Credit, Collateral and Class Power: Growth and Stagnation in the Cotton South
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NOTE TO EPS READERS: This is a very early draft of a chapter/article intended to clarify how emancipation transformed the economic structure of the South. It is currently much longer than it needs to be. Readers pressed for time may skip the literature reviews (sections 1 and 3) as well as the description of the antebellum credit system on pp. 14-16.

Introduction

A standard view of Southern history identifies the Civil War and emancipation as a key stage in the transition to capitalism or “modernization”. This interpretation is closely associated with the work of Charles and Mary Beard, and was epitomized in C. Vann Woodward’s Origins of the New South, a survey of postbellum Southern history that remains highly influential today, more than half a century after its publication.¹ For Woodward, the post-war plantation was recast along capitalist lines, with the old planter class adopting the culture of modern businessmen. A more structural version of this interpretation identifies a “market revolution” in the aftermath of the war, in which bondage was replaced by contract in the black belt (Stanley 1998), and subsistence-orientated upland farmers became dependent on markets (Fields 1985; Hahn 1979).

In this paper I will not seek to overturn this view.² Instead, I want to account for a feature of the post-Civil War South that is at first sight hard to reconcile with the standard interpretation. For the impact on Southern agriculture of what Barrington Moore (following Woodward) called “the last capitalist revolution” was in some ways the opposite of what we might expect.

We typically associate capitalism and modernity with relatively high rates of growth. Yet Southern agriculture entered a long period of stagnation after the Civil War. In 1930 the South was even more specialized in cotton than it had been in 1860, yet land and labor productivity in cotton was no greater than it had been 70 years earlier. This is all the more remarkable given that productivity had been growing steadily in the antebellum period. Figure one displays the ratio of cotton output to the agricultural labor force in cotton counties from 1800 to 1930. The Civil War is revealed as an inflection point, with output per worker growing at a robust rate of 2% per annum before the

¹ In an introduction to a collection celebrating the 50th anniversary of Origins John B. Boles comments that the book continues to “dominate” the field of Southern history, and that while not everyone accepts its interpretations “it is still the starting point, the benchmark, for every book written on the post-Reconstruction era” (Boles and Johnson-Dylewski 2003 p.viii). Woodward has also influenced sociological writing on the topic (Moore 1966; Wilson 2012).

² Whilst the standard interpretation underplays the capitalist dynamics of the antebellum period (Clegg 2015), it is broadly consistent with the character of the postbellum South, particularly with regard to the spread of markets.
war, then dropping off sharply and stagnating until 1930. Other indicators of stagnation include flat cotton yields (figure 2) and declining quality (Olmstead and Rhode 2003).

![Figure 1: Cotton output per worker in cotton counties](image)

**Figure 1: Cotton output per worker in cotton counties**

Sources: (Numerator) three-period moving average of annual cotton production from Carter et al., *Historical Statistics*, table Da756. (Denominator) agricultural workers in cotton counties ages 10 and over from (Craig and Weiss 1998). Prior to 1840 cotton counties are defined according to the production maps of Stine and Baker in USDA, *Atlas*, pt. 5, sec. A, pp. 16–17, kindly shared with the author by Paul Rhode. After 1840 cotton counties are those identified in the Census of Agriculture as reporting 1,000 or more bales of cotton. For 1910 to 1930 agricultural workforces in those counties are estimated using the ratio of Craig and Weiss’ agricultural workers to population in 1900.

In this paper, I will argue that this changed dynamic was driven by the transformation in property relations generated by emancipation. I claim that their monopoly over land and influence over law—specifically credit law—enabled Southern planters to maintain and even increase their economic and political power at the local and state level after the Civil War. The crop-lien credit system they created allowed them to shift the burden of debt onto sharecropping tenants, whose lack of collateral increased risk for creditors (who raised interest rates accordingly). As a result, Southern landlords were under-leveraged compared with antebellum slaveowners and less

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3 Figure 1 is not a direct measure of productivity, since the denominator is made up of all agricultural workers in cotton counties, regardless of whether they actually produced the cotton. However, Olmstead and Rhode have collected daily cotton picking rates over this period and have assured me that they exhibit a similar pattern. (Ransom and Sutch 1977:10) provide an annual index of total crop productivity in cotton counties from 1860 to 1900, which fails to recover to 1860 levels. More detailed surveys of cotton farms in the early twentieth century show that average labor hours per bale increased from 1907 to 1921 (see appendix table 3). Figure one exaggerates the post-war recovery, since a growing share of the county-level workforce was employed in producing cotton after the civil war.
subject to the competitive pressures that compel asset owners to invest in cost-reducing innovation. Meanwhile their limited wealth, in combination with high interest rates, reduced the investment capacity of tenants and small farmers, leading to generalized stagnation in the cotton belt.

While I do not explore the wider consequences of my argument in this paper, I can summarize them here. Broadly, the crop lien system allowed planters to make up for what they lost in the intensive exploitation of slave labor via an extensive exploitation of tenants: expanding their rental base by drawing subsistence farmers into the cotton economy. The “laborlords” became landlords (Wright 1996), and much like landed elites elsewhere, they sought to limit competition over land whilst subjugating agricultural labor. However, their lack of influence overall federal law and policy prohibited them from binding labor (either black or white) to the land. Instead they presided over a regional state of exception in which the suspension of democracy and an intensification of legal and extra-legal violence coincided with the free mobility of labor and a competitive market for tenancies. This dual economy—capitalism for the poor, feudalism for the rich—lasted until the New Deal, when federal agricultural policies intentionally undermined it.

The paper proceeds as follows: in the first section I consider and reject arguments that attribute postbellum stagnation to causes other than institutional change. In the second section I describe the institutional changes wrought by emancipation, and outline my theoretical approach. In the third section I review the existing literature on sharecropping in so far as it relates to stagnation. In the fourth section I lay out my own case for the impact of credit, collateral and (ultimately) the power of landlords on postbellum stagnation. In the fifth section I explore different measures of landlord power, and identify the extensive pattern of surplus accumulation in the postbellum South. I conclude with a summary of my argument and suggestions for further research.

1. Non-institutional explanations of postbellum stagnation

The existing literature sometimes attributes stagnation in the postbellum cotton belt to factors other than the transition from slavery to sharecropping. In this section I will review and critique two such accounts: one that points to the exogenous pace of technological development, and one that lays the blame on the intrinsic fertility of southern soils.

The standard view of productivity growth in cotton focuses on mechanization (Day 1967; Fleisig 1965; Musoke 1981; Musoke and Olmstead 1982; Whatley 1985; 1987). It is well known that cotton plantations experienced a significant drop in labor costs with the introduction of the mechanical saw gin (patented by Eli Whitney in 1794). However, the labor bottleneck on cotton plantations subsequently shifted to picking, an activity which is typically assumed to have remained unchanged until the adoption of the mechanical cotton picker in the 1950s. To the extent that the existing literate acknowledges the antebellum productivity growth revealed in figure 1, it generally attributes it to the spread of Whitney’s gin or the expansion of cotton to more fertile western soils.
This standard view ignores several intermediate innovations in the tools used both to gin and press cotton, as well as to plough and weed cotton fields. Nonetheless, if mechanization were the entire story of productivity growth then postbellum stagnation would indeed become less of a mystery. After all, picking cotton is a much more delicate operation than harvesting wheat or even corn, so it is hardly surprising that the pace of mechanization was much slower in the South than in the North and West. On this account, productivity growth simply had to wait for science to advance to the point where picking could be achieved mechanically (Fite 1980). Institutions might still be relevant to explaining such things as the relatively slow adoption of tractors in ploughing and cultivating cotton lands in the 1920s and 30s (Musoke 1981; Whatley 1985), but this could equally be attributed to the boll weevil and the Great Depression.

An alternative but similarly exogenous account of stagnation looks to what David Ricardo called the “original and indestructible powers of the soil.” As mentioned above, growing antebellum labor productivity is often seen as a side-effect of growing land productivity, due to the westward expansion of the cotton frontier. This suggests a matching explanation for the declining labor productivity of the postbellum years. The argument goes that antebellum planters had their pick of the rich “black belt” soil of the Alabama coastal plain and the Mississippi delta. However, after losing a war which they had partly fought to expand further westward, planters were thereafter forced to expand internally onto more marginal lands. This is presumed to have led to a classic Ricardian problem of diminishing returns: drawing the average productivity of agricultural labor downwards. Thus, unlike the mechanization argument, this explanation accounts for the impact of the Civil War observed in figure 1, albeit through natural rather institutional channels.

Nonetheless, the traditional view of productivity growth in terms of mechanization is hard to sustain in light of the path-breaking work of economic historians Alan Olmstead and Paul Rhode. Olmstead and Rhode retell 19th century American agricultural history as a story of continuous biological (or bio-technological) innovation, most notably the creation and adaptation of higher yielding, more resilient, and easier to harvest crops (Olmstead and Rhode 2008b). They amass documentary evidence of experimental breeding from agricultural journals and societies, as well as letters and diaries of individual farmers. They argue that these costly investments earned substantial returns, if only by maintaining constant output per acre in a context where yields tend naturally to decline, as pests and diseases adapt to new varieties.

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4 When land is more fertile an individual laborer can pick more cotton due to the higher frequency of cotton bolls per acre (increasing the number of laborers per acre and reducing total labor per boll picked). In addition, the lower frequency of bad harvests on such land manifests as a higher average labor productivity in the long run.

5 They refer to the way farmers invested in order to maintain constant yields as “the red queen effect”, after the character from Alice in Wonderland who had to run in order to stand still (Olmstead and Rhode 2002).
In their analysis of cotton, Olmstead and Rhode focus on cotton picking—the limiting factor for annual labor productivity growth. They have analyzed thousands of plantations records, which reveal that average daily picking rates increased at a rate of 2% per annum over the course of the 19th century (Olmstead and Rhode 2008a; 2010), a rate of productivity growth comparable to the British textile industry over the same period (Broadberry and Irwin 2006). Some of this increase they attribute to movement to new and more fertile western soils, as in the standard account. However, they argue it was also driven by the continual introduction and adaptation of new experimental breeds of cotton, which had higher yields and were easier to pick.

As evidence, they point to changes in daily picking rates in Eastern seaboard states. If mechanization and more fertile western lands alone were capable of increasing labor productivity then Eastern states in the late antebellum period should have experienced stagnant or more likely declining productivity. However, they demonstrate that daily picking rates in these states increased substantially from 1800 to 1860 (Olmstead and Rhode 2010). They cite evidence of widespread experimentation, adaptation and introduction of new seed varieties into these states over the same period, evidence which I corroborated in my own study of South Carolina (Clegg 2017).

Moreover, this productivity growth occurred despite the soil exhaustion that is sometimes cited to explain postbellum stagnation. Indeed this suggests that the soil exhaustion thesis might be productively turned on its head. The civil war didn’t prevent cotton cultivation from moving westward, it just prevented slaveowners from doing so.6 The frontier expanded most significantly in Texas, onto lands that still produce a significant part of America’s cotton crop today. Texas cotton farms tended to have significantly higher labor productivity than those elsewhere in the South. But as I shall argue in more detail below, it is implausible to attribute this to the ex-ante level of soil fertility, for the latter is not simply a natural fact immune to institutional pressures. We can see this more clearly when we observe that in 1900 the cotton south expended more fertilizer per acre than any other region of the country (Ransom and Sutch 1977:189). Soil fertility, on this view, might be seen as an endogenous feature of agricultural property relations.

Thus, whatever you make of their evidence regarding seeds,7 Olmstead and Rhode’s data provides a stark challenge to the two alternative accounts of postbellum stagnation mentioned above. For those accounts suggest that in the absence of either more efficient machinery or more fertile land there is simply no way to increase labor productivity in agriculture. Since mechanization was technically unfeasible and a second black belt did not magically appear it is unsurprising, according to this view, that productivity should have stagnated after the war. But Olmstead and

6 It has been plausibly argued that slaveowners tended to migrate faster and further than non-slaveowners (because they can draw on their slaves as collateral and put them to work cutting new ground) but a different pace of movement is not the same as a fixed limit (Lee 1978; Schaefer 1985).

7 It should be noted that historian Edward Baptist is unconvinced, arguing that torture was the real cause of productivity growth. For responses to Baptist see (Clegg 2015; Olmstead and Rhode 2016).
Rhode demonstrate that it is possible to achieve sustained labor productivity growth in the absence of either new machinery or new land. While the introduction of a mechanical cotton harvester or the expansion of cotton cultivation onto more fertile lands would no doubt have increased productivity, the absence of these things cannot provide a sufficient explanation of postbellum stagnation.

Finally, it is possible to tell the story of postbellum stagnation as simply a succession of unfortunate events: first the devastation of the Civil War, then the collapse of world cotton prices, then the boll weevil and finally the Depression. Yet similar catastrophes plagued the antebellum South. The embargo and war of 1808-15 also wrought havoc on the Southern economy, and the crisis of 1837-44 was arguably more devastating than anything in the late 19th century. Moreover, the very institutional basis of cotton production was constantly being jeopardized by slave revolts and abolitionist agitation. Yet, despite all these setbacks and dangers, productivity continued to grow at a robust 2% per annum.

2. Emancipation as institutional change: from slavery to sharecropping

While the impact of emancipation varied greatly across regions of the South, and the contractual forms that replaced slavery were highly variegated even at the local level, for the purposes of this paper I will briefly present a stylized picture of the transition from slavery to sharecropping in the cotton-producing black belt (I will consider the impact of emancipation on the white-majority upcountry in later sections). In the immediate aftermath of the war the Freedmen’s Bureau (a quasi-state body with judicial powers) set about trying to impose a Northern vision of “free labor” on Southern planters and slaves alike, announcing that “the law of demand and supply shall regulate the whole subject of labor.” Planters initially resisted by passing “black codes” to restrict the mobility and choices of freed people, and they chafed against the Bureau’s ban on corporeal punishment. But once it became clear that demands for the redistribution of land would not gain federal support the planters came to recognize that “the law of demand and supply” could be made to work in their favor. After all, with the exception of the few who had worked or fought for the federal army, no former slaves had land or the money to acquire it. It was thus clear that they would have to sell their labor to landowners on terms favorable to the latter. On this basis, Southern planters and Northern republicans came to a shared understanding that the plantation would survive the war more or less intact, with the difference that the former slaves would be paid wages.  

In the standard narrative, what upset this plan was the resistance of slaves to the plantation regime, which resulted in breaking up the plantation into many family plots rented for shares. These sharecropping families were then increasingly subject to the domination of merchant-creditors

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8 An important aspect of support for this plan among Northern elites was the lack of any substitute for cotton as a potential source of the trade surplus necessary to service foreign debts without crippling the Northern economy (Jaynes 1986).
rather than landlord-employers. While not strictly false, this narrative can be misleading, for three reasons.

First, as Gerald Jaynes has shown, wage plantations rarely if ever offered “cash wages promptly paid.” To diminish the risk of workers running off with their wages before the crucial harvest labor peak, planters tended to defer money payments until after the cotton had been picked.9 Over the course of the growing season workers would typically receive only provisions, either directly or in scrip redeemable at a plantation store. Moreover, to avoid being stuck with a fixed wage bill after a bad harvest planters often paid workers in shares ranging from a quarter to a third of the crop. Thus, the distinction between the “wage plantation” and “sharecropping” consisted less in the timing or form of payment than in the scale of operations: from “gang” to “family” labor.10 Indeed, the labor of sharecroppers was often supervised, and landlords or merchants typically dictated crops and techniques, so sharecroppers were effectively laborers working for a deferred and uncertain family wage (M. Schwartz 1976).11

Second, reports of the “demise of the plantation” have been greatly exaggerated.12 Here it is the census itself that has been misleading, since it counted individual tenancies as “farms” and ignored wider patterns of landownership.13 It is clear that the Civil War disrupted the planter class (Dupont and Rosenbloom 2016), but local studies have tended to reveal a remarkable degree of persistence and even concentration of land ownership (Mandle 1972; Shugg 1937; Virts 1987; Weiman 1995; Wiener 1976). Indeed, large postbellum Southern landowners constituted an arguably more powerful elite, with a greater degree of coordination and a tighter grip on local politics, than antebellum slaveowners (Oakes 1986; Wright 2001).

Finally, and most importantly for our purposes, while it is beyond question that sharecroppers were dominated under the tenancy system, how they were dominated has been widely misunderstood. Wanton use of terms like “debt-peonage” (Ransom and Sutch 1977; Wiener 1979) has led to the

9 Jaynes 1986. In the immediate aftermath of the war scarcity of credit also made this the only option for all but the wealthiest planters.

10 There is a large economic history literature that attempts to explain this transition by imputing various motives to freed people, including ideals of nuclear family structure and problems of free-riding in gang contracts. Here I think the standard historian’s account—that former slaves had an understandable aversion to an organization of labor reminiscent of slave plantations—is most plausible.

11 Woodman cites Southern laws that explicitly identified sharecroppers as laborers (Woodman 1995). However, the distinction between “share tenant” and “share cropper” can be overdrawn by Marxist-influence historians, who sometimes seem to suggest that the difference between “proletarian” and “petty bourgeois” could amount to nothing more than ownership of a mule.

12 In this sociologists have been particularly guilty (Royce 1993; Ruef 2004).

13 An exception to this were the special plantation surveys carried out in 1910 and 1940.
mistaken idea that sharecroppers were indefinitely bound to individual landlords or creditors.\textsuperscript{14} And it is true that a variety of Southern laws made it difficult for sharecroppers to break a contract during the growing season, such that one can speak of “pre-harvest bondage”.\textsuperscript{15} However, contracts could not last longer than a year, and sharecroppers were generally free to contract with other landlords at the year’s end (Fishback 1989; Temin 1979). We know they were free to do this because they typically did do this. In 1910 the federal government conducted a special census of Southern agriculture in which they recorded how long each sharecropper had spent working on the land worked in 1910. The median response was a year or less, for both blacks and whites.\textsuperscript{16}

Despite being subject to all manner of social and political depredations, the head of a sharecropping family thus appears to have been “doubly free” in the same sense as the contemporaneous European proletariat described by Karl Marx. For Marx a proletarian was “free in the double sense that as a free individual he can dispose of his labour-power, as his own commodity, and that, on the other hand, he has no other commodity for sale.”\textsuperscript{17} “Double freedom” is of course an ironic epithet, for it implies that the proletarian is dominated not just by an individual employer, but also by the employing class as a whole, and thus remains at a deeper level profoundly unfree. Similarly, sharecroppers were at the beginning of the cotton season both free to sell (or not sell) their labor to any particular landowner and free from any property that would allow them to not sell their labor to some landowner. The lack of alternatives to selling their labor made them dependent upon landowners, and thus unfree according to popular republican definitions of freedom.\textsuperscript{18}

Since sharecroppers, like modern proletarians, were dominated on the basis of their position in asset markets, postbellum sharecropping may be taken as case of “impersonal” or “market” domination (Gerstenberger 2007). Of course, personal and impersonal domination are by no means mutually exclusive. Employers have personal power over their workers, but their personal power is rooted in their market power: the fact that in normal times more people are seeking to sell

\textsuperscript{14} Had they remained on the books, the black codes may have created such a situation. Yet they were struck down by Reconstruction legislators, and later laws placed few restrictions on post-harvest mobility.

\textsuperscript{15} These included anti-vagrancy and anti-enticement laws, as well as forfeiture of all wages for those breaking a contract mid-season. In some states it was even made a criminal offence. An 1879 Alabama law criminalized the selling of cotton by tenants to anyone but the landlord. Extreme and arbitrary punishments, especially for blacks, served to reinforce all these laws (Jaynes 1986).

\textsuperscript{16} Debts that were rolled over from one year to the next year may appear to bind tenants, but this could also motivate them to leave. Robert Higgs points out that maintaining a tenant who persistently failed to repay debts would not in any case have been in the landlord’s interest (Higgs 1980).

\textsuperscript{17} (Marx 1976:272). See also (Marx 1976:874).

\textsuperscript{18} On the general argument see (Cohen 1983). On republican definitions of freedom and their relation to both slavery and Marx see (Gourevitch 2014; Roberts 2017).
labor than to buy it.\textsuperscript{19} Similarly, the personal power of postbellum landlords over sharecroppers was ultimately rooted in the \textit{ex-ante} distribution of property, not in legal or extra-legal constraints binding landlord and tenant. The postbellum South may be described as “capitalist” in so far as the characteristic feature of capitalism, a mode of production organized through impersonal domination, is that personal dependencies are created and shaped by market competition rather than by legal or political fiat (Brenner 2007).

In the Marxist literature discussion of impersonal domination tends to focus on wage laborers. However, for Marx the power of markets is not only “impersonal” in its operations, but also in its reach. Those who own productive assets are generally in a stronger position to negotiate for themselves a share of the product than those who have nothing but labor to sell, but they do not thereby enjoy freedom as to what and how much is produced. The typical capitalist is in this sense as much a victim of market domination as the proletarian. Given competitive capital markets, if he fails to combine capital with labor in such a way as to produce what the market wants he will quickly find himself without any capital at all. Moreover, if he consistently fails to combine them in an efficient manner, even if he produces what the market demands, he will still eventually lose his capital, for he will find that he cannot service debt and depreciation from persistently low profits.

In view of this fact I want to suggest that the traditional account of post-emancipation Southern agriculture confuses the \textit{spread} of markets with their growing \textit{power}. It’s true that the frequency of discreet market transactions increased after emancipation, most notably as merchants expanded their credit operations into the uplands and many poor whites became dependent on selling cotton for cash. However, market pressures may be translated into a more powerful social force when operating on a fewer number of key points of leverage than on a greater number of weaker points. This is especially true when it comes to competitive pressures to lower costs, dependent as they often are on scale economies. In both antebellum slavery and postbellum sharecropping markets operated to allocate labor towards more profitable activities, but the two systems differed with respect to the \textit{agents} on whom such pressures operated. Under slavery it was the slave-owner himself, who was constrained to turn a profit or risk losing his land and slaves via foreclosure. Sharecropping distributed these market pressures directly to the producers.\textsuperscript{20} But since they

\textsuperscript{19} Employers and employees are also under different pressures to find and fill vacancies. Failure for employers might entail lost revenue, whereas employees face an existential threat (Botwinick 1993).

\textsuperscript{20} There is in this regard a triangular relationship between slavery, sharecropping and wage labor. The modern employer, like the slave-owner, is the primary agent on whom market pressures to lower costs operate. The modern employee, like the slave, primarily experiences these pressures indirectly, via the dictates of the employer. On the other hand, the employee and sharecropper are directly subject to another kind of market competition: they must sell their labor to survive. This is the origin of the personal power of the employer/landlord, but it is orthogonal to the latter’s own market dependency. If employers are not themselves subject to a competitive constraint then the existence of a competitive labor market will not give rise to capitalist patterns of growth. Similarly, a reduction in the power of employers vis-a-vis
owned no property they typically had less to lose if their revenues failed to cover their costs (Wright and Kunreuther 1975). Meanwhile, those who did own property managed to shape the postbellum economy in ways that insulated them from market pressures.21

In section four below I will argue that the crop-lien system, rooted in the effective struggle of the Southern planter class to preserve its power following military defeat and emancipation, acted to limit competitive pressures on Southern landlords and reduce the incentive of all actors to increase the efficiency of cotton production, despite the existence of a competitive market for tenancies. However, before I lay out this argument I will first consider some alternative theories of the link between stagnation and postbellum institutions.

3. Existing institutional explanations of stagnation

We can divide existing institutional explanations of postbellum stagnation into two types, those that suggest that some material aspect of sharecropping was intrinsically inefficient (or resistant to technical change) and that those that explain stagnation on the basis of the incentives generated by the various contractual relations involved. The latter, in turn, can be divided according to which actor’s incentives they emphasize as driving stagnation: tenants, merchants or landlords.

The standard culprit for those pointing to material limits is the small scale of sharecropping tenancies. This is said to have “decreased the profitability of operating any machinery” (Fleisig 1965), especially when a tenant family could pick all their land by hand. But as we have seen, there are other productivity enhancing techniques which may not have been limited by scale, and the development literature is replete with examples of small scale farmers, including tenant farmers, who manage to increase their productive efficiency. Olmstead and Rhode suggest that small scale farming led to the deterioration of seed purity due to cross-pollination (Olmstead and Rhode 2003:3). However, it is hard to see why this would have applied to the black belt, where the scale of landholding remained very large, and where landlords and merchants had the power to dictate seed varieties to tenants.22 More broadly, such explanations tend to assume that tenant and landlord were locked into a pattern of small scale tenancies, an assumption that is hard to reconcile with annual contracting and the high turnover of tenancies. If there were returns to scale

employees will not reduce pressure on the former to maintain the cost-efficiency of production (it may even intensify such pressures).

21 For the standard account of the effect of competition on innovation see (Arrow 1962). Arrow argues that monopolists are less innovative because they have less output over which to amortize fixed costs of innovation. Note however that a monopolist slave owner facing a competitive market for slave labor has an independent interest in the development of transferable cost-reducing techniques, in so far as they raise the value of slaves and thus increase their wealth.

22 Other forms of antebellum innovation that Olmstead and Rhode identify, such as experimental breeding and planting operations, could equally have been undertaken by large postbellum landlords.
in cotton, what prevented landlords and tenants from agreeing on a larger scale of operations, from which both parties could conceivably benefit?

Olmstead and Rhode’s work on postbellum cotton focuses on its declining quality, but the limitations they identify may also have affected productivity. They point out that new seed varieties tended to fall out of use more quickly after the war, blaming this on “a number of negative externalities that made it difficult to maintain the genetic purity of the seed supply” (Olmstead and Rhode 2003:3). These included, in addition to the above-mentioned problem of cross-pollination, the introduction of ginning technologies and marketing systems geared to a larger number of smaller producers. In this context ginning became a specialized business, and the larger gins could draw on a wider geographic area. Yet this resulted in the inadvertent mixing of seeds, for a portion of the seeds collected would be from the gin’s previous user. This “reduced the ability of farmers who used saved seed to cultivate high-yielding, high-quality varieties” (Olmstead and Rhode 2003:5). But if centralized gins were causing such havoc it remains puzzling why this didn’t create a demand for more localized gins, or for simply more thoroughly cleaning the gins after each use.

The second type of institutional explanation attempts to account for some of the defects of the first. For either the size of tenancies and gins are variables capable of alteration within sharecropping arrangements, in which case the puzzle is why they weren’t adjusted when their inefficiencies became clear, or they were intrinsically bound up with sharecropping, in which case the puzzle is why sharecropping persisted at all. Here appeals to “path-dependency” tend to be question begging. If either the institution or the spatial pattern of tenancies was so persistent it was presumably because, for one or more of the key players, the costs of changing course were too high or the benefits of maintaining the system too great. Thus the arguments from material limits draw us inexorably to arguments about incentives, which may in turn be divided between those that focus on sharecroppers and those that focus on merchants and landlords.

Perhaps the most well-known account of the incentives of sharecroppers is given by Ransom and Sutch, who argue that emancipation enabled freed families to reduce their supply of labor, particularly that of women and children. They effectively claim that after a certain point sharecropping families chose leisure-time and a nuclear family division of labor over the additional

23 Of course the higher turnover of seeds could also be interpreted as evidence of more entrepreneurial innovation in breeding. Olmstead and Rhode don’t address this alternative hypothesis, but the bulk of their evidence weighs against it.

24 Olmstead and Rhode point out that this problem was eventually solved by USDA-supported “one-variety communities’ and classification systems, as well as the commercial production of cottonseed. They argue that “these changes, rather than the arrival of the mechanical picker, accounted for the roughly tripling of American cotton yields … between 1930 and 1960” whilst noting that “the decline in tenancy and consolidation of plantations undoubtedly also hastened the adoption of the new biological technologies.” (Olmstead and Rhode 2003:30-31)
income from producing cotton.\textsuperscript{25} Yet Ransom and Sutch here grant a degree of freedom to sharecroppers that they seem take away in other respects. They identify the burden of debt as the primary problem faced by sharecropping families, leading to all number of abuses by creditors, and ultimately to “debt-peonage”. If new seeds or techniques would have generated a larger crop that could have cleared those debts, it seems hard to believe that sharecroppers’ preferences for leisure (or their bourgeois family values) would have led them to reject this opportunity, even if it had meant a more labor-intensive picking season. Moreover, Ransom and Sutch readily admit that croppers had little or no freedom to control which seeds they planted and that they were often subject to continual supervision by landowners, and they argue that the small size of family plots was precisely a way for landlords to intensify labor, apparently overriding the preferences of tenants.\textsuperscript{26}

A more pecuniary version of the argument from sharecropper incentives holds that sharecroppers face limited positive incentives to increase productivity, either because they would have to split any such gains with landlords/creditors, or because productivity-enhancing innovations would require long term investments in the improvement and upkeep of land and tools, investments from which sharecroppers (contracting only for the current year’s crop) wouldn’t benefit. Yet it would be strange to argue that a lack of positive incentives on the part of those picking the cotton explained the decline in productivity growth after the Civil War, for slaves were clearly less incentivized in this respect, as were the wage laborers who became a fixture of the post-WWII mechanized cotton farm (which experienced productivity growth comparable to the antebellum period). It is true that slaves faced negative incentives that sharecroppers did not (most notably corporeal punishment), but wage laborers and sharecroppers were both supervised, both could be threatened with dismissal for breach of contract, and sharecroppers could be additionally denied rations as punishment, so it is not clear they faced less negative incentives, and their 50\% stake clearly gave them greater positive ones.\textsuperscript{27}

If arguments from sharecropper incentives are insufficient to account for postbellum stagnation it may be more fruitful to examine the incentives of those who exerted more power over the production process: landlords and merchants. A standard model of technical change would predict that when labor prices are low capitalists have less of an incentive to economize on its use. It is

\textsuperscript{25} Ransom and Sutch’s argument is focused on the post-war reduction in output per worker, but it may be extended to account for longer-term stagnation if techniques that increased land or labor productivity also intensified labor, as higher yielding varieties had done in the antebellum period.

\textsuperscript{26} Ransom and Sutch conclude their book with a broader argument that racism was at the “root of Southern poverty”, but they do not address stagnant productivity in cotton per se. For their arguments about the role of postbellum credit relations in overall Southern growth see the next section.

\textsuperscript{27} On the denial of rations see (Jaynes 1986). Landowners who dismissed tenants faced replacement costs, but so did those who employed wage-labor. In both cases the costs were determined by the availability of replacements at the local level.
true that the rapid productivity growth observed by Olmstead and Rhode coincided with a rapidly rising price for slave labor, and that the stagnation after the War coincided with stagnant agricultural wages which were also significantly below the national average. The observed phenomenon thus appears consistent with the standard model of factor-substitution and induced technical change. Yet the same model would predict a relative reduction in non-labor inputs, which is inconsistent with the above-mentioned increase of fertilizer use. Moreover, it is not immediately obvious how or why sharecropping per se (as opposed to demographics or world cotton prices) reduced the cost of labor in the South, nor that the high cost of slave labor really constrained the choices of antebellum planters, since existing slaveowners stood to gain from high slave prices.

Recognizing this, Gavin Wright has provided a more compelling argument in this vein. He points out that it is relative rather than the absolute factor prices which drives the choice of technique, meaning that slaveowners had an incentive to use the relatively cheap factor—land—more generously, by “assigning each hand as much acreage as possible” (Anderson and Gallman 1977; Wright 1979). Moreover, Wright recognizes that factors of production can also be assets, and that competition is just as likely to induce rent-seeking as cost-cutting behavior on the part of asset owners. This meant, as far as slaveowners were concerned, a reluctance to encourage immigration or reopen the slave trade (Wright 2013). However, following emancipation the “labor-lords” became mere landlords, interested in propping up land prices, as well as maximizing output per acre rather than per worker. This helps to explain the increase in fertilizer use and the restricted size of tenancies, but it is not clear that it can provide a solution to the overall puzzle of postbellum stagnation. For most innovations that improve yields per acre will also tend to improve labor productivity. And as figure 2 shows, the productivity of land in the postbellum period remained just as stagnant as that of labor.
4. Credit and collateral as limiting factors in postbellum productivity growth

It is widely acknowledged that the structure of credit in the cotton trade changed radically after the war (Clark 1946; Kilbourne 2014; Stone 1915; Woodman 1968). It is also commonly recognized that credit relations were the key mechanism through which postbellum cotton producers were subject to market competition (Ransom and Sutch 1977; M. Schwartz 1976). Any account of the changed dynamics of cotton production must therefore consider credit structures.

Most debt in the antebellum south was unsecured, commercial and short term. The cotton trade was funded by the long credits offered by Northern wholesalers and British exporters, and the primary means of payment were the shorter-term debts of the various cotton buyers—British importers, Northern merchant houses, and Southern factors. This short term credit could generally be rolled over if creditors were supplied with the additional security of a mortgage. The most...
attractive form of collateral were slaves, since they could be readily sold and moved. This meant that slaveowners could draw on their existing suppliers of commercial credit not only to tide themselves over a bad harvest, but also to expand their operations by purchasing more land and slaves. Moreover, slave-owners had a growing incentive to borrow, for larger and newer plantations tended to be more cost-efficient, and put a downward pressure on prices. As cotton planters became habitually in debt they found themselves subject to a binding constraint, for failure to repay debts at the going cotton price meant loss of land and slaves via foreclosure. These incentives and constraints were, in my view, a primary driver of antebellum productivity growth (Clegg 2015).

A highly-simplified version of an antebellum credit flow is depicted in figure 2. Here each cotton buyer pays his own bills with those of the next, allowing for a largely cashless trade.\(^28\) In normal times (upper panel) factors and merchants funded the trade with such unsecured commercial paper.\(^29\) An expanded credit flow is depicted in the lower panel. Here the planter draws on his factor to purchase slaves, by asking him to accept or endorse his personal note of credit in exchange for a mortgage on the purchased slaves. When it came time to pay this bill the factor would typically draw on their own counterparts in the cotton trade, attaching the planter’s note and mortgage as security. As a result, the IOUs of cotton planter, with slave mortgage attached (typically listing the slaves by name), would often end up in New York banks, doubly endorsed/accepted by the factor and merchant.\(^30\) That slave collateral could secure the entire cotton trade in this way was in turn due to a legal system that guaranteed the right of creditors to cover any losses by forcing the sale of slaves (Priest 2006).

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\(^{28}\) At each stage the scale of the trade increased, with the bills of cotton buyers circulating wider and at longer terms (Mehrling and mehrling 2013). At each locality banks stood ready to discount bills, swapping their own liabilities (bank notes) for the liabilities of merchants. The factor acted as the planter’s agent by selling his cotton on consignment and purchasing supplies from Northern wholesalers. In advancing supplies or endorsing or accepting the planter’s notes the factor essentially swapped his own debts for those of the planter. Since he acted as the agent of many planters, and bought and sold in wider markets, his bills would be more readily accepted as payment or for discount.

\(^{29}\) The factor typically had no lien on the crop, nor did the law specify that planters had to deliver their cotton to factors who had made advances to them in goods or credit (Woodman 1968). He was nonetheless willing to extend credit to the planter because, a) he knew that planters were dependent on factors for access to cotton markets and thus concerned to maintain a credit-worthy reputation, b) as the planter’s agent, a factor had an intimate knowledge of the planter’s finances, allowing him to judge his credit-worthiness, and c) he knew that should, for whatever reason, a cotton delivery fall short he could easily get a mortgage on the land and slaves of the planter. Planters also regularly endorsed each other’s notes, typically for a fee (2.5%), thereby pooling risk (Kilbourne 2014; Martin 2016).

\(^{30}\) The planter’s note rarely ended up in England. The extension of credit was typically accommodated by longer term loans to American factors or merchant houses, either by banks or (as shown) by their British counterparts.
Figure 3: Antebellum credit flows
This system was destroyed by the Civil War. First, the write-off of confederate government debt wiped out the Southern banking system. Its recovery was slowed by the National Banking Acts (1865), which set high capital requirements and provided an inelastic supply of currency to the South, particularly after the return to the gold standard in the 1870s.\(^{31}\) Second, the spread of railroad and telegraph lines allowed Northern wholesalers and cotton buyers to deal directly with small inland merchants—increasingly in cash—bypassing the coastal factors. Third, the most important function of the factor, as manager of the planters’ credit, was obviated by emancipation.

**Figure 4**: Postbellum credit flows

Figure 4 presents the bifurcated credit flows of the postbellum cotton trade.\(^{32}\) A number of differences are clear. The medium of payment was now cash (banknotes and deposits) rather than bills. The cotton was sold as soon as it was harvested, no longer consigned to a factor who could extend long advances and wait for the right price. To fund this trade banks gradually returned to the South, but instead of discounting the bills of the cotton merchants they directly provided liquidity to cotton buyers (Moulton 1931). Because of the seasonality of the trade local banks had to draw on their correspondent New York banks over the growing season (Redenius and Weiman 2011).

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31 Postbellum monetary policy has been described in terms reminiscent of recent discussion of the Eurozone: “The Republican ‘revolution from above’ not only wiped out the region’s main type of collateral but integrated it into a common currency union even though it was not an ideal candidate for membership.” (Redenius and Weiman 2011:221).

32 For a more comprehensive diagram showing the main creditor institutions in short and long staple regions see Figure A2 below.
To avoid having to borrow reserves at high interest rates at the late-seasonal borrowing peak they built up excess reserves in New York after the cotton was shipped, holding them over the growing season. This meant they had fewer reserves to loan out at longer maturities.\textsuperscript{33}

However, by far the biggest difference lay in the principle form of collateral in this new trade: the crop-lien. Before the war the note of a large planter, endorsed by factors, merchants or other planters, and secured by a mortgaged slave, was a widely-recognized form or currency. This created an elastic supply of commercial credit that could be extended to tide the planter over bad times and expand their operations in good times. The crop lien, however, hardly circulated beyond the local store itself: it didn’t function as a general means of payment, and would be discounted by a local bank only at a very high rate.

The origins of the crop-lien system lay in the immediate aftermath of the Civil War. High cotton prices, following the end of the Union blockade, created a rush to produce cotton. Planters needed credit to purchase provisions and revive dormant cotton fields, but their main collateral had been wiped out by emancipation.\textsuperscript{34} Land was a poor substitute for slaves, both because it was less liquid and because after the war Southerners were desperately selling off land to pay debts, sending prices into freefall. Thus, “[a]fter the war, there was little except cotton with which to collateralize the debts inherited from years of poor harvests and low prices” (Kilbourne 2014).

Robert Somers, a Scottish newspaper editor who visited the South in 1870, described the transformation:

> When the planter was an owner of slaves, and had along with that ownership and fund of property now swept away, an unlimited control over the labor necessary to bring his crop into market, he enjoyed great credit in the river towns and seaports. This has now gone.\textsuperscript{35}

Emancipation created uncertainties about the supply of labor and threatened to increase its cost. This made it all the more important for the creditor to secure himself from the risk of default. Yet emancipation also removed the planter’s primary means of providing that security. The crop-lien

\begin{quote}
Redenius and Weiman conclude that “[b]anks in monocultural regions … functioned more like brokers, bundling their customers’ loans and deposits for ultimate placement with or by their correspondents. Moreover, they paid a premium for this long-distance financial intermediation, which they passed on to their customers in the form of higher rates and shorter maturities.” (Redenius and Weiman 2011:218)
\end{quote}

\begin{quote}
In 1860 slaves constituted 55% of all Southern farmland, buildings and manufacturing capital (agricultural census) and a much larger share of the wealth of planters, but by 1865 the value of these assets had been reduced to zero. “Economists sometimes claim that [slave property] was not abolished but merely transferred to the freedmen … All such notions are mistaken. The abolition of slavery made liberty—in the language of the Declaration of Independence—‘unalienable’ and thus deprived of any market value that could be transferred” (Fields 1985).
\end{quote}

\begin{quote}
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was designed to solve the latter problem, but it would also form the basis of an eventual solution to the former one.

In the war's immediate aftermath landlord-dominated state legislatures across the South passed lien laws that enabled the transfer of title to a future crop, which could be pledged against advances of provisions necessary to grow it. According to Woodman these liens were initially intended for the use of planters seeking advances from merchants.\footnote{Woodman claims that lien laws initially envisaged the primary lienholder would be large planter, possibly the manager of a wage plantation, for they often specified a secondary lien on tenants' shares for any goods advanced by landlords (Woodman 1995). However, Kilbourne argues that some Louisiana landowners, ruined by a short crop after provisioning on their own account, may have sought to "spread risks and downsize their exposure" by encouraging their tenants to sell liens to merchants (Kilbourne 2014).}

The problem of securing labor was addressed by other laws, most notably the "black codes" which the legislatures tried to pass at the same time. Tenants soon found that they could use the lien law to bypass the landlord, offering crop liens directly to merchants. This lead to conflicts over lien priority between landlord and merchant, conflicts that were ultimately resolved in favor of landlords by Redemption legislatures.\footnote{Woodman points out that by that time many merchants had established themselves as landlords, lessening the conflict of interest between the parties. The tenants were the losers in this resolution, the new laws often forced them to seek the endorsement of their landlords in any third-party contract (Woodman 1995).}

But the tenants remained the ultimate borrowers in the postbellum commercial credit system, their liens the ultimate collateral. And while the reformed laws may have prevented tenants from defrauding creditors by selling multiple liens on the same crop, they did little to reduce overall risk to lenders.

To understand this risk we must remind ourselves that a crop lien was a promise to deliver cotton that didn’t yet exist.\footnote{On the face of it the crop lien seemed to violate an age-old legal rule: \textit{Nemo dat quod non habet}, "no one gives what he doesn't have." Woodward calls it "one the strangest contractual arrangements in the history of finance" (Woodward 1951). However, futures contracts were already well-developed in Midwestern grain, and merchant trading in cotton futures began in earnest in the 1870s (Woodman 1995).}

No matter how legally binding that promise, it would serve as naught were the crop to come up short. Tenants had no collateral with which to secure their promise, and creditors had no means of influencing tenants other than by denying them future credit. They could and did try to specify as much as possible in the contract, notably the amount and type of cotton to be planted, and to restrict credit on the basis of character evaluations. But to defend their interest in the growing crop there was no avoiding the fact that creditors would have to supervise production, and one merchant could only supervise a limited number of tenants.\footnote{This is of course a classic credit-market failure, in which creditors must compensate for imperfect information by rationing credit and supervising borrowers. But it should be noted that this problem is largely limited to a free labor economy. Slave-owners, because they retain an inviolable authority over their slaves, can make credible commitments regarding the use of slave labor to repay a loan.} Fewer and
smaller borrowers may have created diseconomies of scale, whilst supervision added additional costs. But the poverty and vulnerability of small tenant families, as well as their lack of collateral, inevitably increased risk to lenders. This risk, and not merchant monopoly or usury, was the main reason for high price of credit in the South. It was also, I shall argue, a main reason for the relatively low frequency and level of mortgage debt.

In 1890, the first year in which the census recorded debts, the South Atlantic and East South Central regions together made up only 5% of all outstanding mortgages in the US. This was a period in which mortgage banks and life insurance companies were investing heavily in Western farmland. In 1890-93, 38% of Midwestern mortgages were owned by life insurance companies, but they owned only 7% of those in the South Atlantic and East South Central regions. The vast majority of the mortgages in the South were held by private individuals, and the 20% held by intermediaries were mostly in local building associations, who specialized in urban real estate (Snowden 2013). Looking specifically at farm mortgages, only 5% of owner-operated farms in cotton-producing Southern counties reported any mortgage debt, whereas that number was 34% in the Northeast and 43% in the Midwest. Total mortgage debt was equal to only 1% of the value of farmland in cotton-producing counties, whereas they made up 8 and 9% of the value of more expensive farmland in the Northeast and Midwest (appendix table 1). The share of mortgaged farms in the South increased over the following decades, although it never caught up to Northern levels. Overall, mortgage lending in the South remained heavily skewed towards small loans to small farms (appendix figure 1).

The fact that Southern agriculture was relatively under-leveraged can no doubt be partly explained by supply factors. The collapse of Southern banks and land values in the war’s aftermath certainly diminished the supply of credit, as did the frequent defaults of Southern debtors. And the national banking system probably slowed the formation of Southern pools of loanable capital. Yet southern land values did eventually recover, and while they remained lower than the national

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40 The figure shows that more than half of the farmers with mortgages in the South in 1890 had borrowed less than $500. This ratio was largest in the black belt states of Alabama and Mississippi, where it was 65 and 67% respectively. It was sometimes by foreclosing on such loans to small upcountry farmers that merchants became landlords, but often a foreclosure was inconvenient, for court auctions would often result in low prices due to collusion with former owners by sympathetic locals, and acquiring the land directly would mean ending up with a scattered array of small plots of variable quality (Hahn 1979). The contrast with slave collateral is again telling.

41 Elizabeth Lee Thompson shows that in the two years following the passing of the 1867 bankruptcy act Southern courts heard significantly more cases than the national average, as southerners took advantage of less stringent provisions to offload their wartime and pre-war debts. In her sample of Southern cases she finds that planters were the second largest group of bankrupts, after merchants (Thompson 2004:88).

42 In 1890 commercial and savings banks in the South Atlantic region and East South Central region held only 0.6% and 0.2% of the total value of mortgages in each region (Snowden 2013). National banks were legally forbidden from making loans against real estate, whereas local banks preferred to hold their assets in liquid correspondent account in New York (see above).
average, the land occupied by cotton plantations was often more valuable. A census survey of 1910 found that Southern plantations averaged $22 an acre, when the national average for all farms was $18. Large plantations with 20 or more tenants in the delta region (Arkansas, Mississippi and Louisiana) averaged $32 an acre. Such lands would be prime collateral for mortgage banks, trusts and insurance companies, and there is evidence that the latter attempted to make forays south. Yet in 1925, when a USDA report first estimated the debts of Southern tenant farms, the ratio of debt to value remained significantly lower than the national average (Wickens 1932:8). While the value of mortgages on owner-occupied and tenant farms represented 23 and 21.4% of the value of those two types of farm in the US as a whole, mortgages on tenant farms in the South Atlantic and East South Central regions represented only 12.7% and 16% of their value (appendix table 3). In the South 80% of tenant farms owned by non-farmers (typically larger plantations) had no mortgage at all, whereas in the US as a whole 46% of tenant farms owned by farmers were mortgaged (Wickens 1932:8).

Such a low level of indebtedness, especially on large plantations where the risk of default would have been lower, suggests that demand factors may also have been at work. Here my hypothesis is essentially that landlords weren’t taking out credit because they didn’t need to. On the one hand, they had every incentive to limit their exposure to the risks of cotton agriculture by passing on high credit prices to their tenants and sharing with them any losses via the share-rent system. On the other hand, in many areas they formed a relatively small and homogenous class that was perfectly capable of restraining itself from needless competition over land. Redemption put an end to the agricultural boosterism of the carpetbaggers, and they would never again face the kind of frothy speculation of the Southwestern frontier in the 1830s. Improved acreage did continue to expand in the upcountry, and there a new type of landowner did arise, from entrepreneurial farmers and

43 In 1928 28% of the mortgages on East South Central farms were held by insurance companies, 34% by federal land banks (Wickens 1932:8). Compare this with the tiny percentages held by institutional investors and savings banks in 1890 (see note _ above). The share of insurance company mortgages on tenant and manager-run farms in the South Atlantic and East South Central was 66 and 44% (55% for the nation as a whole) (Wickens 1932:8).

44 An earlier national survey, from 1922, found that debts on all owner-occupied farms represented 13% of their total value, whereas those on tenant farms represented only 9% of their value (Wickens 1932:8). I have not been able to find regional breakdowns of this survey. Nor have I found any record of the data on mortgages collected by the 1910 special plantation survey.

45 The first direct accounting of plantation debt occurred in 1934, in the midst of the great depression, but even then, when land values had collapsed and emergency New Deal farm loans had become available, the mortgages on plantations in that survey represented only 18% of their value, and only 11% on sharecropper plantations in the black belt (Woofter et al. 1936). If the hypothesis I describe below is correct then even these low levels of debt may be exaggerated, for planter collusion may have restricted the demand for land in these counties and led to an undervaluation in census appraisals (studied, as they are, by taxing authorities).
merchants, but the old planter class had little to fear from these upstarts, who presided over less fertile soils and a better organized class of tenants.

In sum, their low levels of postbellum debt relieved planters from the pressures they had faced in the antebellum period. This in turn shaped their attitude towards agricultural improvement. It would have been perfectly possible for postwar planters to invest in the kind of large scale cotton breeding operations that Olmstead and Rhode describe for the antebellum period. Many of them owned large estates that could have commanded the necessary flows of credit if they had sought it out. But to do so would have raised the possibility of losing those estates should the investment backfire. If they had been weighed down by existing debts, to be paid in cotton that was falling in price (due to international competition), then they might have been spurred to find ways to cut costs and increase their share of output. But they had cleared that burden by defaulting en masse in the aftermath of the war (Thompson 2004), and they were understandably reticent about returning to the status quo ante.

I’m by no means the first to link Southern underdevelopment, including stagnation in the cotton belt, with the nature of the postbellum credit system. The standard account draws that link by arguing that high credit prices discouraged investment (James 1981; Ransom and Sutch 1977). This is perfectly plausible. Because the North-South interest rate differential was lower before the war (Bodenhorn and Rockoff 1992) it is also consistent with the fact of antebellum productivity growth. But high credit prices were not imposed on the postbellum South from outside, and the crop-lien system was not handed down from on high. It was a domestic invention, in which large antebellum planters played the key role. We can see this by looking at a case in which their influence was diminished.

4.2 The Texas exception

The foregoing argument identifies the structure of credit, and the resulting low levels of landlord indebtedness, as the proximate cause of stagnation in the cotton belt. However, neither of these causes would have been operative had a powerful landed elite not been able to shape that credit structure in a way that displaced risk onto tenants. Texas faced similar constraints of credit and collateral as other Southern states in the immediate aftermath of the war. Moreover, whilst land had been more evenly distributed prior to the war, eastern Texas sported a powerful pre-war planter class. Yet, unusually for the South, large planters in Texas did not return to power under the Redemption legislature. Indeed they appear to have suffered a sustained political defeat. Texas’ redemption constitution of 1876 continued a pre-war and Reconstruction practice of

\[46\] Moreover, it is hard to believe that large plantation owners would have been forced to pay the high credit prices of the region as a whole had they suddenly become interested in innovation. After all they often (unlike small farmers and tenants) had New York bank accounts, and at the limit they could have pooled funds to start their own banks.
granting millions of acres of homesteads, which kept land prices low (Lang and Long 2010). These policies, together with Texas’s generous homestead exemptions, attracted a flood of immigrants to the region, including many from Europe. Despite the homestead exemptions, the more successful of these farmers were able to expand their landholdings by purchasing on credit. In both 1890 and 1917 Texas had more farm mortgage companies than in all the other Southern states combined.47 By 1910 Texas had the highest percentage of mortgaged farm and the highest ratio of the value of mortgages to land of any cotton state. A survey of Texas farms conducted in 1912 found that 95% had borrowed from banks, and 15% of these loans had been used for “improvements, involving such items as land purchase, stock, buildings, and machinery” (Haney 1914:48).

Figure 5: Cotton bales per agricultural worker in Texas cotton counties

![Cotton bales per agricultural worker in Texas cotton counties](image)

For reasons that should already be clear, it is in my opinion no accident that Texas was also one of the only cotton states to experience sustained productivity growth during the postbellum period. Figure 5 displays output per worker in Texas cotton counties from 1840 to 1920. The contrast with figure 1 is striking. It shows that Texas rapidly recovered from the Civil War and saw substantial growth in output per worker thereafter. A USDA survey of labor use on cotton plantations from 1907 to 1936 found that Texas consistently used fewer man hours per bale of cotton than any Southern state (Holley and Arnold 1938). Cotton farming operations in Texas were evidently large, with Texas farms employing about half the man hours per acre as those in the Eastern and Delta regions. Texans were among the first cotton farmers to adopt tractors (Musoke 1981). They also

47 (Snowden 2013). The 1917 count excludes Oklahoma.
adapted both short and long staple varieties of cotton to a range of arid climates and developed new harvesting techniques, such as snapping the stems below the boles instead of picking them (Holley and Arnold 1938). This in turn rendered the problem of mechanizing the harvest easier, and Texan farmers developed the picking sled and were among the first to employ picking machines (Whatley 1987). They eventually also successfully coordinated to organize a seasonal supply of migrant Mexican labor for the cotton harvest (similar experiments with migrant labor in the gulf state had mostly failed), which created an incentive to reduce pre-harvest labor requirements.

Thus, without the survival of a powerful antebellum planter class intent on shifting the burden of debt onto tenants, widespread dependency on credit appears to have put pressure on Texas farmers to experiment with new labor-saving varieties and techniques that were reminiscent of the more dynamic antebellum cotton economy.

5. On the relative power of postbellum planters

It may seem strange to argue that it was the strength of planter elites in the black belt that drove stagnant productivity on postbellum cotton farms. After all, fixed share agreement meant that planters would have benefitted from rising productivity. Yet studies of comparative agricultural development often find that powerful landed elites impede labor-saving innovation in agriculture, since innovation can threaten their monopoly on land and power (Bhaduri 1997). In the case of Southern planters, I believe the primary threat arose from the fact that their political power did not guarantee title to land, such that borrowing would have risked their landholdings. It may have been possible to fund innovation without taking on debt (by, e.g., building up savings over time). Yet without the pressure of an existing debt burden they neither were under any compulsion to do this, nor to follow suit if others did. Moreover, they had a collective interest in reducing competition over land, and as a small and homogenous elite they faced relatively low coordination costs.

Perhaps more troublingly for my account, several historians of the postbellum planter elite argue that they were weaker, not stronger, than their slave-owning forebears, both economically and politically. In this section I will briefly consider these arguments and show that they entail measures of elite power that are either too narrow or irrelevant to the matter at hand.

Let us first consider the political measures of planter power. There is no question that postbellum planters had a much weaker influence on the federal government than antebellum slaveowners. Ten of the first twelve presidents had owned slaves and five had owned large plantations. By contrast only four southerners have been elected president since the Civil War (Wilson, Johnson, Carter and Clinton) and they all have come from poor or middle class families. This loss of influence was most acutely felt during the war itself, when legislation could be passed without fear of Southern opposition. What Barrington Moore called “the planter program of 1860”—“federal enforcement of slavery, no high protective tariffs, no subsidies nor expensive tax-creating internal
improvements, no national banking and currency system”—was in shreds by the war’s end. In the 40 years following the war Southern influence at the federal level remained marginal. As Steven Hahn points out, Southerners had “dominated the presidency, the Supreme Court, the speakership of the House of Representatives, and the diplomatic corps during the antebellum period”. By contrast from 1869 to 1912 Southerners occupied only 2 of 12 House speakerships, 14 of 133 cabinet positions, and none were nominated for president or vice-president (Hahn 1990:95).

However, planters were compensated for their diminished federal influence with increased political power at the state level. In the antebellum period slaveowners had been forced to share state power with non-slaveowning upcountry whites. In most states the latter group formed the base of the Southern Democrats, and they waged a largely successful battle to remove property qualifications for voters and office-holders, create a fairer system of taxation, and reapportion seats in state legislators to diminish the bias in favor of slaveowners. This bias, of course, was due to the constitutional clause that counted three fifths of the slave population in allocating representation. By 1860 many Southern legislatures had reallocated representation to a white population base, and several historians have argued that these and other political advances of non-slaveholders were decisive in pushing planters to support secession. Yet reconstruction constitutions, compelled by the 14th and 15th amendments to count the entire adult male population in allocating representation, returned state power to black belt counties and the planters that continued to rule them. The ability of these elites to dominate state policy was eventually guaranteed by black disenfranchisement, which disenfranchised many poor whites as well. Planters would subsequently dominate legislative and executive elections to a degree that they never had in the antebellum period. Woodward explains: “[i]n effect the antebellum planter’s prerogative of casting three fifths of a ballot for every slave, so much resented by the antebellum uplander, had been amplified to something approaching a five-fifths prerogative in some sectors of the Black Belt.” If the fight over “white supremacy” was really about “which whites should be supreme” (Fields 1985), then by the early 20th century this had been settled. Oakes points out that “the votes of only 5 or 6 percent of Virginia’s adults were enough to win election to the governorship”, concluding that “the South was closer to oligarchy than it had ever been” (Oakes 1986).

What about economic power? There is no question that individual planters had less power over their tenants than slaveowners had had over their slaves. Whether or not we want to call this power “economic”, it can certainly be measured in economic ways. One such measure is the distribution of the product of labor. Figure 6 uses Ransom and Sutch’s data to calculate the laborer’s share of the net cotton product (gross output minus raw materials and depreciation) for slaves on cotton

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48 Moore thus approvingly cites Beard: “all that two generations of Federalists and Whigs had tried to get was won within four short years, and more besides” (Moore 1966).
plantations in 1860 and black sharecroppers in 1880.\textsuperscript{49} I additionally include the wage share on wage plantations, from an 1867 USDA report. Given the persistence of the 50-50 split between landlord and tenant there is no reason to think that labor share subsequently deviated significantly from the 1880 level.\textsuperscript{50} Emancipation thus appears to have redistributed income from asset-owners to workers. Recent estimates of Southern incomes before and after emancipation support this conclusion (Fochesato and Bowles 2016; Lindert and Williamson 2016). The explanation is presumably that sharecroppers had more leverage than slaves in negotiating the terms of labor, suggesting that at least in this sense postbellum landlords were economically weaker than antebellum slaveowners.

**Figure 6:** Comparative labor shares on cotton plantations, 1859 to 1879

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\text{Average bales per worker}
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Yet as a description of the individual relationship between tenant and landlord, this conclusion is potentially misleading in so far as it ignores both the concentration of ownership among the planter

\textsuperscript{49} Of course the rising productivity of slaves had entailed rising rate of exploitation (since slave maintenance costs grew at a slower pace) and all slaveowners benefitted from this in the rising asset value of slaves (Ransom and Sutch 1988; Vedder 1975). Thus the dynamism of the antebellum agriculture also redounded to the advantage of antebellum slaveowners.

\textsuperscript{50} The tenant’s share (in figure 6) is 40\% rather than 50\% of the net value of cotton because they shouldered a disproportionate burden of the cost of credit.
elite and the expansion of their economic influence over white farmers. Both in absolute numbers and percentage of the Southern white population, antebellum slaveowners outnumbered postbellum landlords (i.e. landowners renting to tenants). Thus while postwar landlords had less power over their tenants than slaveowners had had over their slaves, the typical landlord employed more tenants than the typical slaveowner employed slaves. Land in the South may have always been more unequally distributed than slaves, but when one compares postwar landlord-tenant ratios to pre-war master-slave ratios the difference is remarkable. In 1860 75% of slaveowners owned less than 10 slaves, whilst in 1900 75% of landlords rented land to over 10 tenant family members (Oakes 1986).

Moreover, if we don’t restrict our view to the more or less contiguous planter class of the black belt then it becomes clear that the aggregate influence—economic and political—of Southern landlords expanded in the postbellum years to a larger area and population. As shown in figure 2, above, the production and acreage of cotton continually expanded, even as land and labor productivity stagnated. This is because hundreds of thousands of poor Southern whites were drawn into the nexus of the crop-lien system, such that by 1900 they were producing the bulk of the nation’s cotton crop. Many were initially attracted by the exceptionally high cotton prices after the war but were subsequently locked in to cotton by the lien system (Hahn 1979). After Redemption legislatures devalued the lien of merchants relative to landlords, many merchants found themselves pushed out of the black belt. From there they gravitated to the upcountry, where the same logic of credit dependency and cotton specialization was soon reproduced, except this time with white rather than black tenants (Woodman 1995). As a result, many small farmers lost their land and became tenants, and a new class of larger landowners emerged from entrepreneurial upcountry farmers and merchants (M. Schwartz 1976). This new class rarely posed a challenge the old planter class, but the process helped to swell the population of landless tenants on which the power of all landlords ultimately rested.

We can thus distinguish between the decline in the intensive power of planters, measure by their falling share of the cotton crop, and the increase in their extensive power, measured by the growing number of acres and tenants generating rent for landlords. One way to think about this is to recall Marx’s distinction between the rate and mass of surplus value (Marx 1976). The rate of surplus value (sometimes called the rate of exploitation) is the ratio of surplus value (net revenue minus wages and depreciation) to wages, which is a simple transformation of the labor shares depicted in figure 6. The mass of surplus value, on the other hand, is simply the aggregate flow of profit, rent and interest. The rate of surplus value provides a measure of the balance of class forces within the production process itself, but the mass of surplus value sets a limit on the size, wealth and consumption of the non-productive classes.51

51 “[T]he mass of surplus-value is determined by the product of the number of labour-powers simultaneously exploited by the same capitalist and the degree of exploitation of each individual labour-power. ... [A] fall in the rate of surplus value leaves the mass of surplus value which has been produced unaltered, if the
A ruling class that is only able to exploit a small share of the population may be able to do so at a very high rate of exploitation, even as its overall wealth and power is constrained by a limited base of exploitable subjects. The existence of slavery alongside free wage labor tends to generate strong rules about who can and who cannot be enslaved, and to the extent that the unenslavable group grows faster than the enslavable (as it did in the US) a high and increasing rate of slave exploitation may be insufficient for a slaveowning class to retain its share of wealth and power. An example would be the sugar and cotton-growing areas of Northeastern Brazil during the 19th century, where one of the most powerful (and exploitative) groups of slaveowners in the New World presided over what became an increasingly marginal sector of the Brazilian economy (S. B. Schwartz 2000). This had not occurred in the US by 1860, but it was on the minds of many slaveowners, who agonized over relative rates of demographic growth in the North and South (Coclansis and Engerman 2013).

Asset markets can provide an indication of the extent of economic power, or Marx’s “mass of surplus value”. Productive assets tend to be priced according to the discounted present value of the stream of net revenues expected by the asset-owner. Since the aggregate of such revenues is equivalent to Marx’s definition of surplus value we can get some sense of the mass of surplus value by examining changes in total asset values over time. Figure 7 displays these asset values in real terms from 1850 to 1930. It shows that by 1890 Southern land values had fully recovered to their 1860 level. Moreover, by 1910 the value of all land in cotton counties was equal to the total value of slaves in 1860 and the combined value of all slaves and land in 1850. Of course, much of this land was operated by owners, but the total value of tenant and manager run farms in the South in 1910 (including buildings and improvements) was 3.4 billion dollars, equivalent (in real terms) to the value of slaves in 1860.

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amount of the variable capital, if the number of workers employed increases in the same proportion” (Marx 1976). See also Marx’s discussion of the mass of profit in Capital vol. 3.

52 I use David and Solar’s consumer price index to deflate asset values. Results are similar using Measuring Worth’s Unskilled Wage Index. However, their GDP per capita index shows lower postbellum land values, presumably because Southern incomes were by then a smaller share of total GDP.
6. In place of a conclusion

Figure 8 summarizes my argument, drawing on the theoretical apparatus laid out in section 3. The process of producing cotton, both before and after the war, was fundamentally shaped by structures of credit, which both funded the trade and exerted varying degrees of pressure on producers. Both before and after the war producers were compelled to satisfy creditors’ demands for timely repayment with interest. Since those who failed to meet these requirements would lose access to the means of production (via foreclosure or dismissal) this was the fundamental channel through which market orientation was imposed on agricultural producers that could have otherwise retreated into autarchy. Yet in the antebellum period the primary agent competing for credit was a slaveowner who could both credibly commit the labor of many individuals to service debts, as well as offer those individuals as security in case of default. As a result, personal and impersonal domination worked together in the case of slavery to transmit the discipline of competitive credit markets into sustained productivity growth in the cotton field.
By contrast, structures of credit and relations of personal domination in the antebellum period worked to block this transmission. The primary borrowers could no longer post any real collateral or credibly commit the same amount or intensity of work effort as slaveowners. As a result, lenders had to restrict their advances, supervise production, and still take on more risk per dollar advanced, all of which increased the cost of credit. Meanwhile those who were both capable of pledging collateral and influencing direct producers through various forms of personal domination—the landlords—managed to insulate themselves from credit market discipline by shifting the burden of debt onto their tenants and restricting their own levels of long-term investment. As a class they maintained weaker levels of personal domination over larger numbers of agricultural workers, via the expansion of tenancy into upland white counties.

I hope to pursue these arguments further by comparing postbellum Southern landowners to those in developing countries. I suspect this will reveal that the peculiarity of the Southern landed elite lay in the fact that they were able to shape local but not federal law and policy. This may account for the mixture of personal and impersonal domination, including formal and informal codes of violence, in the racial caste system they presided over.
Appendix: postbellum debt levels

Table A1: Mortgages on owner-operated farms, 1890 and 1910

<table>
<thead>
<tr>
<th></th>
<th>Number of mortgaged farms</th>
<th>...as % of all farms reporting</th>
<th>Value of farm mortgages (in millions $)</th>
<th>...as % of total farm value</th>
<th>...as % of mortgaged farm value</th>
<th>Interest cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1890</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Average</td>
<td>886,957</td>
<td>28.3%</td>
<td>30,549</td>
<td>6.8%</td>
<td>35.5%</td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>177,508</td>
<td>34.2%</td>
<td>653</td>
<td>9.4%</td>
<td>42.7%</td>
<td>5.56</td>
</tr>
<tr>
<td>Midwest</td>
<td>618,429</td>
<td>42.5%</td>
<td>2,026</td>
<td>8%</td>
<td>33.4%</td>
<td>7.07</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>31,080</td>
<td>7.4%</td>
<td>84</td>
<td>2.5%</td>
<td>40.2%</td>
<td>7.45</td>
</tr>
<tr>
<td>South Central</td>
<td>28,189</td>
<td>4.7%</td>
<td>57</td>
<td>1.3%</td>
<td>43.1%</td>
<td>8.55</td>
</tr>
<tr>
<td>Pacific</td>
<td>31,751</td>
<td>23.1%</td>
<td>236</td>
<td>5.4%</td>
<td>30.3%</td>
<td></td>
</tr>
<tr>
<td>Cotton counties</td>
<td>34,159</td>
<td>4.8%</td>
<td>62</td>
<td>1.4%</td>
<td>44.8%</td>
<td></td>
</tr>
<tr>
<td><strong>1910</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Average</td>
<td>1,312,013</td>
<td>33.6%</td>
<td>63,300</td>
<td>5%</td>
<td>27.3%</td>
<td>7.4</td>
</tr>
<tr>
<td>Northeast</td>
<td>193,277</td>
<td>37.2%</td>
<td>7,002</td>
<td>7.5%</td>
<td>33.8%</td>
<td>5.7</td>
</tr>
<tr>
<td>Midwest</td>
<td>673,645</td>
<td>43.4%</td>
<td>39,675</td>
<td>5.2%</td>
<td>26.9%</td>
<td>6.1</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>110,177</td>
<td>18.8%</td>
<td>2,701</td>
<td>3%</td>
<td>27.2%</td>
<td>7.3</td>
</tr>
<tr>
<td>South Central</td>
<td>246,447</td>
<td>26.4%</td>
<td>6,871</td>
<td>3.7%</td>
<td>26.4%</td>
<td>8.2</td>
</tr>
<tr>
<td>Pacific</td>
<td>88,467</td>
<td>28.6%</td>
<td>7,051</td>
<td>4.4%</td>
<td>23.6%</td>
<td>8.1</td>
</tr>
<tr>
<td>Plantation counties</td>
<td>77,269</td>
<td>27.4%</td>
<td>1,574</td>
<td>3%</td>
<td>29.1%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Census of Agriculture. Cotton counties in 1890 defined as those with more than 50% of their acreage in cotton. Plantation counties in 1910 defined by census enumerators as those with a preponderance of tenant plantations (source: Mandle 19_). Data for 1890 includes crop liens, but neither census gave an adequate accounting of plantation debt, since only the part of plantations operated by plantation owners are recorded in the statistics on the value of mortgages and the total value of mortgaged farms.
### Table A2: Percentage of farm mortgage debt, by region and year 1916–1930

<table>
<thead>
<tr>
<th>Region</th>
<th>1916</th>
<th>1920</th>
<th>1925</th>
<th>1930</th>
</tr>
</thead>
<tbody>
<tr>
<td>New England</td>
<td>2.0</td>
<td>1.4</td>
<td>1.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Mid-Atlantic</td>
<td>6.2</td>
<td>4.8</td>
<td>4.5</td>
<td>4.7</td>
</tr>
<tr>
<td>East North Central</td>
<td>22.5</td>
<td>19.7</td>
<td>19.6</td>
<td>9.6</td>
</tr>
<tr>
<td>West North Central</td>
<td>41.9</td>
<td>41.5</td>
<td>43.2</td>
<td>37.1</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>3.8</td>
<td>4.6</td>
<td>5.0</td>
<td>5.4</td>
</tr>
<tr>
<td>East South Central</td>
<td>2.6</td>
<td>4.2</td>
<td>3.8</td>
<td>4.5</td>
</tr>
<tr>
<td>West South Central</td>
<td>9.1</td>
<td>9.5</td>
<td>9.3</td>
<td>11.5</td>
</tr>
<tr>
<td>Mountain</td>
<td>4.4</td>
<td>7.0</td>
<td>5.9</td>
<td>6.0</td>
</tr>
<tr>
<td>Pacific</td>
<td>7.5</td>
<td>7.2</td>
<td>7.4</td>
<td>9.5</td>
</tr>
</tbody>
</table>

*source: (Snowden)*

### Table A3: Ratio of farm mortgage debts to the value of farms, by tenancy and region, 1925

<table>
<thead>
<tr>
<th>Region</th>
<th>All farms</th>
<th>Full owner farms</th>
<th>Tenant farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>18.9%</td>
<td>22.7%</td>
<td>21.4%</td>
</tr>
<tr>
<td>New England</td>
<td>12.8%</td>
<td>15.2%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Mid Atlantic</td>
<td>13.9%</td>
<td>15.0%</td>
<td>13.9%</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>10.7%</td>
<td>10.4%</td>
<td>12.7%</td>
</tr>
<tr>
<td>East South Central</td>
<td>14.4%</td>
<td>15.0%</td>
<td>16.0%</td>
</tr>
<tr>
<td>West South Central</td>
<td>17.3%</td>
<td>21.2%</td>
<td>18.6%</td>
</tr>
<tr>
<td>East North Central</td>
<td>16.9%</td>
<td>21.6%</td>
<td>15.7%</td>
</tr>
<tr>
<td>West North Central</td>
<td>25.0%</td>
<td>33.9%</td>
<td>28.3%</td>
</tr>
<tr>
<td>Source</td>
<td>Mountain</td>
<td>Pacific</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24.6%</td>
<td>14.9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32.6%</td>
<td>19.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40.2%</td>
<td>13.4%</td>
<td></td>
</tr>
</tbody>
</table>

*source: Agricultural census and Wickens (1932).*
Table A4: Labor and land productivity in cotton, 1907-1936

<table>
<thead>
<tr>
<th>Year</th>
<th>United States</th>
<th>Eastern</th>
<th>Middle Eastern</th>
<th>Delta</th>
<th>Western</th>
<th>Irrigated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907-11</td>
<td>31,759</td>
<td>10,483</td>
<td>2,041</td>
<td>6,480</td>
<td>12,374</td>
<td>4</td>
</tr>
<tr>
<td>1917-21</td>
<td>32,655</td>
<td>9,282</td>
<td>2,204</td>
<td>6,489</td>
<td>14,208</td>
<td>201</td>
</tr>
<tr>
<td>1927-31</td>
<td>41,031</td>
<td>8,598</td>
<td>2,608</td>
<td>8,927</td>
<td>19,875</td>
<td>532</td>
</tr>
<tr>
<td>1933-36</td>
<td>28,410</td>
<td>5,800</td>
<td>1,836</td>
<td>6,364</td>
<td>13,443</td>
<td>513</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Man-hours required per acre</th>
<th>Eastern</th>
<th>Middle Eastern</th>
<th>Delta</th>
<th>Western</th>
<th>Irrigated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907-11</td>
<td>105</td>
<td>130</td>
<td>139</td>
<td>122</td>
<td>70</td>
<td>122</td>
</tr>
<tr>
<td>1917-21</td>
<td>95</td>
<td>120</td>
<td>136</td>
<td>114</td>
<td>62</td>
<td>109</td>
</tr>
<tr>
<td>1927-31</td>
<td>85</td>
<td>113</td>
<td>132</td>
<td>110</td>
<td>54</td>
<td>118</td>
</tr>
<tr>
<td>1933-36</td>
<td>88</td>
<td>123</td>
<td>130</td>
<td>116</td>
<td>50</td>
<td>127</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Cotton produced</th>
<th>Eastern</th>
<th>Middle Eastern</th>
<th>Delta</th>
<th>Western</th>
<th>Irrigated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907-11</td>
<td>12,332</td>
<td>4,536</td>
<td>1,072</td>
<td>2,597</td>
<td>3,997</td>
<td>3</td>
</tr>
<tr>
<td>1917-21</td>
<td>11,219</td>
<td>3,550</td>
<td>1,132</td>
<td>2,369</td>
<td>3,967</td>
<td>102</td>
</tr>
<tr>
<td>1927-31</td>
<td>14,658</td>
<td>3,452</td>
<td>1,291</td>
<td>3,615</td>
<td>5,651</td>
<td>416</td>
</tr>
<tr>
<td>1933-36</td>
<td>11,432</td>
<td>2,832</td>
<td>1,055</td>
<td>2,955</td>
<td>3,791</td>
<td>515</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Man-hours per bale</th>
<th>Eastern</th>
<th>Middle Eastern</th>
<th>Delta</th>
<th>Western</th>
<th>Irrigated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907-11</td>
<td>271</td>
<td>299</td>
<td>266</td>
<td>305</td>
<td>216</td>
<td>163</td>
</tr>
<tr>
<td>1917-21</td>
<td>275</td>
<td>314</td>
<td>266</td>
<td>312</td>
<td>223</td>
<td>216</td>
</tr>
<tr>
<td>1927-31</td>
<td>238</td>
<td>282</td>
<td>267</td>
<td>272</td>
<td>190</td>
<td>151</td>
</tr>
<tr>
<td>1933-36</td>
<td>218</td>
<td>253</td>
<td>226</td>
<td>250</td>
<td>178</td>
<td>126</td>
</tr>
</tbody>
</table>

*source: Holley and Arnold 1938:103.*

“irrigated” refers to New Mexico, Arizona and California
Figure A1: Distribution of 1890 farm mortgage debt by region and value: light grey = number of debtors, dark grey = value of debts. (source: 1890 census, volume 13)
the industry. The accompanying diagram shows the credit structure in the cotton-growing industry of the upland sections.

Figure A2: Cotton credits structures in the 1920s
References


Economy, The New South in a Bourgeois World.


Wickens, D L. 1932. Farm-Mortgage Credit.


Woodman, Harold D. 1968. “King Cotton & His Retainers; Financing & Marketing the Cotton Crop of the South, 1800-1925.”


