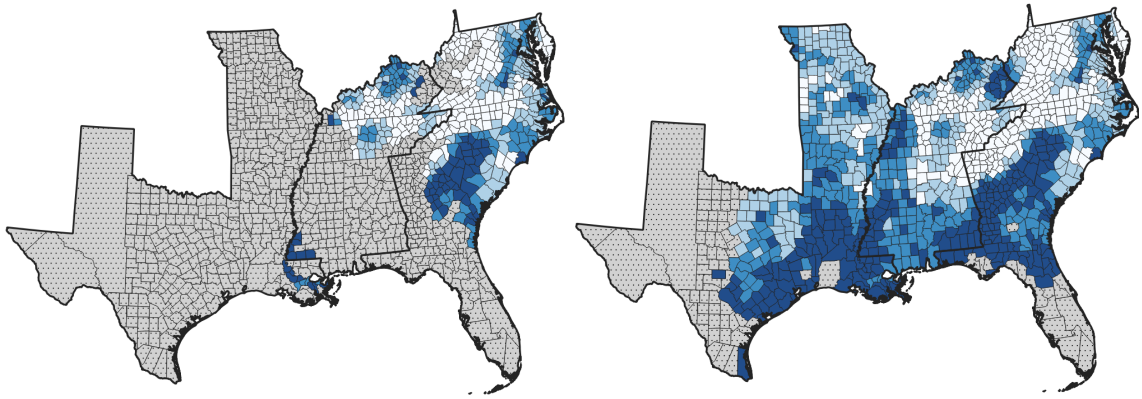
[27] As a measure of productivity we use the suitability index described in section 3

that do not change color between panel (c) and (d) in Figure 3. All the other counties saw their land-rank increase. Changes in the land-rank forced counties to adapt their production decisions to the new competition brought by the counties added in the West. The size of the increase in the land-rank for a county i between time t and time $t+1$ depends on this county relative productivity and the distribution of the relative productivity of the newly added land.

Figure 3: Distribution Relative Productivity and Land-Rank

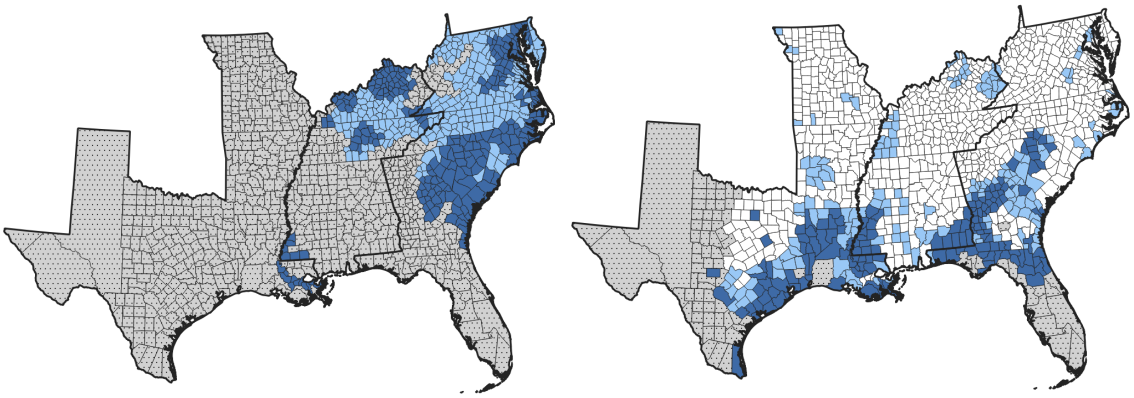
(a) Relative Productivity in 1810

(b) Relative Productivity in 1860



(c) Land-Rank in 1810

(d) Land-Rank in 1860



Panel (a) and (b) show the distribution of $(\frac{A^{cotton}}{A^{wheat}})$. Grey counties are counties with a population density lower than 2 individuals per km^2. Darkest counties are the highest quartile, lightest the lowest. Panel (c) and (d) show the distribution of land-rank. Counties with a land-rank larger than the size of the US South in 1810 are depicted in white (therefore no county in 1810 is white). Counties with a land-rank lower than the land-rank of the median county in 1810 are dark blue. Counties with a land-rank in between this two numbers are light blue. In all panels the darkest lines represent the borders between census regions

4.2 Baseline Estimating Equation

We use the variation in local agricultural incentives to estimate changes in slave labor allocation. Counties that experienced a larger increase in land-rank should reduce cotton production and increase wheat production more than counties less exposed to changes in comparative advantage. Hand-in-hand with production changes, we expect counties to adjust the stock of slave labor accordingly. We test this hypothesis by estimating the following equation:

$$y_{i,t} = \alpha_i + \alpha_t + \beta LR_{i,t} + \delta X_{i,t} + \epsilon_{i,t} \tag{1}$$

where i represents county, t represents the census-year from 1810 to 1860. Our baselines outcomes of interest, $y_{i,t}$, are measures of slave labor use. Section 5.2 presents results for cotton and wheat production. In Section 6, we use the same identification strategy to study whether changes in comparative advantage had any political or ideological effects.

The term α_i controls for county fixed effects absorbing all the time-invariant county characteristics, which could potentially affect the number of slaves in a county. Differences in geographic, economic and institutional conditions that do not change over time are accounted for by these fixed effects. The term α_t accounts for census year fixed effect which captures changes over time common to all the counties: federal policy, broad cultural, economic or technological changes. α_t also captures the common effect the Westward expansion had on all counties. Therefore, with $LR_{i,t}$, we only capture the differential effect that the Westward expansion had on counties. Finally, we include $X_{i,t}$, a vector of variables that vary over time and space. In our baseline specification, this includes regional trends and trends that vary with the distance from the North (defined as the Mason-Dixon line). The coefficient of interest β is estimated only using differential changes in the land-rank of counties within census regions and at the same distance from the north. When $y_{i,t}$ is cotton production or the number of slaves, we expect β to be negative. The counties most affected by the competition from the new land added to the US should experience the largest change in agricultural production away from cotton and towards wheat and therefore the largest changes in the use of slave labor.

4.3 Identification

The variation that identifies β comes from changes over time in the counties' land-rank. First, changes in LR_{it} are weakly increasing for all counties. Second, the size of the change in LR_{it} can be very different for different counties between two census years, and even for the same county between different census years. Counties at the bottom of the distribution of relative productivity experience large changes in LR_{it}, while counties at the top experience small changes. Counties in the central part of the distribution received shocks depending on their position in the distribution of relative productivity with respect to the new counties included in the US. This generates a non-linear and time-varying relationship between RP_i and LR_{it}.

The critical identification assumption is that there are no unobservable characteristics that affect

changes in the outcome of interests differently across places with high and low RP_i. Furthermore, given the time-varying non-linear relationship between RP_i and changes in LR_{it}, the potentially problematic unobservable characteristics should follow a similar time-varying function.

First is important to notice that given the inclusion of time fixed effects in all our regression the identification strategy is not threatened by aggregate characteristics of the Westward expansion. For example, settlers may have decided to move in territories based on some specific soil characteristics found in the West with respect to the land already available in the US. This is not problematic for our identification strategy because our identifying variation comes from the differential effect that the addition of new territory has on the LR_{it} of different counties.

A more salient concern for the identification strategy is the fact that, as shown in panel (b) of Figure 3, relative productivity, displays geographical clusters. These clusters may overlap with some institutional, cultural, and economic forces that affect changes in the slave population. For example, some regions in the Deep South have a high concentration of land suitable for slave labor and, at the same time, common social, demographic, political, and cultural characteristics that could affect changes in the decisions cotton production or the use of slavery. If these characteristics affected the outcome of interest with a similar time-varying function as the relation between relative productivity and changes in LR_{it}, this would generate a bias.

We address this issue by including regional trends and trends that vary with distance from the North (Mason-Dixon line). The firsts guarantee that our results are not driven by characteristics that vary between regions. Trends varying with distance from the North control for the potential influence states with no slaves may have on the incentives to slave-ownership. Counties at the border with the North are more exposed to northern moral and political ideas and therefore may be more reluctant to the use of slave labor. Similarly, geographical proximity may imply stronger economic ties and influence production decisions which would affect labor input choices. Furthermore, the closeness to the border increases the likelihood of fugitive slaves both because of the geographical proximity to the Northern free states and the higher concentration of the "underground railroad": a network of secret routes and safe houses that facilitated the escape to freedom of slaves. Overall the increased probability of losing a slave increased the risk and cost of owning a slave. Controlling for the distance to North interacted with year fixed effect is a way to take care of the likely economic and cultural spillover. Furthermore, in section C, we present estimates for alternative specifications to address other similar concerns. In particular, we present the estimates restricting to variation coming from within states and we control for the share of the enslaved population in the pretreatment period (1810). We further decompose the shocks into crop-specific variation and propose an alternative specification using changes in prices. Finally, we show that our estimation is robust to restricting our analysis to the sample of those counties belonging to the US in 1810 and restricting our analysis to the counties formed during the Westward expansion. In our baseline specification, our identifying variation compares the rate of change of the enslaved population in two counties net of regional trend and trend varying with the distance to the Northern border, when both exposed to a quality-specific

change in the available agricultural land.

5 Agricultural Incentives and Slave Labor Allocation

5.1 Main Results on Slave Allocation

Table 1 shows our main results on slave labor relocation. All the coefficients show the effect of an increase in LandRank$_{i,t}$ on the presence of slaves at the county level. Land-Rank$_{i,t}$ represents the amount of land with a higher RP$_i$ (relative productivity between cotton and wheat) than county i in census year t. A county with a median land-rank in 1810 faced the competition of 297,000 Km^2 of agriculturally active land with a higher level of relative productivity. The same county by 1860 faced 1,239,000 Km^2 of land with a higher level of relative productivity. Therefore for this county, the amount of land with a higher RP$_i$ increase between 1810 and 1860 by 942,000 Km^2. In order to make the estimates easy to interpret, we normalize Land-Rank$_{i,t}$ so that the Land-Rank$_{i,t}$ of this county increased between 1810 and 1860 by 1. The results are consistent with our proposed mechanism. Counties that experienced a stronger loss in the comparative advantage of cotton vs. wheat went through a greater decrease in the slave labor employed.

Column(1) in table 1 shows that the share of the enslaved population in a county with a median RP in 1810 dropped by 10.8 p.p. between 1810 and 1860 due to the increase of land with a higher RP generated by the Westward expansion.

Table 1: Slave Relocation - Baseline

	(1)	(2)	(3)
	% Slaves	Slaves per 1000 km^2	N. Slaves
Land-Rank	-0.108***	-1864.7***	-2587.3***
	(0.0134)	(225.1)	(338.8)
Observations	4471	4471	4471
County FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Region * Year	Yes	Yes	Yes
ln(Distance North) * Year	Yes	Yes	Yes

Note: This table shows the effect of changes in the land-rank on slaves' relocation between 1810 and 1860. The variable of interest is Land-Rank$_{it} = \sum_{j=1}^{N_t} w_j I_{(RP_j \geq RP_i)}$ with $RP_i = \frac{A_i^{cotton}}{A_i^{wheat}}$. The measure Land-Rank$_{i,t}$ is standardized so that the county with the a median RP in 1810 gained 1 Land-Rank$_{i,t}$ between 1810 and 1860. The coefficient in column (1) reports the effect on the share of slaves with respect to the total population. Column (2) reports the effect on the number of slaves per 1000 Km^2 and column (3) for the absolute number of slaves. Each regression includes county and year fixed effect, and trends in the distance from the North and census regional trends. Robust Standard Errors clustered at the county level are shown in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The reduction in the percentage of the enslaved population is substantial when compared to an average share of slaves of 28 % in 1810. Overall, the estimates imply that between 1810 and

1860, almost 800'000 slaves were relocated due to the competitive forces generated by the Westward expansion. The magnitude of this relocation is impressive given that even at its peak the slave population was about 4 million.[28]

Columns (2) and (3) show that the estimates are robust to different measures of slave labor at the county level. In column (2) the outcome of interest is the amount of slaves per 1'000Km^2 of land. Estimates show that a county with the median RP in 1810 lost 1,865 slaves per 1'000Km^2 between 1810 and 1860 due to the Westward expansion. Column (3) shows that a county with the median RP in 1810 lost 2'587 slaves between 1810 and 1860 due to the Westward expansion. Again, the size of the coefficient has to be compared to an average number of slaves in 1810 of 2'517.

In Appendix C, we propose several alternative specifications to show the robustness of our results. First, in Appendix C.1, we capture changes in comparative advantage using the interaction between national prices (cotton vs. wheat and slave vs. free labor) and local measures of RP. Second, Appendix C.2 shows that our estimation is robust to the restriction of the sample both to those counties belonging to the US in 1810 and to the counties formed during the westward expansion. In Appendix C.3, we reproduce the baseline results taking into account sugar and tobacco productivity. In Appendix C.4, we decompose our variation into crop-specific changes of land-rank. The exercise shows that the timing of the slave relocation follows different patterns depending on the timing of the expansion into cotton or tobacco productive land. In Appendix C.5 we replicate the baseline regression exploiting only within-state variation. In Appendix C.6, we study the role of alternative mechanisms that could account for the observed relocation process. In particular, we control for the proximity to a navigable river and changes in the value of the farm.[29] Finally, in Appendix C.7, we conduct a pre-trends study focusing on the period before the abolition of Transatlantic slave-trade in 1808, when the stock of slaves was practically unconstrained. In this period changes in comparative advantage for the production of cotton and wheat did not predict changes in slave use.

Table 1 shows that changes in the comparative advantage in agricultural production mapped into changes in the comparative advantage in the use of slave labor, strongly supporting the link between crop production and labor allocation.

5.2 Mechanism: Agricultural Transformation

According to our hypothesis, changes in agricultural comparative advantage should result in changes in the crop mix and, therefore, in slave allocation. In this section, we provide evidence of the relationship between changes in agriculture comparative advantage as captured by changes in land-rank, and changes in the choice of crop production. A decrease in land-rank should result in an increase in wheat production and a decrease in cotton production. Table 2 reports the results of our

[28] The number of slaves that each county relocated because of the Westward expansion is computed multiplying the estimated parameter in column (1) of Table 1 by the total amount of land-rank lost and the total population of the county. The total relocation is then estimated by summing up this value over all counties.

[29] The first one proposed by Fogel (1989), the second by Wright in several instances, see Wright (2003) for a recent discussion.

baseline specification, where the outcomes of interest are measures of cotton and wheat production: both physical output and value. Because of data limitation,[30] we perform the analysis only for the years 1840 - 1860.

Table 2: Mechanism - Agricultural Transformation

	ln(Production)		ln(Value)	
	(1)	(2)	(3)	(4)
	Cotton	Wheat	Cotton	Wheat
Land-Rank	-3.633***	1.276***	-2.858***	1.308***
	(1.082)	(0.396)	(0.888)	(0.409)
Observations	2790	2785	2790	2785
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Region * Year	Yes	Yes	Yes	Yes
ln(Distance North) * Year	Yes	Yes	Yes	Yes
Sample	1840-1860	1840-1860	1840-1860	1840-1860

Note: This table shows the effect of changes in the distribution of relative productivity on agricultural production between 1840 and 1860. The variable of interest is $LR_{it} = \sum_{j=1}^{N_t} w_j I_{(RP_j \geq RP_i)}$ which captures the number of (1'000,000) Km^2 of land with higher relative productivity with respect to county i in year t. The coefficients in columns (1) and (2) report the effect on the log of production of cotton and wheat, respectively. Columns (3) and (4) report the effect on the value produced in cotton and wheat and column (5) and (6) on cotton and wheat as a share of the total agricultural value produced in the county. Each regression includes county and year fixed effect, trends in distance from the North, and Region trends. Errors clustered at the county level are shown in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

As expected, counties that lost comparative advantage in the production of cotton with respect to wheat reduced the production of cotton and increased the production of wheat. A county that in 1840 had a median relative productivity of cotton with respect to wheat lost around 300'000 Km^2 in land-rank between 1840 and 1860. This county experienced, between 1840 and 1860, a 71% reduction in the production of cotton and a 58% increase in the production of wheat. This corresponds to a 63% drop in the value of cotton production and a 60% increase in the value of wheat production.

In Appendix C.6 we explore alternative mechanisms mentioned in the literature. First, we show that the estimates of the change in comparative advantage are robust to the inclusion of changes in the availability of means of transportation (proximity to navigable rivers)[31] and to the value of the farm.

[30] The US census started to collect information on agricultural output from 1840.
[31] We do not study the railroad expansion because of its reduced presence in the South up to the 50s.

6 Political and Ideological Effects of Economic Incentives

In this section, we explore the political and ideological consequences of changes in economic incentives in the use of slave labor. First, in section 6.2, we analyze the immediate political implication this economic transformation had on the politics of slavery. We analyze two aspects: first, we look at members of congress' voting behavior on issues concerning slavery; second, we look at voting behavior in the secession conventions, linking local economic conditions to pro-secession political preferences. Second, in section 6.3, we extend our analysis to political parties competition analyze changes in the ideological position of legislators on issues different from slavery.

6.1 The Politics of Slavery

The period studied saw the consolidation of a bipartisan political system and the sectional (North-South) conflict over slavery. In the early years after the British-American War (1812), the Federalist and the Republican-Democrat came to dominate the political scene. During the First Party System (1792 - 1824), partisanship was minimal, and parties' role in shaping mass participation into politics was very reduced. Up until the Missouri crisis[32], the issue of slavery was relatively little debated in Congress. The crisis played a central role in shaping the sectional conflict and in focusing the national attention on slavery. The House Speaker, Henry Clay, remembered the crisis as an event which "monopolized all our conversation, all our thoughts and ... all our time. Nobody seemed to think or care about anything else."[33] The crises ended up with the Missouri compromise (1820), establishing the Mason-Dixon line as the demarcation of slave and free territories. From the end of the 1820s congressional debates on slavery grew in importance, leading to controversies both around sectional lines (North vs. South) and party lines.[34] Figure 11 in Appendix D.1 shows the timing of the congressional debate over slavery as the number of laws concerning slavery voted by Congress.

The First Party System gave way to the Second Party System (1828 - 1860) which saw the rise of the Jacksonian and Anti-Jacksonian factions within the Republican-Democratic party and ultimately their transformation into Democratic and Whig parties. The two parties came to dominate Federal and State politics up until the eve of the Civil War. Despite their apparent equal commitment to slavery,[35] we show that during the Second Party System, parties did differ substantially in their share of votes in favor of slavery even in the South.

We establish this fact analyzing the differences in the roll-call voting behavior of Southern Con-

[32] A congressional crisis centered around the acceptance of Missouri as a slave state.

[33] See Mason, 2006, p. 177

[34] Due to the explicit effort to organize national politics on lines other than slavery. Martin Van Buren, the principal architect of the Second Party System, wrote that "if the old" party loyalties that bound "the planters of the South and the plain Republicans of the North" receded, "geographical divisions founded on local interests or, what is worse[,] prejudices between free and slaveholding states will inevitably take their place." Mason, 2006, p. 214)

[35] The Consensus historians have long maintained that slavery was the cornerstone of southern politics, independently on party politics. See for example Cooper (1978). Other works have highlighted the geographical division of the system, Crofts (1989). Other analysis have focused on divisions between yeoman, poor whites, and slaveowners, Watson (1985); Bolton (1994); Merritt (2017)

gressmen over the issue of slavery, in 3 distinct periods. First, between 1818 (first vote on slavery since 1810) and 1828. In this period, 14 votes regarding slavery were held, when the two main parties representing Southern voters were the Federalist and the Republican-Democrat party. Second, between during the Jacksonian era between 1828 and 1838 were Congress held 34 votes regarding slavery. Finally, from 1838 to the eve of the Civil War, 187 votes regarding slavery were held. As described above, the two main parties representing Southern voters were the Whigs and the Democrats. Each vote is coded as in favor or against slavery, Appendix A.2 explains the coding procedure. The issues at stake were mainly related to the expansion of slavery in the territories and the debate on fugitive laws.

Table 3: Party Difference in Votes Regarding Slavery

	Federalist vs. Rep-Dem 1818 - 1828		Anti-Jackson Vs. Jacksonian 1828 - 1838		Whig Vs. Democrat 1838 - 1860	
	All Votes	Drop Abstain	All Votes	Drop Abstain	All Votes	Drop Abstain
Difference	-0.0211	-0.0183	-0.1046***	-0.1378***	-0.0951***	-0.0915***
	(0.0301)	(0.0324)	(0.0150)	(0.0178)	(0.0053)	(0.0056)
Observations	1009	835	2915	2280	15851	12515
Number Laws	14	14	34	34	187	187

Note: This table reports the difference in the probability of voting against laws supporting slavery between the two main parties for the three periods. The main variable takes value 1 if a vote in favor of slavery is cast, value 0 if against slavery, value .5 in case of abstention. The sample includes all roll-call votes on slavery from 1818 (when the first vote on slavery was held) to 1860, in Congress. The table reports estimates only for congressmen elected in Southern congressional districts. Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3 shows the difference in the party fixed effect for the two main parties for each of the three periods. Two results emerge from the analysis. First, southern parties had some differences in their view of slavery, at least to the extent that this is reflected in their voting behavior. Second, slavery became a partisan issue only after 1828. Since then, the (Southern) Jacksonian party and the (Southern) Democratic party systematically voted more in favor of slavery with respect to other southern members of Congress. The difference in the likelihood of voting in support of slavery is around 10 percentage points. This difference is substantial given that, in this period, Southern members of Congress from the Jacksonian and Democrats, on average, voted only 6.2% of the time against slavery. Although these differences are large, it is important to highlight that none of the Southern parties ever campaigned for the abolition of slavery. The estimates in Table 3 reflect differences in the willingness to compromise on the defense of slavery.[36] Because the Whig party embraced state intervention as a tool for economic development, the southern section seemed willing to compromise on slavery to push for the adoption of these measures. For example, the ad valorem tax on slavery became the main point of contention in the North Carolina gubernatorial race of 1860

[36] Although marginal during the last decades of the Antebellum period, an antislavery movement existed in the South. See for discussions Stampp (1943); Finnie (1969)

that saw the democratic candidate, John Ellis, opposing the ad valorem taxation while the Whig candidate, John Pool, supported the tax (Bolton, 1994, p. 135). Or during the 29th Congress, 99% of the Whigs voted for high tariffs, while 83% of the Democrats voted for low or moderate tariffs. An economic policy — Calhoun and other Southern politicians argued — that was actually a tax on cotton producers (Fogel, 1989, pp. 320, 296).

With time, divisions over the expansion of slavery in the territories became more salient, and, in 1854, the Whig Party broke down, opening the space to the rise of the Republican Party in the North.

The 1860 election saw the Republican presidential nominee, Abraham Lincoln, winning the election with the support of only the Northern states. The victory led to the last sectional crisis before the Civil War. During the weeks after the elections, several southern states called for representatives conventions to discuss the opportunity of seceding from the Union. Between December 1860 and February 1861, South Carolina, Mississippi, Florida, Alabama, Georgia, Louisiana, and Texas seceded from the Union. At stake, it was the defense of the Southern property and the "right" to maintain the institution of slavery. Mr. Morgan, delegate of the Alabama Convention, clearly made this point on January 25th, 1861: "The Ordinance of Secession rests, in a great measure, upon our assertion of a right to enslave the African race, or, what amounts to the same thing, to hold them in slavery."[37] The document issued by the Georgia convention is also an eloquent testimony that secession was indeed intended to defend the institution of slavery: "The people of Georgia [...] refuse to commit their own to the rulers whom the North offers us. Why? Because by their declared principles and policy they have outlawed $3,000,000,000 of our property [...]."[38] After the Battle of Fort Sumter, a battle commonly regarded as the starting point of the Civil War, the Confederates were joined by Virginia, Arkansas, Tennessee, and North Carolina.

6.2 Political Support for Slavery

6.2.1 Legislators' Roll-call Behavior on Laws Regarding Slavery

In this section, we study the effects of changes in local agricultural incentives on the roll-call behavior of congressmen when voting on the issue of slavery. Because changes in incentives to the use of slave labor quite naturally affect the return from actions devoted to the defense of slavery, in a context of growing hostility to the institution, political commitment to its defense represented a costly behavior. As previously described, we focus on the 222 times Congress voted on the issue of slavery. The main outcome of interest is a dummy is equal to 1 if the representative voted in favor of slavery and 0 if against. Depending on the specification, abstentions are either coded as 0.5 or dropped from the sample. As in the other sections, our main variable of interest is land-rank (this time computed at the congressional district level).

[37] See Smith, 1861 p. 196

[38] From the Declaration of Causes of the Georgia Secession Convention, 1861. See Smith, 1861

Table 4: Votes on Laws Regarding Slavery - Pro-slavery Vote

	(1) All Votes	(2) Drop Abstain	(3) All Votes	(4) Drop Abstain
Land-Rank	-0.111***	-0.148***	-0.107***	-0.143***
	(0.0346)	(0.0495)	(0.0333)	(0.0485)
Observations	15170	14910	15148	14891
Cong. District FE	Yes	Yes	Yes	Yes
Vote FE	Yes	Yes	Yes	Yes
Region * Vote FE	Yes	Yes	Yes	Yes
ln(Distance North) * Vote FE	Yes	Yes	Yes	Yes
Party * Vote FE	No	No	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The table shows the effect of Land-Rank$_{it}$ on representatives' propensity to vote in favor of slavery in the House. The main outcome of interest is equal to 1 if the representative voted in favor of slavery and 0 if against. In columns (1) and (3), abstentions are coded as 0.5. In columns (2) and (4), abstentions are dropped. All regressions include county and vote fixed effect, regional FE * Vote FE and ln(Distance to the North) * Vote FE. Errors clustered at the Region * Vote level are shown in parenthesis.

Results in Table 4 show that members of Congress elected in districts that lost comparative advantage in the use of slave labor are less likely to vote in favor of slavery. To interpret the magnitude of these results, notice that at the time of the first vote in Congress regarding slavery (15th Congress 1817-1819), the median congressional district competed with 430,000 Km^2 of land with a higher level of relative productivity. The same county, by the time of the last vote regarding slavery (36th Congress 1859-1861), was facing 1,280,000 Km^2 of land with a higher level of relative productivity. This implies an increase of 850,000 Km^2 between 1818 and 1860. We normalize Land-Rank$_{i,t}$ to have a unit change between the 15th and the 36th Congress. Our results show that due to the loss in comparative advantage, representatives elected in a congressional district with median land-rank increased the probability of voting against slavery by 11 to 15 percentage points. Given that the Southern share of votes against slavery was 19%, the probability of voting against slavery for representatives of a district exposed to such a change in economic incentives almost doubled. This change is larger than the largest difference in voting behavior on the issue of slavery across party lines during the whole period in the analysis (see table 3). Column (3) and (4) of table 4, exploiting only within party variation, show that these changes are almost entirely independent of changes of congressional district in the party line.

6.2.2 Secession Conventions

To further understand the relationship between agricultural comparative advantage and political preferences in favor of slavery, we study voting behavior in the secession conventions. As described in Section 6.1, we interpret a vote in favor of secession as a vote in defense of slavery.

Ordinances of secession were voted by committees of delegates elected for that specific purpose and reunited in caucuses known as Secession Conventions. In a few cases, the ordinance of secession had to be ratified by popular vote. Appendix A.1 provides a description of the coding of the outcome variable for each state. Although our measure of pro-secession votes is not uniform across states, our estimates are all computed from within-state variation. This eliminates the concerns related to differential measurement error between states. The main caveat of this exercise is given by the cross-sectional nature of the votes in the Secession Conventions. This implies that we observe voting behavior only at one point in time. Keeping this caveat in mind, focusing on the year 1860 allows us to fully exploit the information contained in the 1860 Census — the richest of the census year we can rely on.

Table 5: Secession Conventions

	% Votes for Secession			
	(1)	(2)	(3)	(4)
RP_i	0.111***	0.103***	0.104***	0.111***
	(0.0153)	(0.0162)	(0.0180)	(0.0186)
Observations	660	653	516	509
State FE	Yes	Yes	Yes	Yes
ln(Distance North)	Yes	Yes	Yes	Yes
Agricultural Controls	No	Yes	Yes	Yes
Manufacturing Controls	No	No	Yes	Yes
Religion Controls	No	No	No	Yes

Note: The table shows that counties with a higher standard deviation in relative productivity, RP_i, voted on average about 10.5 pp more in favor of secession. The sample mean is 67%. All specifications include state fixed effect and distance from the Northern border. The first specification does not include additional controls. Column (2) introduces information on the value of the farm, the value of the livestock, the value of the farm equipment, the share of improved acres. Column (3) also includes the value of home manufactured production, the value of total manufacture production, the value of the raw material used in manufacture production, the value of capital in the manufacturing sector, the number of manufacture establishment, the share of individuals, both males and females employed in manufacturing. Finally, column (4) includes the number of churches per capita and the share of Baptist and Methodist churches. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5 show several specifications including a large number of covariates. Our baseline specification — column (1) — includes state fixed-effect and distance from the Northern border. Our independent variable is RP_i. The variable represents the relative productivity of cotton with respect to wheat. We expect the share of votes in favor of secession to be increasing in RP_i. RP_i is standardized to have standard deviation of 1. A one standard deviation higher level of comparative advantage in the production with slave labor (RP_i) increases the votes share for secession from 10 to 11 pp. depending on the specification. This result is particularly striking given that in several secession votes — all but the ones in Virginia, Texas, Tennessee, and Georgia — the secession was decided by less than 10 percentage points. Furthermore, the stability of the coefficient and its mag-

nitude seem to confirm the hypothesis that agricultural comparative advantage in slave intensive crops was at the basis of the political support for the institution of slavery.

6.3 Party Politics and Ideological Change

6.3.1 Presidential and Gubernatorial Election

In this section, we move beyond the direct implication economic incentives had on pro-slavery (pro-secession) voting behavior and explore the consequences that this underlying economic transformation had on southern political competition. In table 6, we study how changes in agricultural comparative advantage determined voting patterns in presidential and gubernatorial elections. Given the differences in voting behavior described in section 6.1, we study the share of votes received by the Jacksonian and Democratic parties at the county level (ICPSR, 1999) between 1828 and 1860. Our sample includes 9 presidential elections.[39] The frequency of gubernatorial election varies by state (2 or 4 years). Additionally, some governors did not complete their mandate; therefore, elections may happen in off-years.

Table 6: Electoral Results

	Presidential Election	Gubernatorial Election
	% Jacksonian or Democratic	% Jacksonian or Democratic
Land-Rank	-0.120***	-0.114***
	(0.0394)	(0.0397)
Observations	5960	6344
County FE	Yes	Yes
Year FE	Yes	Yes
Region * Year	Yes	Yes
ln(Distance North) * Year	Yes	Yes

Note: The table shows the effect of changes in Land-Rank$_{it}$ on the share of votes received by the Jacksonian - Democratic party. The variable Jacksonian - Democratic is the share of the Jacksonian party up to 1836 and the Democratic party afterwards. All regressions include county and year fixed effect, trends that vary with distance from the North and regional trends. Errors clustered at the region *year level are shown in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The results show that, both in the case of the presidential elections and gubernatorial elections, counties that lost comparative advantage in the use of slave labor decreased their vote share for the Jacksonian\Democratic party. A median county in 1828 had a land-rank of 530,000 Km^2. Because of the Westward expansion, by the time of the 1860 presidential election, the same county shifted to a land-rank of 1,210,000 Km^2. Land-Rank$_{i,t}$ of the median county is normalized to a one-unit change between 1828 and 1860. The estimates in Table 6 imply that the vote share for the Democrats (Jacksonian) for this county dropped by 12 percentage points between 1828 and 1860 because of the

[39] Hold every 4 years.

comparative advantage lost in the use of slave labor. These effects are large given that the average vote share for the Jacksonian\Democratic party was 54%.

6.4 Legislators' Ideology

In this section, we investigate whether changes in agricultural comparative advantage of cotton with respect to wheat translated in changes in the ideological position of Congressmen. To summarize ideology, we use the DW-Nominate score (Poole and Rosenthal (1985)), a score constructed based on roll-call voting behavior of congressmen. As Autor et al. (2017) and Tabellini (2019), we use the first dimension of the DW-Nominate score.

We use three different ways to measures the nominate score: the first, "Nominate" measures the ideology of each legislator for every Congress. The second, "Nominate - NP" is computed using the whole roll-call career of a legislator. Finally, "Position", that represents the ranking of each legislator within their congressional year in the distribution of ideology of all Southern members of Congress. All measures are in a scale between 0 and 100. The higher the ideological score of a given member of Congress, the closer is his voting behavior to the Jacksonian\Democratic party. Table 9 in Appendix D.2 shows the ideological position of the antebellum political parties. The geographical unit is the congressional district.[40] Overall we study changes in ideology analyzing 26 Congresses from the 11th (1809-1811) to the 36th (1859-1861).

Table 7: Legislator's Ideology

	Nominate - NP	Nominate	Position	Nominate - NP	Nominate	Position
	(1)	(2)	(3)	(4)	(5)	(6)
Land-Rank	-12.94***	-13.09***	-28.12***	-11.43***	-10.59***	-23.76***
	(3.228)	(3.453)	(7.439)	(2.417)	(2.688)	(6.041)
Observations	1575	1575	1575	1570	1570	1570
Cong. District FE	Yes	Yes	Yes	Yes	Yes	Yes
Congress Num. FE	Yes	Yes	Yes	Yes	Yes	Yes
Region * Cong.	Yes	Yes	Yes	Yes	Yes	Yes
ln(Distance North) * Cong.	Yes	Yes	Yes	Yes	Yes	Yes
Party * Cong.	No	No	No	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: The table shows the effect of Land-Rank$_{it}$ on three different measures of Ideology for the House of Representatives. Nominate, measures the ideology of each legislator for every congress (every 2 years). Nominate - NP, measures the ideology of each legislator based on the whole roll-call career of a legislator. Position, for each congress measures the rank of each legislator in the distribution of ideologies. For all measures, higher scores imply a more conservative ideology. All measures are measured between 0 and 100. All regressions include county and year fixed effect, regional trends and trends varying with distance from the North. Errors clustered at the region *year level are shown in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

[40] In appendix D.2 we also examine the roll-call behavior of senators. In the period studied, senators were not elected by voters but instead appointed by each state legislature. Because of this, we expect them to be less responsive to the preferences of their constituencies. Additionally, there is less variation to be exploited as the geographical unit of interest is the state. Furthermore, senators are reappointed only every 6 years.

Results in Table 7 show that when a congressional district loses comparative advantage in the use of slave labor, the congressman elected in this congressional district votes less often in accordance with the Jacksonian\Democratic party on all policy areas voted in Congress. This result holds for all measures of ideology. After a loss in comparative advantage in the use of slave labor: members of Congress closer to the Jacksonian\Democratic party are less likely to be elected (Column(1)). Once elected, Congressmen tend to vote less in accordance with the Jacksonian\Democratic party (Column (2)). With respect to other Southern members of Congress in that same Congress, they vote less in accordance with the Jacksonian\Democratic party (Column (3)). In appendix D.2, table 10 shows that the results are unchanged if we compute a nominate score excluding all the votes held on slavery.

Also in this case, land-rank has been normalized so that a median congressional district increase land-rank by 1 unit between the 11th Congress (1809-1811) and the 36th Congress (1859-1861). Because of this normalization, estimates imply that due to the loss in comparative advantage in the use of slave labor, the ideology index of this congressional district increased by 12 points between the 11th and the 36th Congress. This effect is particularly large given that the average ideological distance between Jacksonian\Democratic party and the Anti-Jacksonian \Whig party is of 23 points. This same congressional district saw the ideological position of its representative compared to the distribution of the other southern Congressmen in the same Congress shift markedly towards Anti-Jacksonian \Whig position. Overall, between the 11th and the 36th Congress, the representative of this congressional district shifted by 26 positions.

In Columns from (4) to (6), we show that the results still hold even after controlling for Party * Year fixed effects. Therefore these results are not only driven by changes in the party affiliation of congressmen representing a certain congressional district.

7 Public Discourse and Social Norms

These systematic changes in voting behavior, of both politicians and citizens, indicate an ongoing pattern of political transformation. To which extent this political transformation reflected changes in social norms and attitudes toward slavery it is a challenging question. To shed further light on the character of the link between economic incentives to slave-ownership and the transformation of the political environment, we investigate two interrelated aspects of the social context. First, we look at changes in the public debate held on slavery by the media. Because newspapers reflect the equilibrium slant of local communities, they provide useful information on potential ideological shifts on the issue of slavery. Second, we analyze changes in the free black population. Free blacks were regarded as a threat to the institution of slavery, and as such, their presence was considered with hostility by most of the advocates of slavery. Changes in the free black population as a consequences of changes in economic incentives to slave-ownership might indicate changes in the attitudes towards the free black population.

7.1 Newspapers' Supply of Slave-related Content

To better understand the effects of a change in agricultural incentives on the ideological environment, we study the content of historical local newspapers. The study of newspapers is particularly relevant given that during the first half of the 19th-century, newspapers had a crucial importance for the public debate as the press was the only source of political information. Even though circulation records are not available before 1870, scholars (see references in Pasley, 2002 p. 415) suggests that newspapers diffusion was extensive. Two main characteristics of the press are worth noticing: newspapers were highly local and highly partisan (Song, 2016). Although we do not have complete information about antebellum newspapers' partisanship, a good approximation can be given by its figure in 1870, when as little as 11% of the newspapers declared themselves independent (Gentzkow et al., 2006).

Newspapers and their editors were significant players in the political process, linking parties, voters, and providing the arguments that shaped popular views. As noticed by Pasley (2002), "newspapers conducted many if not most of the opinion-shaping activities we now call campaigning: communicating a party's message, promoting its candidates, attacking their opponents, and encouraging voters to turn out at the polls." [...] "Party newspapers contributed in fundamental ways to the very existence of the parties and the creation of a sense of membership, identity, and common cause among political activists and voters."[41] In a context where the reach of the conventional party system was limited, local newspapers represented the main actors in popular politics. As such, local newspapers represent a rich source of information concerning local ideological views.

To study changes in the supply of content related to slavery, we build a model based on Gentzkow and Shapiro, 2010. Two are the key ingredients of the model: first, because readers have preferences for like-minded newspapers, outlets minimize the distance between their ideological slant and the preferences of their potential readers. Second, newspapers can be either partisan or not. Partisan newspapers can not change political position on a given topic but can strategically modify its level of supply to move toward reader's preferences.

Under these conditions, a partisan newspaper located in an area were citizens become less pro-slavery reacts by modifying the supply of content related to slavery. We expect a newspaper affiliated to a pro-slavery party to reduce their supply of slavery-related content as its position on the topic become less aligned with the preferences of potential readers. Partisan newspapers affiliated to political parties more critical towards slavery should instead increase their supply of content related to slavery. Non-affiliated newspapers do not need to modify the supply of slavery-related content. The logic behind these results is formalized in Appendix E.7.

To test the prediction of the model, we build a new database of 282 newspapers operating in our period of interest in the US South. Following the information in Chronicling America,[42] we code 79 pro-slavery newspapers. These include newspapers supporting the Jacksonian or Democratic party,

[41] See Pasley, 2002 p. 4 and p. 11.
[42] Section E.1 in Appendix reports few examples of the information on partisanship.

Fire-Eaters, State-Rights or Confederate newspapers. Sixty newspapers are instead partisan but not linked to any of these political groups. These mainly include the Whig or Know-Nothing party. This group also includes a few abolitionist newspapers. All other newspapers are coded as non-partisan. On average, we observe a newspaper for 13 years. Newspapers may vary greatly in the frequency of their issues. The most common formats during this period are weekly and daily newspapers. We observe 55 issues per year for each newspaper. In total, our sample comprises almost 90,000 issues that contain 2.6 billion words. To construct our baseline measure of supply of slave-related content, we first compute the number of times each issue mentions some slavery-related words. Then for each newspaper and year we calculate the average. We separate these words in the 2 topics related to the debate over slavery: abolition and the fugitive laws. We capture the debate on abolition, looking at the frequency of the words "abolit*" and "emancipat*".[43] We capture the intensity of the debate on fugitive laws counting the words "fugitive*" and "runaway*". Finally, we capture the general discussion about slavery by counting the number of times "slave*" is mentioned. On average, an issue uses 10 slavery-related words.

Using these measures, we study changes in newspapers' behavior, estimating the following equation.

$$y_{ct} = \alpha_c + \gamma_t + \beta_1 LR_{ct} + \beta_2 LR_{ct} \mathbb{1}\{\text{Pro-Slavery}\}_c + \beta_3 LR_{ct} \mathbb{1}\{\text{Other Affiliation}\}_c + \delta X_{ct} + \epsilon_{ct} \quad (2)$$

Newspapers' circulation was limited to circulation areas within a certain distance from the printing site. Because we do not have information about Antebellum circulation, we approximate this measure taking an area of 20Km radius from the printing city.[44] For each newspaper, we determine its circulation area and compute statistics for soil characteristics at the circulation area level. Equation 2 estimates changes over time t in the supply of slave-related content by a given newspaper operating in circulation area c. The independent variable LR_{ct} is the land-rank at time t based on the relative suitability of cotton with respect to wheat of circulation area c.

Table 8 shows that changes in the comparative advantage in the use of slave labor had a substantial effect on the supply of content related to slavery. In line with our theoretical expectations, pro-slavery newspapers located in places that lost comparative advantage in the use of slave labor decreased the supply of content related to slavery. The other partisan newspapers instead increased the supply of this type of content. In order to interpret the magnitudes of the estimate notice that LR_{ct} is normalized so that a newspaper with a median land-rank in 1810 would have experienced, between 1810 and 1860, an increase of LR_{ct} of 1. On average, a pro-slavery newspaper that in 1810 had a median land-rank decreased by 90% the use of slavery-related words between 1810 and 1860 due to the loss of comparative advantage in the use of slave labor. A partisan newspaper

[43] The * symbol a wildcard character

[44] In Appendix E.2 we show the location of all newspapers by affiliation. In Appendix E.3 we replicate our results using a 50Km radius as a circulation area.

Table 8: Newspapers

	All Slavery Related Words	Abolition Emancipation	Fugitive Runaway	Slave Slavery
Pro-slavery	-0.920***	-1.223***	-0.790***	-0.483**
	(0.286)	(0.311)	(0.231)	(0.234)
Other Affiliation	1.465***	1.564***	1.028***	1.444***
	(0.328)	(0.302)	(0.303)	(0.319)
Observations	1505	1505	1505	1505
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Affiliation * Year	Yes	Yes	Yes	Yes
Region * Year	Yes	Yes	Yes	Yes
ln(Distance North) * Year	Yes	Yes	Yes	Yes

Note: This table shows the marginal effect of land-rank in a 20Km radius on the supply of slavery related content. For each column the first estimated parameter shows the effects for pro-slavery newspapers. The second estimated parameters shows the effect on the other partisan newspapers. All estimates are based on the estimation of equation (2). The dependent variable is the inverse hyperbolic sine transformation of the average number of times an issue mentions slave-related words. All regression control for Newspaper fixed effects, $\mathbb{1}\{\text{Pro-Slavery}\}*$ Year FE, $\mathbb{1}\{\text{Other Affiliation}\}*$ Year FE, Distance to the North $*$ Year FE and Census Region $*$ Year FE. Standard errors are clustered at the newspaper level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

located in the same area that instead was not affiliated with a pro-slavery party increased the use of slavery-related words by 150% between 1810 and 1860. In Appendix E.4, we show that we do not observe a similar pattern of supply of newspaper content for some common non-slavery related words. Table E.6 shows the most frequent bigrams when we restrict the sample to issues mentioning abolition and slavery. This section shows that changes in economic conditions changed the debate over slavery, differently for newspapers representing different political positions, suggesting changes in the underlying perception of slavery at the local level.

7.2 Free Black Population

> [...] A free negro is an anomaly — a violation of the unerring laws of nature — a stigma upon the wise and benevolent system of Southern labor - a contradiction of the Bible. The status of slavery is the only one for which the African is adapted; and a great wrong is done him when he is removed to a higher and more responsible sphere.
> *Jackson, Semi-Weekly Mississippian, 21 May 1858*

We conclude this section with the analysis of the free black population. Free blacks were a small minority in the Antebellum South who accounted for 6 - 10% of the black population. Their particular status made them the object of rancor and hate. Because the ideology on which slavery was based and justified increasingly relied on racial arguments for the division between free and bond people, free back were perceived as a threat to the institution of slavery. A free black was

considered a perverted element of the society as it represented a violation of its natural order. For this reason, differences in the number of free blacks could be an indicator of differences in local social norms and racial attitudes. In this section, we show that changes in the local advantage in the use of slave labor also affected the dynamics of the free blacks population.

Table 9 shows that counties that lost comparative advantage in the use of slave labor experienced an increase in the size of the free black population. We interpret this as an indication of a softening of the local social norms regarding the hierarchy of races. The county with the median land-rank in 1810 experienced an increase in land-rank of 942,000 Km^2 between 1810 and 1860. Normalizing the change to 1 unit for the median county, estimates show an increase in the share of the free blacks of 1.6 percentage points. Overall this represents almost a 30% increase in the free black population.

Table 9: Free Black Population

	% Free on Black	% Free on Total	ln(Free)
Land-Rank	0.0163***	0.00386***	0.283**
	(0.00604)	(0.00144)	(0.116)
Observations	4470	4471	4471
County FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Region * Year	Yes	Yes	Yes
ln(Distance North) * Year	Yes	Yes	Yes

Note: This table shows the effect of changes in the land-rank on the free black population between 1810 and 1860. The variable of interest is $LandRank_{it} = \sum_{j=1}^{N_t} w_j I_{(RP_j \geq RP_i)}$ calculated in million Km^2 of land and $RP_i = \frac{A_i^{cotton}}{A_i^{wheat}}$. The county with the median RP in 1810 gained 0.942 land-rank between 1810 and 1860. The coefficients in column (1) reports the effect on the share of free blacks on the black population. Column (2) reports the effect on the share of free blacks on the overall population. Column (3) reports the effect on the ln of the free black population. Each regression includes county and year fixed effect, trends in distance from the North and census regional trends. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

A few possible mechanisms can explain these outcomes. Changes in the number of free blacks could be the result of either migration or changes in local demographic patterns. The former could be explained by economic considerations (free blacks moving to economic opportunities) or immaterial ones (free blacks moving toward counties were the pro-slavery/ anti-free black ideology was lower). The latter could be the result of changes in fertility rates or changes in manumission rates.

Several economic drivers could explain the observed patterns. We study the role of cities and proximity to rivers. Urban areas not only offer better job opportunities but are also places where it is easier to pass as unperceived and move in as foreigners or fugitive slaves. Finally, navigable rivers were a fundamental source of income for the free black population (see Berlin, 1974 for a discussion).

In Appendix F.4 we study the relevance of each one of these mechanisms. Estimates show that the results do not seem to be driven by economic factors. We further show that fertility can not be held responsible for the observed patterns. These results seem to indicate that the differential changes in the free population are better explained by either changes in manumission rates in counties that

suffered a loss in the comparative advantage for cotton or free blacks moving to places less hostile to their presence.

8 Discussion of Potential Mechanisms

Our results show the joint transformation of the economic, political, and social environment behind slavery in the US South. Two main mechanisms can explain the results. First, selection could be the main driver of the political transformation if the slave-owning households migrated more, leaving the least pro-slavery population back and, therefore, affecting the political equilibrium. The main complementary hypothesis is that changes in preferences or constraints faced by the local population determined changes in the observed outcomes.

8.1 Selection, Age and Gender Structure

To better understand changes in the composition of the population, we look at changes in the distribution of slave-owning households by age and gender using household-level data. Appendix F.1 reports the estimates for both the age and gender structure and for the changes in the slaveholders' distribution.

Using the information on households available between 1810 and 1840, table 19 quantifies the changes in the number of households owning slaves. Estimates show large changes in the share of slave-owning households (10 pp.) as a response to changes in comparative advantage. The question is how much of this change is determined by the out-migration of slave-owning families to land better suited for the use of slave labor and how much is the result of slave-owning families selling their slaves.

To assess the relative importance of migration patterns in determining slave relocation, we study age and gender structure at the county level. First, table 15 shows that a change in the comparative advantage induces an asymmetry in the age and gender structure. Places losing comparative advantage for cotton have a higher share of young population (between 20 and 29 years of age) and more males. These results seem to indicate that these counties were attracting more migrants. This is consistent with the view that slavery crowed out market opportunities for the landless and slave-less population. Second, in table 16, we reproduce the same patterns but dividing between slave-owning and non-slave-owning households. The estimates are consistent with the previous one but do not show any difference in age and gender depending on slave-owning status. These results seem to rule out selection as the main driver of our main results.

A second approach to try to asses the contribution of migration to the observed changes is to estimate an upper-bound of the effect passing through migration, using the information in table 17. Assuming that the loss in the number of slave-owning households is entirely due to migration and that each migrating household is in the top of the slave-ownership distribution, we can explain at

most 70% of the decline in the number of slaves.[45] This implies that even in this extreme scenario, at least 30% of the movement of slaves is explained by market transaction.

Using the same idea, we can compare the change in the share of votes in favor of the Jakcsonian / Democratic party to the decline in the number of slave-holding households. We compare the change for the year 1830-1840.[46] Given that the average number of voters (white male above 19 years old)[47] per slave-holding family is 1.375 as opposed to 1.25 in non slave-holding household, a drop in the share of slave-holding families of 10.6 pp. should lead to a decrease of 11.7 pp. in the share of votes for the Jakcsonian / Democratic party. Table 18 shows that the magnitudes of the effect between 1830 and 1840 are larger, indicating that migration can account for less than a third of the effect for the presidential election and one-fifth of the effect in the gubernatorial election.[48]

8.2 Voting Behavior, Coercion and Public Goods

A second hypothesis is that the local planters controlled the political system through a paternalistic mix of coercion and private provision of public goods. Counties that lost economic interests became less attractive to planters also from a political point of view, therefore, reducing incentives to patronage.[49] Estimates in table 22 show a very large effect of LR_{it} on the share of planters (households with at lest 50 slaves).[50] This view is consistent with our findings showing an increase in voters turnout[51] in counties that experienced a larger drop in planters. Table 24 shows large differences in the share of votes cast as a share of the male adult population (up to 30 pp.) given a unit difference in LR_{it}.

To further investigate this hypothesis, we look at a proxy for the distribution of public goods. Although very limited and only available for the 1850 census, our estimates show that counties with higher relative productivity (RP_i) in 1850 had a higher level of schooling, literacy rates, and books in libraries.[53] These results are consistent with a view in which individuals in counties that are no more under the control of planters are less constrained in their political and social behavior.

[45] The average slaveholding household within the top 164 in 1830 had 14 slaves. Table 17 shows a decline in the slave-holding population of 164 families; thus migration would explain 72% of the change in the number of slaves, that is $(164 \times 14)/3188 = .72$.

[46] These are the only two decades for which we have both household-level data and significant differences across parties in their voting behavior on slavery.

[47] The age categories allow aggregation from 20 years old on, irrespectively on the actual voting age.

[48] $1.375/1.25 = .1$ so a drop of 10.6 pp in the share of slaveholding household leads to a drop in the share of votes of $10.6 \times 1.1 = 11.7$pp ca.

[49] The notion of paternalism has a long tradition in the scholarship on slavery. See for example Fox-Genovese (2005). The term has also been used to describe the labor relation in the postbellum agrarian South by Alston and Ferrie (1993).

[50] A drop of 2.6 pp. over a sample mean of .08 percent. An effect 3 times larger than the mean

[51] By the 1820s, only Virginia, and North Carolina imposed property qualifications[52] to access the ballot, while until 1832 and 1845, Mississippi and Louisiana respectively required voters to be taxpayers (Engerman and Sokoloff, 2005). Even so, the actual votes cast between 1828 and 1860 show a very large share of voters: on average, 70% of the adult (above 20 years of age) male population cast a ballot.

[53] Consistently, Clegg (2019), using newly digitalized census information for both 1850 and 1860, has shown that wages were systematically higher in plantations counties with respect to the rest of the South, suggesting that patronage relationship implied better working conditions for the local white population.

8.3 Cognitive Dissonance and Social Norms

Finally, a possible interpretation of the results follows the idea that changes in the economic environment, by affecting the decision to own a slave, lead to changes in individual beliefs on the institution of slavery. Central to this notion is the theory of *cognitive dissonance*.[54] According to the theory, when individuals are incentivized to act in a manner that is contrary to their beliefs, individuals experience discomfort and adjust their beliefs to minimize the dissonance between their actions and their beliefs. According to these models, attitudinal change can be a consequence of behavioral change, rather than its precondition. We interpret the action of owning a slave as behavior involving a certain cognitive cost, which is accommodated with the production of belief on the justifiability of the institution. Motivated beliefs lead to the emergence of interdependence on how people think, determining collective values and social norms. The case of slavery is emblematic of such interdependence since an agent's payoff is a function of his own action (holding slaves) and the group's average action. A community with a "healthy" slave system not only reassure the individual slave owner about the economic demand for his assets but also implies a series of positive spillover related to his social image. Such interdependence reinforces themselves through horizontal and intergenerational transmission (Bisin and Verdier, 2001). A decline of the local importance of the slave economy can therefore reduce the need for the production of beliefs in favor of slavery, reduce the social costs involved in deviations from pro-slavery behavior and eventually, through generations, can lead to the demise of the pro-slavery ideology.

9 Conclusion

This paper jointly analyzes the economic, institutional, and ideological evolution of slavery in the US South. The institution of slavery went through profound changes during the nineteenth century, eventually disappearing from the realm of acceptability among the "civilized" societies. Not only the institution itself became illegal, but a complete change in the general view of slavery took place since then. As pointed out by Fox-Genovese (2005), if today almost everyone views slavery as an enormity and abolition as a moral and political imperative, before the eighteenth and nineteenth centuries, the overwhelming majority of civilized, decent people would not have agreed. In fact, most Europeans would have viewed the principle of free labor as surprising, if not alarming. Whether this process has been the result of the higher moral standard developed by the enlightened conscience of the Western men or it has merely been the result of political-economic considerations of competing interests has long been debated. This paper shows that even within the context of the US South, a society in which slavery was deeply entrenched, economic motives moved the political and ideological support for slavery. The territorial expansion of the cotton South brought new life to the economic exploitation of the enslaved population, incentivizing the development of a new pro-slavery discourse,

[54] First proposed by Festinger (1957) and later introduced in economics by Hirschman (1965) and by Akerlof and Dickens (1982). For recent works in economics, see Di Tella et al., 2015b; Konow, 2000

a discourse which was fading away with the economic interest it meant to defend. As one of the champion[55] of the pro-slavery ideology has put it: "Many in the South," Calhoun considered, "once believed that it [slavery] was a moral and political evil," but now such "folly and delusion" are "gone," as whites in the cotton South increasingly saw slavery as "the most safe and stable basis for free institutions in the world."[56] Our results suggest that the institutional and ideological structure of the Antebellum South was more dynamic than often thought. We highlight different patterns of political behavior, public debates, and social norms that reflected the dynamic of economic incentives and evolved within a few decades. Although restricted to the US South, our analysis suggests that the ideological and institutional transformation that characterized slavery during the nineteenth-century developed within an economic environment which was both non-economically reliant on salve labor and carried competing political-economic interests.

[55] Senator Calhoun of South Carolina, one of the most eloquent advocates of slavery as "the greatest good".
[56] Quoted in (Ford, 2008, p.118).

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