Servant of two masters:
The economics of ‘‘slave-hiring’’ in the antebellum South

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We explore the economics of ‘slave-hiring’ in the antebellum US South. We argue that the threat of excessive violence against enslaved employees increased the cost of transferring (temporary) property rights from masters to hirers. This analysis has implications for the prevalence of slave-hiring across sectors of the economy as well as for the demographic characteristics of hirelings compared to other enslaved people. In particular, our analysis predicts that slave-hiring will be more popular in industries that rely heavily on positive incentives to motivate labor compared to those industries in which physical violence was common. We combine qualitative insights from historical scholarship with quantitative evidence from the ‘Free’ and ‘Slave Schedules’ of the 1860 US Census to support our predictions. First, we find that slaveholders in farming were less likely to employ hirelings than slaveholding craftsmen by about 30 percentage points. This effect persists when we control for various slaveholder-specific variables, like his gender, wealth, and total number of enslaved workers employed. Second, enslaved males were 20% more likely to be hired out than enslaved females. Third, the chances of being hired out varied with age, maxing out at over 12% in the early forties. Our data further suggest that enslaved laborers’ age mattered for their chances of being hired out only if they were male. Our findings shed light on a key institution of antebellum slavery and its influence on the ability of slavery to penetrate and prosper in urban environments.

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We thank Henry Thompson, Peter Hazlett, Glen Whitman, Jenny Bourne, and Howard Bodenhorn for detailed comments on earlier drafts of this manuscript. We received similarly helpful feedback from attendees of the ‘Historical Political Economy’ panel of the 2023 Southern Economic Association Meetings and seminar participants at the University of Mississippi School of Law, the University of Mississippi Department of Economics, and Ave Maria University.

> The object of him who hires, is generally to make the most he can out of [the hirelings], without regard to their comfort or health.
>
> John C. Calhoun[1]

Introduction

Few historical institutions have attracted as much scholarly scrutiny by economists as slavery, especially as it was manifested in the antebellum United States south. There is, however, an economic practice central to the antebellum south's economy that has received minimal attention in previous economic history scholarship: The hiring out of one's enslaved employees on short- to medium-term leases, or 'slave-hiring.' Economists and economic historians have long been aware of this practice and its importance for the economies of the slave states. Goldin (1976) mentions it several times in connection to urban slavery, and Fenoaltea (1984) briefly discusses it in his treatment of positive incentives in slave systems. Fogel and Engerman (1974) pay surprisingly little attention to the practice even as they acknowledge its pervasiveness in slave states. The only extensive treatment of the topic from an economic perspective is that by Wahl (2002) who argues that that southern courts' treatment of slave-hiring relationship reflected an understanding of the principal-agent problem at the heart of this institution.[2]

The paucity of work on the subject might be attributed to what was, until the past few decades, a seeming lack of interest by professional historians, a fact already lamented by Fogel and Engerman (1974). Since then, historians have produced several landmark works on the topic, which include the comprehensive study of the institution by Martin (2004) and case studies by Campbell (1988) on Texas and by Hughes (1978) and Zaborney (2012) on Virginia.[3] We leverage this scholarship, alongside classic studies on antebellum slavery (e.g., Olmsted (1856) and Genovese (1974)), to develop a comprehensive economic analysis of slave-hiring.

We begin by characterizing slave-hiring as a multi-layered agency relationship between an enslaved worker, her owner,[4] and her hirer. The enslaved employee is the (compelled) agent of the hirer. The hirer is also an agent of the slaveholder with respect to his treatment of the hireling. Given that slavery is defined by the ability of the principal to motivate the agent by violent means and given that the hirer has no ex-ante interest in the long-term health and productivity of the enslaved worker, the owner expects the hirer to indulge in 'excess violence.' The threat of excess violence increases the cost to owners (and courts) of transferring (temporarily) to hirers the economic property rights over their enslaved laborers.

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[1] John C. Calhoun, letter to T. G. Clemson, quoted in Dew (1974, 393).

[2] Wahl focuses on the different rates at which free workers and hirelings' owners were awarded damages for injuries suffered on the job. Her argument is that free workers were better able to monitor how employers treated them and could voluntarily exit the relationship if employers overstepped. Slave owners, on the other hand, could not observe how hirers treated their enslaved laborers as easily and hirelings could only exit the relationship at great personal risk (Wahl 2002, 51). Wahl (2002, 52) also recognizes that slaveholders exercised greater influence on courts than free laborers.

[3] While not exclusively focused on the case of Virginia, Hughes (1978) relies mostly on Virginian sources.

[4] Throughout the paper, we use "owner" and "master" interchangeably to refer the individual holding legal title over an enslaved person.

From this line of reasoning follow several empirical predictions about the historical practice of slave-hiring. First, the cost of the slave-hiring contract will be higher (relative to ownership and free labor) when dealing with hirers for industries that rely heavily on negative non-pecuniary incentives to motivate labor. Thus, we expect slave-hiring to be relatively less prevalent in farming and relatively more prevalent in the skilled crafts and service industries. Second, we argue that hirelings will differ from other enslaved people in their demographic characteristics. The effect of an enslaved laborer's age on the benefits (costs) to hirers (masters) of excess violence should influence the chances that she will be hired out, everything else constant. For example, long-term productivity losses due to excess violence are more costly to masters of younger hirelings than older ones. On the other hand, age might introduce noise in masters' monitoring of hirers. Older laborers are more prone to experiencing sudden drops in productivity, making it harder for owners (and courts) to tell whether these were caused by nature or by an abusive (or careless) hirer. We also expect enslaved males to be overrepresented among hirelings. Enslaved women likely experienced greater damage from excess violence. Moreover, past menarche, women were more susceptible to the threat of sexual exploitation. Expecting a greater chance of medium-term adverse effects on enslaved women's productivity, owners would respond by imposing relatively stricter and thus costlier constraints on their hiring.

We corroborate these predictions against qualitative evidence from the historical scholarship on slave-hiring. We also formally test our predictions against novel data on slave-hiring from the 'Free' and 'Slave Schedules' of the 1860 US Census for Fauquier County, Virginia. The census workers assigned to this county collected systematic information on whether an enslaved person was currently living with her master or was on hire and thus living with a third party. We collect demographic information (age, sex, color) for each enslaved person and whether the schedules report her as being on hire. We then match individuals employing enslaved people in the 'Slave Schedules' with entries in the 'Free Schedules.' These entries provide information on slaveholders' age, sex, wealth, and occupation. We also use the census workers' notes to determine whether each slaveholder in the sample was currently employing hirelings. These data allow us to identify systematic differences between hirers and other slaveholders.

Our findings shed light on essential features of the institution of slave-hiring. First, we find that a slaveholder's industry had a large effect on the extensive and intensive margins of slave-hiring. Most strikingly, slaveholders working in the farm sector were 30 percentage points less likely to employ any hireling compared to slaveholding craftsmen. The large and statistically significant difference in the prevalence of slave-hiring across industries is unaffected when we control for slaveholder wealth. Second, the average hireling differed from the average enslaved laborer, especially in terms of age and sex. The chances of being hired increased with age, peaking in the early forties at about 12%, and then decline over the following decades. Enslaved women were significantly less likely to be hired out overall, and age did not affect their chances of being hired out, which was constant at about 10% over their lifetime. An enslaved man in his thirties was approximately five percentage points more likely to be hired out than an enslaved woman of the same age, an increase of roughly 50%.

By shedding light on the institution of slave-hiring, we add to two strands of scholarship. First, we contribute to a large body of work applying economics to study the slave economy in the antebellum South. Economic historians have investigated virtually every aspect of Southern slavery. Fogel and Engerman (1974) set the stage with their analysis of, among other topics, the productivity of enslaved labor, the determinants of prices, the investment decisions of

slaveholders, and the prevalence of violence on plantations. Much subsequent scholarship constitutes attempts to critique (Gutman 1975; Sutch et al. 1976) or build on (Goldin 1976; Steckel 1986; Pritchett and Chamberlain 1993; Calomiris and Pritchett 2009; Bodenhorn 2015) Fogel and Engerman (1974). More recent contributions include an economic analysis of the law of slavery in the United States (Wahl 2002), studies of manumission and its regulation by state governments (Cole 2005; Bodenhorn 2015), and an investigation into the effect of the Fugitive Slave Act of 1850 on the prices of enslaved people (Lennon 2016). We complement these works by providing a comprehensive economic analysis of slave-hiring. Our results are especially relevant to our understanding of urban slavery. Previous work has associated slave-hiring with urban slavery (Goldin 1976). Our results suggest that this success had a simple economic logic. Slaveholders looking to hire out some of their enslaved laborers discriminated in favor of hirers from industries that relied on positive incentives over violence, sectors that tended to be found in urban environments.

Our second contribution is to the literature on the economics of labor coercion. Previous work has taken the agency relationship between a lord/slaveholder and his serf/enslaved worker as its starting point to identify the optimal combination of positive and negative incentives. Findlay (1975) and Barzel (1977) discuss why a rational principal might rely on positive incentives at all (like wages or the promise of freedom) when he is legally permitted to use negative ones (including force). Fenoaltea (1984) and Dari-Mattiacci (2013) ask under what conditions positive incentives will be preferred to negative ones at the margin. A related line of inquiry studies the link between the value of the outside options of a coerced worker and the benefits from the use of force. Chwe (1990) shows that lower values of the agent's external options translate into a greater effect of violence on her effort. Acemoglu and Wolitzky (2011) extend this insight to show that principals can manipulate agents' reservation utility to motivate them to supply more effort. We complement these contributions by studying the incentives involved in a multi-layered agency relationship whereby the principal extracting labor services from the enslaved worker is himself an agent of the owner, at least regarding her long-term productivity. Our argument and findings illuminate how the incentives of hirers and masters shaped the face of slave-hiring. Most importantly, it accounts for slave-hiring's reputation as a less burdensome form of slavery and its association with higher standards of living and greater freedom of movement for enslaved people out on hire (Eaton 1960).

Historical context

In North America, slave-hiring was as old as slavery itself (Martin 2004; Zaborney 2012).[5] According to Zaborney (2012, 11), this practice became increasingly popular over the 19th century. By the mid-1800s, its importance to the slave economy was "nothing short of monumental" (Martin 2004, 8). One calculation puts the average enslaved person's probability of being hired out each year at "between 5 and 10 percent" (Genovese 1974, 390). Fogel and Engerman (1974, 56) come to a similar estimate (7.5%). If one believes these figures, the

[5] The practice was not unique to North America. See Varella and Barcia (2020).

number of hirelings on the eve of the Civil War would have been approximately 260,000 per year.[6]

Historians have hypothesized several reasons for the popularity of hiring among slaveholders.[7] The most common explanation is that masters routinely found themselves with 'excess labor.' The obvious solution was to hire out 'excess hands' for some time (Martin 2004, 31; Sellers 1950, 199).[8] A significant portion of hirelings appears to have been supplied due to the death of a slaveholder (Genovese 1974, 391). As was common, the guardians of deceased slaveholders' heirs would hire out some enslaved persons to pay for the pupils' education and other expenses (Zaborney 2012, 14). Often, it was the deceased themselves who made explicit arrangements to this effect before passing (Zaborney 2012, 16). Masters sometimes had a less benevolent reason for hiring one of 'their people': Punishment. Martin (2004, 79) writes that some owners used hiring to "[exile] irksome slaves" from their plantations or to discipline those who had tried to escape.[9]

On the demand side, "hirers were especially drawn to the flexibility that renting slaves afforded them" (Martin 2004, 107). Someone hoping to jump-start a new business might lease one or more hirelings rather than purchase them outright, uncertain about the enterprise's profitability in the long run.[10] Moreover, hiring enslaved workers seems to have been cheaper than hiring comparable free workers (Wahl 2002, 51). Though more affordable than free labor, slave-hiring was not cheap. The average rate for a 12-month lease in 1860 was $70, or approximately 8 percent of the average price of an enslaved person in the same year, which was about $865,[11] or roughly 45 percent of the GDPPC of the United States in 1860.[12]

Besides material factors, historians have emphasized the influence of social forces on the demand for hirelings. By hiring an enslaved worker, even the financially constrained could afford temporary mastery and thus achieve elite status within the slave society of the antebellum south (Sellers 1950, 199). Indeed, one historian saw the spread of slave-hiring as an attempt to 'democratize' slaveholding (Martin 2004, 19).[13]

Scholars often link slave-hiring to the phenomenon of urban slavery. In his history of slavery in Alabama, Sellers (1950) covers slave-hiring and urban slavery in the same chapter ("VI: Hired Slave and Town Slave"). Another historian goes so far as to claim that "[t]he is hiring out system gave slavery the flexibility it required in the urban milieu" (Wade 1967, 48). Goldin (1976)

[6] This figure depends on two assumptions: 1) That the age distribution of the enslaved people in Fogel and Engerman's *Slave Sales and Appraisals, 1775-1865* database is representative of the whole enslaved population and 2) that the "slave labor force" includes enslaved people between the ages of 8 and 75 (Fogel and Engerman 1974).
[7] On the supply side of the market were also institutional slaveholders like banks, local governments, and even churches (Olmsted 1856, 159).
[8] See also Zaborney (2012, 149).
[9] Zaborney (2012, 15) has also claimed that some owners hired out their slaves to avoid paying taxes on them since leasing contracts for slaves sometimes required that the hirer pay taxes on them.
[10] In this and other respects, the demand for hired slaves appears to have been determined by the same factors driving demand for leased assets more generally. See Merrill (2020).
[11] These figures were calculated using Fogel and Engerman's *Slave Hires, 1775-1865* and *Slave Sales and Appraisals, 1775-1865* databases.
[12] See Lindert and Williamson (2016).
[13] On the other hand, Campbell (1988, 112–13) has argued that, in Texas, hirers were over 70% wealthier than the average household.

agrees with this sentiment, writing that "the most important contribution to the survival of slavery in its urban environment was the practice of slave hiring" (Goldin 1976, 35). According to Genovese (1974, 391), "[i]n all towns and cities, hired craftsmen and mechanics, as well as common laborers and domestics, swelled the slave population" (Genovese 1974, 391). The presence of hirelings was significant in many of the South's urban centers. Genovese (1974, 391) estimates that half of all enslaved people in Lynchburg, Virginia, were hirelings, while in another Virginia city, Richmond, most enslaved people were out on hire (Fogel and Engerman 1974, 56). Other cities with large hireling populations included Nashville (25 percent of all enslaved people) and Louisville (16 percent) (Genovese 1974, 391). For the whole South, Fogel and Engerman (1974, 56) estimate that "[a]bout 31 percent of urban slave workers were on hire during 1860," while they put the share of hirelings in the country at the much lower number of "about 6 percent" (Fogel and Engerman 1974, 56).

As the market for hirelings grew more profitable, it encouraged the rise of a whole industry of specialized intermediaries known as hiring agents. According to Sellers (1950, 210), by the mid-1800s, one found hiring agencies in "every town and village" of the south. Agents fulfilled a variety of functions. They matched enslaved workers with hirers, evaluated the parties' character and their financials, drafted contracts, processed payments, and monitored the behavior of hirers, all for a fee (Sellers 1950, 209).[14] If they wished to avoid paying this fee, owners and hirers could rely on personal ties and social networks or simply consult local newspapers, which routinely published slave-hiring ads (Martin 2004, 48).[15] The rise of slave-hiring prompted the development of a specialized market for insurance. By the 1830s, slaveholders could purchase policies for their hired-out enslaved people.[16] Purchase of a policy shifted much of the owner's financial risk associated with slave-hiring to the insurance company.[17] These policies "provided a crucial level of protection for slaveholders employing their bondspeople under conditions of new entrepreneurial risk [i.e., slave-hiring]" (Murphy 2005, 619).[18]

The typical slave-hiring contract included the hiring price and method of payment, the starting date (generally January 1), and the date the hireling was to return home (generally Christmas Eve) (Sellers 1950, 208). It also often mentioned the tasks the hireling(s) was (were) going to perform and the two parties' share of such expenses as meals, clothing, medical treatment, and any potential tolls or taxes on the hireling (Martin 2004, 95). Most owners also insisted that hirelings be granted a day of rest per week on Sunday (Martin 2004, 52). Figure 1 shows a hiring contract dated March 15, 1832. The contracting parties were owner Paul Grimball and hirers J.D. Wright and J.P. Grimball, a relative of Paul, who agreed to lease seven adult enslaved laborers for four years at $900 a year. The length of the term of hire makes this contract unusual, as most

[14] The screening of hirers was valued highly: "Selecting hirers was a delicate business, driven by two basic, and sometimes competing, aims: to make as much money as possible and to ensure that slaves were well treated while hired out" (Martin 2004, 87).

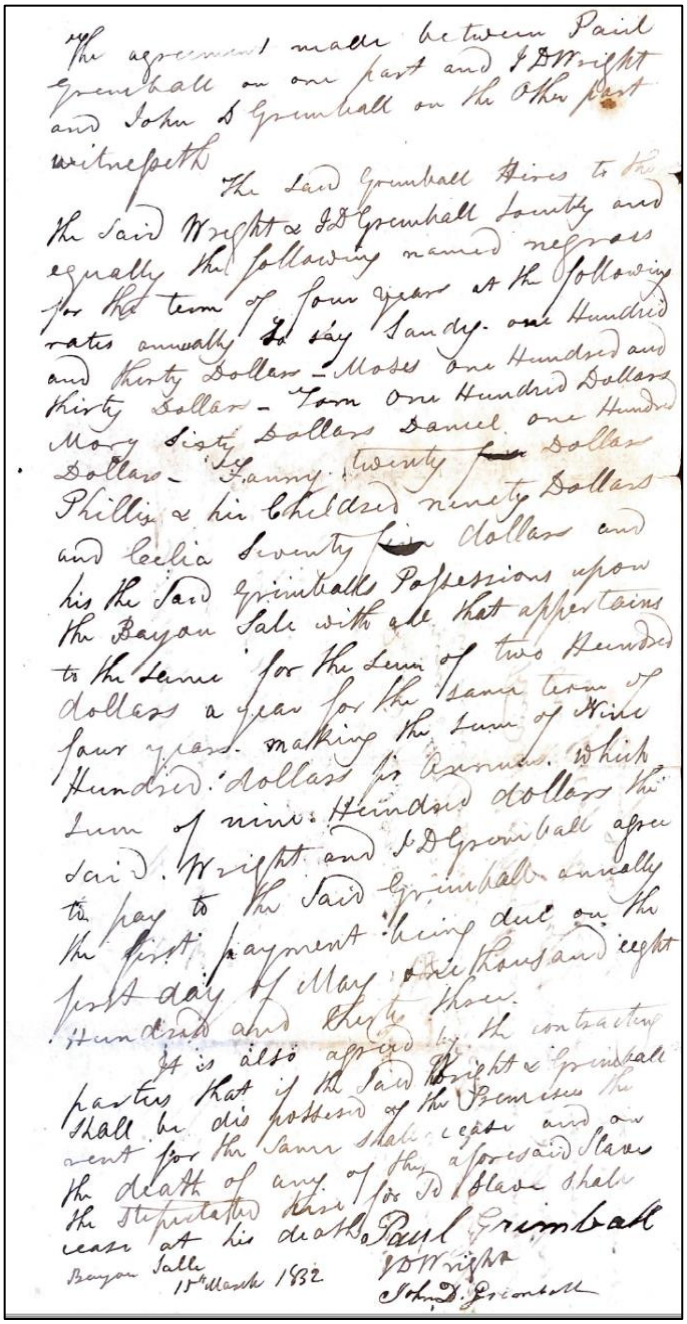
[15] On the role of newspapers, see also Wade (1967, 43–44).

[16] The first recorded life insurance policy for a slave goes back to 1831 and was issued by the Baltimore Life Insurance Company (BILC) (Murphy 2005, 620)

[17] Only a small fraction of slaves was ever insured. For instance, the BILC, which for most of the antebellum period was the largest issuer of such policies, insured approximately 600 slave lives in thirty years (Murphy 2005, 622).

[18] The availability of insurance policies convinced "many Virginia owners … to hire out their slaves to work at dangerous occupations" and that "they [the owners] felt it was acceptable to place their slaves in danger"(Zaborney 2012, 129).

leases for hirelings lasted just one year. Shorter leases (including very short ones of just a few days) were also common, although they tended to be regulated more informally (Zaborney 2012, 21–22; Martin 2004, 7) and often involved individuals from a tight social network, like family members, friends, and neighbors (Martin 2004, 111).



The agreement made between Paul Grimball on one part and J D Wright and John D Grimball on the other part witnesseth

The said Grimball Hires to the the said Wright & J D Grimball Jointly and equally the following named negroes for the term of four years at the following rates annually to say Sandy. one Hundred and thirty Dollars - Moses one Hundred and thirty Dollar - Tom one Hundred Dollars Mary sixty Dollars Daniel one Hundred Dollars - Fanny twenty ~~five~~ Dollars Phillis & his Children ninety Dollars and Celia seventy ~~five~~ dollars and his the said Grimballs Possessions upon the Bayou Sale with all that appertains to the same for the sum of two Hundred dollars a year for the same term of four years making the sum of Nine Hundred dollars in annum. Which sum of nine Hundred dollars the said Wright and J D Grimball agree to pay to the said Grimball annually the first payment being due on the first day of May one thousand eight Hundred and Eight three.

It is also agreed by the contracting parties that if the said Wright & Grimball shall be dispossed of the Premises the rent for the same shall cease and on the death of any of the aforesaid Slaves the stipulated hire for Such Slave shall cease at his death Paul Grimball

Bayou Sale 15th March 1832

J W Wright

John D. Grimball

Figure 1: A Hand-Written Slave-Hiring Contract. Source: Jesse D. Wright and Family Papers, LSU Library Special Collections, UU:248, Box 1.

Because of the extent of litigation between hirers and owners, courts were heavily involved in regulating slave-hiring (Tushnet 1981). Courts influenced the "form and content" of hiring

contracts so heavily that, by the mid-19th century, minimal variation existed among them (Martin 2004, 95). By the eve of the Civil War, the language of these contracts had become so standardized that it became common to use preprinted forms with blank spaces for just such items as the length of the lease and the rental rate (Zaborney 2012, 26).[19]

The economics of slave-hiring

In slave societies, the employer of an enslaved worker can legitimately use violence to motivate her to exert effort.[20] Yet, though reliance on violence was widespread, positive incentives were also common. Social scientists have offered various theories for the rationale behind positive incentives in lave systems (Barzel 1977; Findlay 1975; Fenoaltea 1984; Acemoglu & Wolitzky 2011). Recently, Dari-Mattiacci (2013) has argued that the exact nature and volume of violence depend on how easily the principal can observe the contribution of the enslaved agent.[21] The more informative the signal generated by the enslaved agent's performance of a task, the more effective 'sticks' are relative to 'carrots,' and the more violence we expect to observe. If the signal is not very informative, however, the principal of an enslaved person will rely on positive incentives instead.

A stick-carrying slaveholder has an intrinsic incentive to limit his reliance on violence (Barzel 1977). While too little violence might mean little effort, too much violence can hurt or even kill the enslaved worker. Since the enslaved worker has both use and exchange value to the slaveholder, he would thus wish to limit his reliance on the 'stick.'[22] The same is not, ex-ante, true of a hirer. Suppose the hirer of an enslaved worker and her owner are equal in every respect. The two will have the same marginal benefit of violence as the signal produced by the enslaved has the same degree of informativeness for either of them. However, unlike the owner, the hirer bears no losses from causing long-term damage to the hireling. And so, if given the chance, he will use more violence than the owner would. We call the difference between the two levels of violence 'excess violence.'[23] Rationally, a slaveholder would not lend his enslaved laborer unless he expects to be compensated for any damages resulting from a hirer's excess violence. If such damages were revealed to the owner and courts with certainty, the incentives of the hirer would correspond exactly to those of the owner: The hirer picks the same level of violence the owner

[19] Figure E.1 in Appendix E provides an example of a preprinted hiring contract.
[20] As Olmsted (1856, 194) famously remarked "[u]nder the salve system of labor, discipline must always be maintained by physical power." Gutman (1975, 28–29) shows that whipping and slave productivity were positively correlated. On the threat of violence as a motivational tool see Fogel and Engerman (1974, 232) and Acemoglu and Wolitzky (2011). Since a slave owns no wealth, the owner cannot rely on negative pecuniary incentives but only on negative non-pecuniary incentives like inflicting pain on the salve (Chwe 1990, 1110). Barzel (1977, 97) notes that "some positive remuneration to a slave is consistent with [the owner's] maximization" if the value of the slave's output net of remuneration exceeds that of a comparable free worker. Similarly, Findlay (1975) argues that owners might use positive incentives as substitutes for coercion.
[21] Alternative, think of the use of force as being especially effective whenever the employers of the enslaved worker can observe her inputs but not her output (Barzel 1977, 103). Fenoaltea (1984) comes to similar conclusions though in his framework the relative efficacy of violence depends on its psychological effects on an enslaved worker's ability to perform a task.
[22] This is true even of a sadistic slaveholder. A sadist would use more violence if the slave was not his because of the lower marginal loss in terms of the slave's present discounted value.
[23] A similar reasoning applies to the supply of care. In this case, the hirer's incentive is to provide less care than the owner would. Lack of care can also result in economic losses to the owner.

would. More realistically, there will be some uncertainty over the cause of damages discovered, especially since hirers can potentially manipulate their exploitation to minimize signs of excess violence. Without any ulterior adjustments by the owners, hirers respond to this uncertainty by indulging in excess violence. Slaveholders can adjust in one of two ways.

First, they can charge higher rental rates to compensate for the expected losses from excess violence. The higher rate forces hirers to internalize the externalities produced by their excess violence.[24] Everything else being constant, this should eliminate excess violence. However, higher rental rates will likely lead to adverse selection on the demand side.[25] If the slaveholder does not know where any potential hirer falls in the distribution of benefits from excess violence (or of expected losses), raising the rental rate selects against those with the lowest benefits (or expected losses) from excess violence. This, in turn, causes the average expected loss per hireling to increase. The owner might respond by raising rates still, but this only works to produce even more adverse selection (Akerlof 1970).

Second, instead of just increasing rental rates on hirers from specific industries, slaveholders might adopt a combination of screening potential hirers and contractually constraining their use of their enslaved laborers. For example, owners might require the hirer to take actions to increase the probability that damages caused by his excessive use of force will be revealed. Contractual stipulations of this kind penalize more heavily hirers who gain most from excessive violence (or whose excess violence is most damaging to the owner). In the limit, these constraints can force hirers to select the owners' preferred level of force, eliminating excess violence altogether.

Screening potential hirers and enforcing constraints against them would be costly. For example, slaveholders must invest resources in investigating hirers past behavior.[26] They must also police how hirers treat their hirelings[27] and pay lawyers to bring lawsuits against excessively violent hirers. The costs associated with these actions are likely increasing in the hirers' benefits from excess violence: The more hirers can gain from using force, the more they must be constrained and monitored, and the more resources must be directed to these tasks. Thus, agreements between masters and potential hirers are more expensive the greater the benefits (costs) of excess violence to hirers (owners). Several empirical predictions follow from this discussion.

The allocation of hirelings across industries

Slave-hiring will be more (less) prevalent in industries characterized by tasks with low (high) force-elasticity of output.[28] Hirelings will be more popular among employees in industries that

[24] Notably, hirers did not permit sub-hiring, a practice that come to prohibited in at least some Southern states (Martin 2004, 86).
[25] The possibility that increasing rental rates could encourage adverse selection was first mentioned by Wahl (2002, 51).
[26] Potential hirers might also need to invest in costly reputational capital, lowering their net demand for hirelings.
[27] Some owners solicited hirelings to send them letters about how they were being treated by their hirers (Martin 2004, 98.).
[28] Fenoaltea (1984, 660) briefly discusses the possibility that the varying profitability of the use of force might have implications for the prevalence of slave-hiring across industries (i.e., less prevalent in farming and more prevalent in the crafts). Our argument differs from Fenoaltea (1984) in important respects. Fenoaltea does not identify the mechanism leading to the variation in occupation between hired and non-hired slaves, which he simply attributes to unidentified "transaction costs" and his argument does not consider the possibility that an owner could demand

rely more heavily on positive incentives. [29] Conversely, in sectors that rely more heavily on negative non-material incentives, slaveholders will tend to employ their own enslaved people rather than hire those of others. Thus, we expect the share of hirelings out of all enslaved laborers employed by skilled craftsmen to exceed the same figure for farmers. With its reliance on the gang system (Fogel and Engerman 1974) and the use of physical violence (Gutman 1975), plantation farming comes closest to the ideal type of a stick-reliant industry.[30]

The demographic characteristics of hirelings

If the benefits of excess violence to hirers, and thus its costs to slaveholders, vary depending on the age and sex of the hirelings, we expect the average hireling to differ in her demographic characteristics from the average enslaved worker.

The enslaved person's sex was a likely influence on her vulnerability to excess violence. This is for two reasons. First, enslaved women might have suffered greater damages than men from exposure to violence and the lack of care. Second, enslaved women, if hired out, faced a higher probability of experiencing sexual exploitation by their hirer than enslaved males.[31] From the perspective of the master,[32] sexual exploitation could be very damaging. If a hireling returned home pregnant or carrying a newborn child, the owner would have faced extra difficulties finding her a new hirer and thus a lower-than-expected rental rate.[33] Even if he planned to employ her directly, he would have been limited in the type of tasks she could perform, at least in the short run, reducing her use value to him. The owner could sue to recover such damages, but the very nature of sexual exploitation introduces informational asymmetries between hirers, owners, and the courts. For instance, a hirer could claim that an anonymous third party had fathered the child and that any damages were the result of the enslaved woman' promiscuity rather than his own

compensation for any damages to his slave caused by excess violence. It is the fact that uncertainty exists over what caused said damages (because of the information costs involved in ascertaining the independent effects of the hirer's actions, of slave's health and behavior, and of unexpected 'acts of God') that would cause hirers to overindulge in the stick. This, in turn, forces the owner to raise the rental rate for hirers from selected industries, thus lowering the quantity demanded of hired slaves from the same industries. Moreover, Fenoaltea (1984) attributes the use of carrots to the detrimental effects of anxiety, which he sees as a necessary outcome of the use of violence. We follow Barzel (1977) and Dari-Mattiacci (2013) instead in attributing the effectiveness of force to informational properties of the tasks performed by slaves.

[29] For the sake of this analysis, we assume the marginal products of free labor and enslaved workers respectively are the same across all industries. Thus, the demand for hirelings differs across industries because of the varying benefits of excess violence. If hirers could not exert excess violence, the share of hirelings would be the same across all industries.

[30] Given the centrality of agriculture in the economy of the antebellum South, we still expect plenty of hirelings working on farms. However, the logic of our argument suggests that the lease of enslaved workers to farmers will tend to occur between individuals facing relatively low monitoring and enforcement costs, as is the case between family members, friends, and neighbors.

[31] Gutman and Sutch (1976a). See also the discussions in Kolchin (1993, 123-4) and Bodenhorn (2015, 51–62).

[32] The threat of greater sexual exploitation by hirers would have caused female slaves to oppose the prospect of being hired out more intensely than their male counterparts. To the extent that slaves had a say in whether they would be hired out and to whom, which according to Martin (2004, 44) was not insignificant, this would have further reduced the prevalence of women among hired slaves. See also Zaborney (2012, 83–84).

[33] Zaborney (2012, 54) writes of "several slave women" in Loudon County, Virginia [who] gave birth more than nine months into the year during which they were out on hire," possibly as the outcome of sexual exploitation on the part of their hirers.

actions. Thus, hiring out enslaved women would have been relatively costlier to all parties involved. Enslaved women would therefore have faced a lower probability of being hired out than men.[34]

An enslaved worker' age is another attribute that could affect her vulnerability to excess violence. A loss in the productivity of a 12-year-old hireling due to a hirer's excess violence (or poor care) was more costly to her slaveholder than if the hireling had been 25 or 40 since, on average, the loss would have been compounded for an additional 13 or 28 years respectively. Thus, we expect the chances of being hired out to increase with age. On the other hand, an enslaved worker's age could make it harder for the owner (or courts) to establish the cause of a hireling's loss in productivity or even death. As people age, they are more vulnerable to diseases and more likely to experience a slowdown in their productivity. Through this channel, age introduces noise in the monitoring of hirers' treatment of hirelings, which could encourage them to indulge in excess violence or deficient care. In this case, enslaved people in old age would be less likely to be hired out than those in their prime.

An enslaved person's age could influence her probability of being hired out through an alternative channel: Adverse selection on the supply side.[35] Hirers cannot perfectly observe how much slaveholders have invested in the care and human capital of potential hirelings. The resulting asymmetric information could lead to a discrepancy between the payment hirers are willing to make and that which some owners are willing to accept. Unraveling can be mitigated by search, for instance by having interested hirers inspect the hirelings. However, even if this search could eliminate all asymmetric information, its cost must be added to the market hiring rate, reducing the quantity demanded of hirelings. This friction is likely to affect disproportionately the market for older enslaved laborers, since the contribution of slaveholders' investment on their productivity is bound to be larger than for younger ones. Thus, the threat of adverse selection on the supply side of hirelings points also to the prediction that older enslaved laborers will be less likely to be hired out.

The evidence

Contractual and legal constraints on hirers

Before we discuss the historical evidence germane to the predictions of our framework, we provide support for the claim that southern slaveholders (and, eventually, southern courts) invested resources in constraining and monitoring the behavior of hirers.

According to one historian, hiring contracts "put strict limits on the mastery of hirers" (Martin 2004, 95) to mitigate their ability to abuse and carelessly disregard the health of hirelings (Martin 2004, 73).[36] For instance, hirers had to cloth their hirelings. Since clothing constituted a major expense for masters, amounting to up to 20 percent of the rental rate (Martin 2004, 98), "[o]wners justifiably suspected that hirers would be tempted to skimp on clothing" (Martin 2004,

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[35] We thank Professor Jenny Bourne for the suggestion.

[36] And in fact, "slaveholders worried about the kind of treatment their slaves would receive from their temporary masters and about their conditions upon return" (Genovese 1974, 391).

97). Another matter of dispute was the feeding of hirelings. Hirers "had an incentive to feed … slaves inexpensive foodstuffs that were high in calories and thus a good source of energy–but that lacked the nutrients necessary for promoting long-term health" (Martin 2004, 98). Hiring contracts might also dictate that hirers give enslaved workers some time off and limit the types of jobs that they could perform during the lease (Martin 2004, 74). For example, owners were especially wary of having their enslaved people work on steamboats, especially traveling to free states because of the high risk of escape (Martin 2004, 82).

Southern courts put additional restrictions on hirers, even when these were not specified in the actual contracts (Martin 2004, 119). Initially, southern judges struggled to find the right balance between enslavers' and hirers' rights, leading courts to contradictory standards. Already by the 1830s, however, southern courts had settled on a common standard (Morris 1996, 133).[37] Unless the contract explicitly stated the contrary, hirers were bound to a set of "implicit duties" when caring for hirelings (Morris 1996, 140), and courts required that hirers treat hirelings the way a 'prudent' owner would. Thus, hirers were not at liberty to punish hirelings as they pleased, and the excessive use of force was grounds for legal recourse by the owners.[38] Hirers complained that, under this new legal standard, they were effectively prevented from disciplining their enslaved employees (Zaborney 2012, 130).[39]

The prevalence of slave-hiring across industries

The evidence from secondary sources overwhelmingly supports the prediction that the prevalence of slave-hiring differed across industries.[40] According to historians of the antebellum South, hirelings played an outsized role in the craft industry. Genovese (1974, 391) notes that "[slave-hiring] had special significance for the mechanics and craftsmen." According to Sellers (1950, 199), in Alabama, hirelings worked as "[b]ricklayers, blacksmiths, house servants, clerks in stores who were considered 'trusty,' draymen, weavers, brick moulders and common laborers, house carpenters, gardeners, and cooks were very often hired slaves." The same was true of other states as well. A survey of hirers in Texas between 1858 and 1862 finds that "merchants and professionals" were over-represented among them, compared to their share of the total population (17.5% versus 10%), while farmers were underrepresented (65.5% compared to 70% of the adult male population) (Campbell 1988, 112). We find similar patterns in the Old South. For instance, the 1860 census of the City of Charleston, South Carolina, shows hirelings working as "boatmen, fishermen, wagoners, carpenters, and blacksmiths" (Martin 2004, 25). Factories from Virginia's Richmond and Lexington areas routinely employed hirelings. Slaveholders seem to have also been happy to lease to local governments for public works, which in many regions

[37] This development might have contributed to the 'soaring' of slave-hiring in the decade before the Civil War (Martin 2004, 119).

[38] When a contract was silent about a specific scenario, a hirer bore limited liability for any damages incurred by the slave in his care. However, the hirer was strictly liable whenever the slave suffered damages from performing an activity that was explicitly forbidden by the text of the contract (Morris 1996, 142). See also the discussion in Wahl (2002, 59–60).

[39] Indeed "hirers often realized that the only way to be considered full masters was to purchase slaves and assume a less ambiguous position" (Martin 2004, 135).

[40] Evidence from outside the United States show a similar pattern. For instance, Varella and Barcia (2020, 91) claim that Cuban public authorities refused to lease the slaves in their temporary control to work in dangerous industries: "[These slaves] could not work on roads or railroads. The authorities tried not to give them work that might wear them down so much that all the owners might sue to recover damages or to recover lost value for a future sale."

was "[t]he most lucrative way to hire out slaves" (Martin 2004, 82). Such public projects included the construction of roads, the digging of canals, and the laying of railroad tracks (Martin 2004, 82).[41] However, Sellers (1950, 200) notes that in Alabama, "[s]lave owners were […] reluctant to hire their slaves to such corporations or contractors [in the railway industry], except in time of depression."

Doubtlessly, many enslaved people ended up hired out to farmers, including to large plantations. This is hardly surprising, given that this sector dominated the economy of the antebellum south (Fogel and Engerman 1974). Yet, even there, the historical evidence suggests that "many of the slaves who were hired out in rural, agricultural areas of the south came from estates of deceased persons" (Campbell 1988, 108). The administrators of these estates lacked the incentive to preserve the long-term value of the assets under their temporary charge. Indeed, Campbell (1988, 108 fn.7) notes that, unlike estate administrators, rural slaveholders preferred to employ their enslaved workers directly rather than leasing them to other farmers.

When an owner had purchased a policy for an enslaved worker who would be hired out, insurance companies imposed conditions on the lease and restricted the eligibility of hirelings employed in dangerous industries. For instance, in Virginia, "insurance companies were reluctant to issue life insurance for slaves hired out to coal mines" (Zaborney 2012, 129). Owners willing to hire their enslaved people to these industries might be charged higher insurance payments. The Baltimore Life Insurance Company, the largest issuer of policies for hirelings, demanded higher payments for hirelings employed in hazardous industries like coal mining or working near bodies of water (Murphy 2005, 623).[42]

We complement this qualitative evidence with data on slave-hiring from the 'Slave' and 'Free Schedules' of the 1860 US Census for Fauquier County, a rural county in the north of the Virginia Piedmont region.[43] From the 'Slave Schedules,' we identify 435 hirers and 725 non-hiring slaveholders. We then attempt to match each hirer with an entry from the 'Free Schedules.'[44] We do the same for a random sample of 435 out of 725 non-hiring slaveholders. All in all, we matched 378 hirers and 399 non-hiring slaveholders for a total of 777 observations for age, sex, wealth, occupation, and number of hired and non-hired enslaved employees.[45] We use occupational information to construct a categorical variable (Industry) that can take four values (Farm, Craft, Service, and Other/NA), depending on which industry best characterizes the slaveholder's occupation.[46] For example, we describe farmers, tenants, and overseers as working

[41] The centrality of railroad construction is also emphasized by Zaborney (2012, 125).

[42] Two other popular terms of slave life insurance policies were to limit coverage to just 2/3rds of the value of the slave (Murphy 2005, 624) and to make them non-transferable without the approval of the insuring agency (Murphy 2005, 625, 639).

[43] We focus on Fauquier for pragmatic reasons. The census workers who compiled the county's 'Free' and 'Slave Schedules' recorded systematically whether an enslaved person was the property of the free man or woman with whom she lived or not. If not, the census worker often noted she was "on hire from" or "belongs to" some other individual. We thank John Zaborney for alerting us to these data.

[44] The 'Slave Schedules' were accessed through Ancestry.com. The 'Free Schedules' were accessed through FamilySearch.org.

[45] Table A.1 in the Appendix provides summary statistics for these variables. For a detailed discussion of our data collection methodology and variable construction, see Appendix C.

[46] For the categorization of each occupation into the four categories of *Industry*, see table D.1 in Appendix D.

in farming (Industry=Farm). Blacksmiths and wheelwrights would count as craftsmen (Industry=Craft). Hotelkeepers, grocers, and weighmasters would count as being involved in the service industry (Industry=Service). Widows and those slaveholders (mostly women) for whom the census workers indicated no occupation fall into the "Other/NA" category.

To formally evaluate our prediction on the prevalence of slave-hiring across industries, we first estimate a set of Logit specifications with the binary variable *Hirer* (taking a value of 1 if the 1860 Census identifies the individual as employing at least one hireling and zero otherwise) as our dependent variable. The independent variable of interest is the categorical variable *Industry*. We also include controls for the individual's sex and wealth, as in the census. Table 1 reports the results. These indicate that slaveholders in the farming industry were significantly less likely than those in the craft and service industries to employ any hirelings.[47] The results are consistent across specifications, including when we control for the slaveholder's age, sex, and wealth.[48] Our findings are also unaffected when we break down total wealth into two components (real estate wealth and personal estate wealth) as reported by the 1860 census (Column 4) and when we include the number of enslaved workers employed by each slaveholder (*Total Enslaved*, Column 5).

Table 1: Logit Coefficients (Hirer)

	Dependent variable:				
	Hirer				
	(1)	(2)	(3)	(4)	(5)
Farm	-1.646***	-1.643***	-1.445***	-1.398***	-1.398***
	(0.268)	(0.275)	(0.284)	(0.284)	(0.284)
Other/NA	-2.684***	-1.991***	-2.087***	-2.091***	-2.092***
	(0.341)	(0.380)	(0.384)	(0.386)	(0.391)
Service	-0.518	-0.622*	-0.463	-0.430	-0.430
	(0.324)	(0.333)	(0.342)	(0.343)	(0.342)
Male		1.044***	1.020***	1.024***	1.024***
		(0.300)	(0.298)	(0.299)	(0.299)
Age		-0.021***	-0.018***	-0.016***	-0.016***
		(0.006)	(0.006)	(0.006)	(0.006)
Log of Total Wealth			-0.086***		
			(0.032)		

[47] Additional evidence that the distribution of hired slaves across industries differed from that of other slaves comes from Fogel and Engerman's survey of probate records from 8 slave states in their *Slave Hires, 1775-1865* database. Of the over 20,000 hiring transactions recorded in their database, only 43 report the skills of the leased slave. Of these, 30 are classified as either "Blacksmith, Forgeman" or "Carpenter, Cabinet Maker." Only one hireling is classified as "Laborer, Worker, Field slave."

[48] Estimations of logit coefficients generate comparable results.

Log of Real Estate				-0.013	-0.013
				(0.016)	(0.016)
Log of Personal Estate				-0.086**	-0.086**
				(0.036)	(0.036)
Total Enslaved					0.0001
					(0.008)
Observations	777	777	777	777	777
McFadden Pseudo-R2	0.097	0.128	0.136	0.139	0.139
Note:					*p<0.1; **p<0.05; ***p<0.01

All standard errors are robust to heteroskedasticity.

For ease of interpretation, we report the marginal effect of our independent variables calculated from the logit coefficients in Table 1. Our results suggest that the average employer of an enslaved worker in the farming sector was between 30 and 37 percentage points less likely than one in the craft sector.[49] We find that slaveholders in the Other/NA category were also less likely to hire enslaved workers. Finally, the results suggest that slaveholders in the service industry were less likely than those in the craft sector to employ hirelings by about ten percentage points, though the coefficient is generally not statistically significant.[50] These results are robust to controlling for slaveholder's sex, age, wealth, and the total number of enslaved workers employed. The positive coefficients on *Male* and the negative one on *Age* are large and highly significant, suggesting that female and older slaveholders were less likely to employ hirelings. Male slaveholders were 20 percentage points more likely to be hirers while an extra ten years of age are associated with a lower probability of being a hirer by three percentage points. The coefficient on (the natural logarithm of) personal wealth is also statistically significant (at the 5% level). Interestingly, only personal wealth but not real estate wealth seems to have mattered, and the effect is negative, implying that wealthier individuals were less likely to hire. However, it is notable that including wealth has little effect on the coefficients for our industry variables. Figure 5 plots the average marginal effects on the probability of being a hirer for each industry. As in Table 1, *Craft* is the omitted industry.

[49] Since the standard deviation of *Hirer* is .5, these coefficients imply an effect in the range of two-thirds of a standard deviation between slaveholders in farming and those in the craft sector.

[50] Notably, the number of enslaved laborers employed does not appear to have influenced the chances that a slaveholder employed at least one hireling.

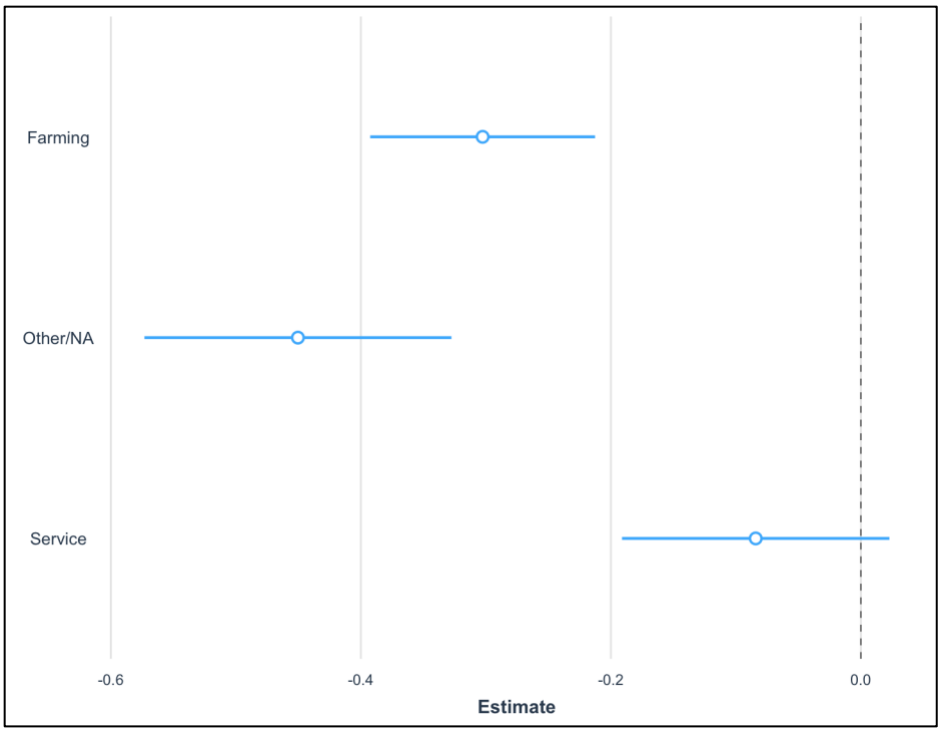

Figure 5: Marginal Effect of Industry on Hirer. Source: Authors calculations based on the coefficients in Table 1, Column 5. Confidence intervals are for the 10% significance level, calculated using heteroskedasticity-robust standard errors.

The results in Table 1 and Figure 5 shed light only on the extensive margin of slave-hiring. It is possible for industry characteristics to affect extensive and intensive margins differently. Perhaps fewer farmers were hirers, but each of these farmers employed large numbers of hirelings. If so, looking exclusively at the extensive margin would mask the actual prevalence of slave-hiring in that sector. To investigate this additional dimension, we estimate a second set of Logit specifications that use the share of hirelings out of all enslaved laborers employed by a slaveholder (*Share Hired*) as the dependent variable. The results are shown in Table 2. Covariates in each column correspond to those in Table 1. Overall, Table 2 paints a picture like that in Table 1. Across all specifications, *Farm* has a negative and highly statistically significant coefficient. The size of the coefficients is also large. The marginal effect of *Farm* implied by these coefficients is between 20 and 45 percentage points, depending on the specification. The gap is even higher for enslaved laborers in our *Other/NA* category. Controlling for sex, age, or wealth does not substantially affect these findings.[51] We also find a difference between slaveholders in the service and craft industry, with the share of hirelings employed being lower for the former by a margin of between 9 and 22 percentage points. This difference shrinks and loses much of its statistical significance once we include controls for a slaveholder's wealth and the total number of enslaved people employed.

Table 2: Logit Coefficients (Share Hired)

	Dependent variable:

[51] Industry marginal effects are plotted in Figure B.1 in Appendix B.

	Share Hired				
	(1)	(2)	(3)	(4)	(5)
Farm	-1.968***	-1.979***	-1.658***	-1.537***	-1.147***
	(0.218)	(0.225)	(0.236)	(0.240)	(0.240)
Other/NA	-2.435***	-1.683***	-1.951***	-1.955***	-1.611***
	(0.314)	(0.370)	(0.416)	(0.408)	(0.377)
Service	-0.928***	-1.043***	-0.778***	-0.705**	-0.496*
	(0.249)	(0.257)	(0.270)	(0.276)	(0.271)
Male		1.166***	1.148***	1.172***	1.152***
		(0.330)	(0.341)	(0.338)	(0.324)
Age		-0.021***	-0.013**	-0.009	-0.010*
		(0.006)	(0.006)	(0.006)	(0.006)
Log of Total Wealth			-0.154***		
			(0.036)		
Log of Real Estate				-0.054***	-0.020
				(0.015)	(0.015)
Log of Personal Estate				-0.117***	-0.079**
				(0.037)	(0.032)
Total Enslaved					-0.159***
					(0.020)
Observations	777	777	777	777	777
McFadden Pseudo-R2	0.101	0.132	0.164	0.186	0.293

Note: *p<0.1; **p<0.05; ***p<0.01

All standard errors are robust to heteroskedasticity.

The results in Tables 1 and 2 tell a clear story. The prevalence of slave-hiring varied drastically across sectors of the economy. It was most prevalent in the craft industry, slightly less prevalent in the service industry, and least prevalent in farming. However, the data cannot tell us what was driving this variation. While these results are consistent with our 'excess-violence' hypothesis, they could also be driven by other industry-specific characteristics. One potential source of variation is wealth. If the wealth of employers varies across industries and frictions prevent financial markets from working effectively, then some industries might rely more on slave-hiring simply because the people working in them cannot afford to purchase an enslaved person outright. This is a popular claim about the nature of the demand for hirelings among historians (Eaton 1960; Martin 2004). There might be some truth to this claim, as Tables 1 and 2 show that a slaveholders' wealth (especially the size of his personal estate) negatively predicts his reliance on slave-hiring. However, industry variation persist after wealth is accounted for.

Another potential factor behind industry variation is the size of firms' enslaved labor force. Larger slaveholders benefit from encouraging specialization among their enslaved workers. Smaller ones, however, might not be able to do so and might want to rely on hirelings instead if in need of specialized services. The results in Tables 1 and 2 are somewhat supportive of this theory, as the sign of the coefficient on *Total Enslaved* is negative in both (though the effect on *Hirer* is not significantly different from zero). However, as for slaveholder wealth, differences between industries persist when including this covariate.

Variation across industries might also be due to the difference in the demand for flexibility in employment. Employers in one industry might hire more enslaved workers simply because they benefit more from the ability to adjust up and down their enslaved labor force. Seasonality is the likeliest driver of the demand for flexibility in employment. The value of the marginal worker to the average firm might vary more from season to season in industry A than in industry B. Then, firms in industry A would benefit more than those in industry B from the ability to adjust their labor force temporarily through slave-hiring. While the nature of our data does not allow us to control for differences in the seasonality of the demand for labor across industries, it is unlikely that seasonality would account for our results. Agriculture is famously a seasonal industry and was especially so in the antebellum period (Engerman & Goldin 1991). The seasonality of agriculture was reflected by the pattern of enslaved labor on plantations. As one historian writes about plantation work: "not only were there more hours of daylight in the summer than in the winter but there was more work that needed to be done [during harvest time]" (Kolchin 1993, 106). Thus, if seasonality was driving the demand for hirelings, we would expect slave-hiring to be more prevalent in agriculture, the opposite of what the data show.

A consideration of the incentives of employees of enslaved laborers suggests our results are not attributable to the higher demand for skilled labor by craftsmen. Hirers are less likely than owners to make task-specific investments in the human capital of their enslaved employees. Hirers might not enjoy the full benefits of that investment if the same enslaved worker were hired out to someone else, even a competitor, the following year. Owners, however, face no such risk and have a greater incentive to invest in the skills of their enslaved employees. Not only were hirers less likely to invest in the human capital of hirelings, but they were also less likely to hire them to perform tasks requiring highly skilled labor in the first place. Hirers could not learn easily about the quality of an enslaved laborer's training by his master or by previous hirers (Ruef 2012, 974). Direct ownership circumvents this informational problem. This is consistent with the historical record. An investigation of the business practices "typical of the slave-manned furnaces … in Virginia, Tennessee, Kentucky, North and South Carolina, Georgia, Alabama, and Missouri prior to the Civil War" (Dew 1974, 396) reports the case of William Weaver, the operator of two forges in western Virginia. While Weaver owned many dozens of enslaved laborers, he relied mainly on hirelings to staff his forges, opting to keep most of his own laborers as field workers (Dew 1974, 397). At the same time, all the highest-skilled employees of the forges were Weaver's own enslaved people. The hirelings tended to be employed in "less skilled forge operations" instead (Dew 1974, 398). Similarly, Marks' analysis of the labor market for enslaved labor in rural Maryland (1987, 553) finds that investment in an enslaved employee's human capital and ownership of the same went hand in hand.

We can leverage qualitative historical evidence further to evaluate the plausibility of the interpretation that the threat of 'excess-violence' is behind the variation in the prevalence of

slave-hiring across industry. If this interpretation is correct, one would expect the widespread reliance on positive incentives to motivate enslaved labor in exactly those industries in which slave-hiring was most prevalent.

According to one historian of the antebellum South, "brutality was not characteristic of industrial slavery," instead, factory owners, who were among the largest employees of hirelings, relied on "more sophisticated means of controlling and increasing the productivity of their [enslaved] workers" (Starobin 1968, 112). Employees understood that "[r]eliance on the negative incentive of physical coercion, however brutally effective it might be on the plantation, carried far more risks in the forge or in the protofactory" (Whitman 1993, 24). Thus, employers of enslaved labor in the manufacturing industry preferred "positive incentives over force (although the threat of it remained) to compel hired slaves to work and to control them generally" (Zaborney 2012, 131). Especially popular was the use of material rewards such as "giving money or commodities to slaves" (Starobin 1968, 115).

The reliance on positive incentives to motivate enslaved workers was "common to almost every type of southern industry" (Starobin 1968, p. 119) and came with the predictable approval of the "[o]wners of hirelings" which they employed (Starobin 1968, p. 122). In Virginia's factories, hirelings received "cash, credit for merchandise, or time off" for exceeding their quota (Zaborney 2012, 131). Bonuses for exceeding one's quota could be quite generous and were often "comparable to wages earned by free laborers engaged in the same occupations" (Zaborney 2012, 131). Dew finds that material and even pecuniary bonuses were similarly popular among owners of Virginia's iron works (Dew 1974, 405).[52] This type of payments were common throughout the Upper South (Starobin 1968, 115-120).[53] Unsurprisingly, enslaved laborers preferred to be leased out to urban hirers and were especially eager to work in manufacturing (Eaton 1960, 669).

To convince masters to lease them their laborers, industrialists cultivated a reputation for the fair treatment of hirelings and "sought to avoid excessive physical punishment if at all possible" (Dew 1974, 399). Factory owners who had been known to indulge in exploitative behavior and excessive violence had a hard time finding enslaved workers to hire (Zaborney 2012, 85). Even within agriculture, the historical evidence suggests that hiring was more prevalent among those farmers less likely to rely on violence in the first place. Hughes (1978, 268) finds that hiring was more prevalent among "[t]enants and owners of small farms" and much less so among large landowners. The former generally worked side-by-side with their enslaved employees and lacked both the infrastructure (like a team of overseers) and the incentive (employing too few enslaved workers to implement the gang system profitably) to motivate their hirelings by coercive means.[54]

[52] Most hirelings working in factories lived away from their masters, either in housing provided by their hirers (Starobin 1970, 144-5) or in some third location (Zabornery 2012, 134). Thus, masters could not easily take any of the cash accumulated by their enslaved people while on hire.

[53] Thus Olmsted (1856, 154) finds that "The slave lumberman then lives measurably as a free man; hunts, fishes, eats, drinks, smokes, and sleeps, plays and works, each when and as much as he pleases. […] No 'driving' at his work is attempted or needed. No force is used […]. The overseer merely takes a daily account of the number of shingles each man adds to the general stock.

[54] On the relationship between the number of enslaved laborers on a farm and the feasibility of the gang system, see Kolchin (1993, 102-3).

More indirect evidence of the prevalence of negative non-pecuniary incentives across industries comes from the evolution of the market for Black labor following emancipation. Before the Civil War, most enslaved laborers were employed as farmhands. As they obtained freedom, the same men and women abandoned the fields of their masters. Those who remained in agriculture did so as small landowners or sharecroppers. Most abandoned farming altogether (Kolchin 1993, 217). The decline of Black agricultural employment has been tied to the inability of farmers to rely (legally) on coercion to motivate workers, which lowered agricultural productivity (Fogel & Engerman 1974, 194).[55] Other sectors, like manufacturing and the crafts, that did not rely as heavily on the 'stick' did not experience an exodus of Black labor. In the aftermath of the Civil War, Southern manufacturers attracted free Blacks as wage laborers to perform "[the same] jobs they had held as slaves, a pattern repeated by slave artisans" (Dew 1974, 416).

The age and gender of hirelings

Compared to the distribution of hirelings across industries, the historical scholarship offers only little insight into the demographic characteristics of enslaved workers on lease. Martin (2004, 58) writes only that "[younger slaves] were natural candidates for hiring" (and that "[m]en dominated the skilled trades that were in demand among hirers" (Martin 2004, 25). Hughes (1987, 271) finds evidence that already by the late 1700s, adult males faced higher probabilities of being hired out than both adult females and children of either sex.

For more systematic evidence, we turn again to the 1860 Census 'Slave Schedules' for Fauquier County. We collect age and demographic information on 10,311 enslaved people and use the census worker's notes to identify whether each enslaved person was on hire. Of the 7496 enslaved people aged 8 to 79, 11% of them were on hire, for a total of 836 hirelings.[56] Our data suggests hirelings were more likely to be male (54%) than other enslaved people in the county (49%). Hirelings were also older: The average age for hirelings was 28.2, while among others it was 26.8. The median ages were 24 and 21, respectively.

Logit estimates confirm that an enslaved person's age and sex influenced the chances of being a hireling. The results in Table 3 show that the average enslaved male was more likely to be hired out than his female counterpart. The marginal effect of the enslaved laborer's sex on the chances of being hired out is two percentage points, about 20% of the average probability for the entire population (i.e., 11%). We also find evidence of a non-linear relationship between age and the probability of being hired out, with the latter increasing steadily with age, peaking at 40, and declining over the following decades. These findings are all highly significant. However, even in column 4, the McFadden Pseudo R-2 is quite small. This is likely due to our inability to control for the characteristics of the owners of the hirelings in our data set, such as their industry, wealth, and number of enslaved laborers.

Table 3: Logit Coefficients (Hired)

[55] "Throughout most of the South, [following emancipation] gang labor under the supervision of planters or overseers quickly became a thing of the past" (Kolchin 1993, 220).

[56] Surprisingly, this figure is higher than the 5-10% and 7.5% hiring rates suggested by Genovese and Fogel & Engerman respectively. For these variables' summary statistics, see Table A.2 in the Appendix.

	Dependent variable:			
	Hired			
	(1)	(2)	(3)	(4)
Age	0.005**	0.038***		0.039***
	(0.002)	(0.009)		(0.009)
Age2		-0.0005***		-0.0005***
		(0.0001)		(0.0001)
Male			0.216***	0.223***
			(0.074)	(0.074)
Observations	7,497	7,497	7,497	7,497
McFadden Pseudo-R2	0.001	0.003	0.001	0.005
Note:			*p<0.1; **p<0.05; ***p<0.01	

All standard errors are robust to heteroskedasticity.

Table 4 replicates the results from columns (1) and (2) in Table 3, but the estimates in columns (1-2) of Table 4 are for enslaved females only, and those in columns (3-4) are just for males. The results show that age influenced the chances of being hired out only for enslaved men. The coefficients of Age and its quadratic are not statistically significant from zero when only women are included. The same coefficients however are highly statistically significant for the men-only sample.[57] Figure 6 plots the predicted value of our dependent variable, *Hired*, for male (dashed line) and female (dotted line) enslaved laborers as a function of age. These plots suggest that younger and older enslaved women were just as likely to be hired out as their male counterparts. However, by their late teens, men faced a greater chance of being hired out than women, with the gap between them peaking in the late thirties-early forties.

Table 4: Logit Coefficients (Hired, by Sex)

	Dependent variable:			
	Hired			
	(1)	(2)	(3)	(4)
Age	0.001	0.007	0.008***	0.068***
	(0.003)	(0.012)	(0.003)	(0.014)
Age2		-0.0001		-0.001***
		(0.0002)		(0.0002)
Observations	3,785	3,785	3,712	3,712
McFadden Pseudo-R2	0.000	0.000	0.003	0.011

[57] Again, the Pseudo-R2 in Table 4, column 4 is small, likely due to the lack of data on hirelings' legal owners. However, it is higher than in the same column in Table 3, indicating that age explained more of the variation in the probability of being hired out for men than for women.

Note: *p<0.1; **p<0.05; ***p<0.01
All standard errors are robust to heteroskedasticity.

These results are consistent with the hypothesis that masters were bound to bear a greater cost of excess violence for young hirelings, given that potential losses in productivity would have been compounded for longer periods. They are also consistent with the theory that age introduced noise in owners' observation of hirers' treatment of hirelings, which at the margin would have deterred masters from hiring them out. If an enslaved person's age affects the probability of being hired out through the channels we suggest, we expect the effect of this variable to be strongest in industries that most rely on coercion and weakest in those that do not. Indeed, when we replicate the estimations in Table 3 by industry, we find that the inverted U-shaped relationship between *Age* and *Hired* is most evident for enslaved people employed in the farming sector.[58]

The decline in the probability of being hired out past age 40 is also consistent with a supply-side adverse selection problem whereby hirers must spend relatively more resources to ameliorate asymmetric information problems when dealing with older enslaved laborers. Practically speaking, it is hard to see how asymmetric information over health and physical ability would have been significant enough to cause the observed rapid decline in the chances of an enslaved laborer being hired out past age 40. After all, hirers had the chance to inspect potential hirelings and any major physical or cognitive deficiencies would have been easy to spot. Skills and personality are much harder to evaluate on a hiring day inspection. Hirers would need more than a quick look to make sure the hireling has the advertised skills and lacks unwanted personality traits like stubbornness or impulsivity. However, of the two (skills and personality) only the former would seem to have a variance that increases with the age of enslaved workers such that older ones would be more affected by it than their younger counterpart. Some evidence that asymmetric information over skill was responsible for at least a part of the age-related decline comes from industry-level results.[59] The post-age 40 decline was much more pronounced in the craft industry than in agriculture or the service industry, consistent with the idea that, at least for adult enslaved workers, age had a stronger effect on their chances of being hired out in sectors that required greater skill.

[58] See Table B.1 in Appendix B.
[59] See Table B.1 in Appendix B.

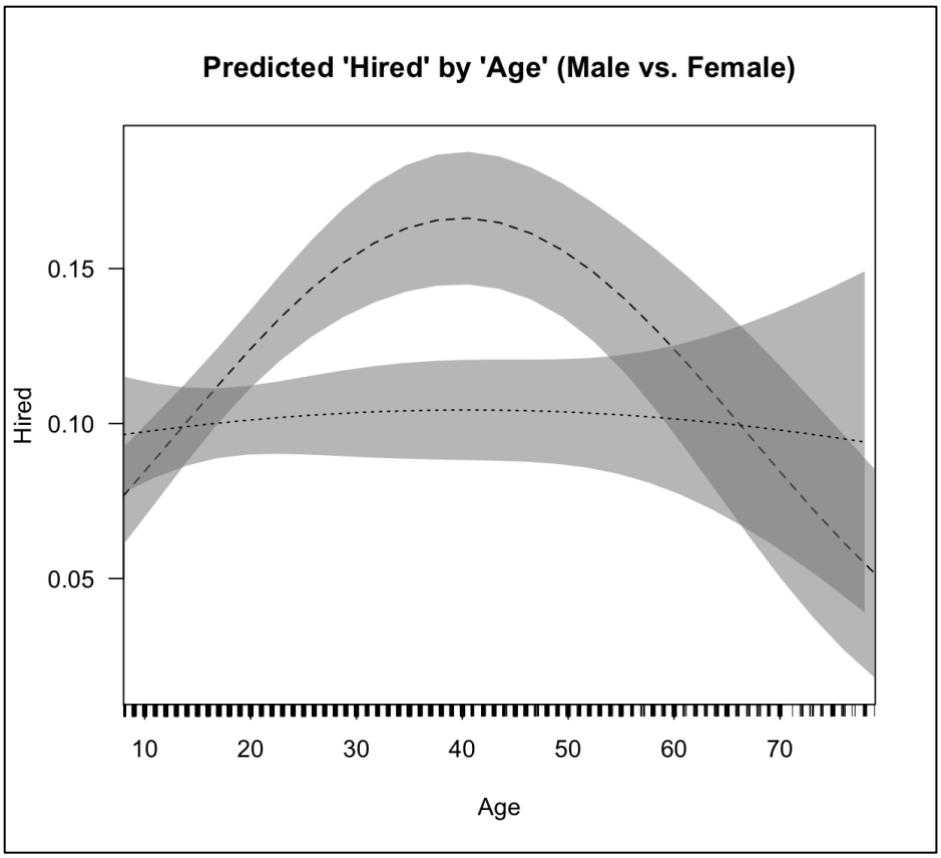

Figure 6: Predicted Values of Hired by Age, by Sex. The dotted line represents the values for females, while the dashed line represents those for males. Source: Authors' calculations from 1860 US Census data. Marginal effects calculated using the Logit coefficients from Table 4, columns 2 and 4.

The overall lower probability of being hired out for women supports the hypothesis that owners of enslaved females foresaw greater losses from hiring them out, either because of greater expected damages from excess violence or because of the threat of sexual exploitation. If women were more sensitive to (and thus their owners experienced greater losses from) excess violence, then owners would have been less kin on hiring them out, relative to males. We then would expect this sex discrepancy to be strongest in those industries that more heavily relied on the stick. Indeed, sex statistically significantly affected the probability of being hired out (negatively, for women) in the farming sector only.[60]

The differential effect of age between the two sexes lends credibility to the sexual violence channel since the timing of the divergence in the effect of age between men and women closely matches the average age of menarche among North American enslaved women (i.e., 17) (Steckel 1986, 725). Past this time, tighter restrictions on hirers would have been necessary to mitigate the threat of sexual exploitation, lowering the chances of an enslaved woman being hired out in the first place. Beginning in the enslaved woman's late teens, the potential costs to the master from

[60] For the results, see Table B.1 in Appendix B.

the hireling's sexual abuse would have grown large enough to counteract the positive effects of age that we find among enslaved men.[61]

Alternative interpretations of these results are possible. The effect of the interaction of age and sex on the probability that an enslaved laborer is hired out could be due to forces on the demand side rather than the supply side of the market. One possibility is that hiring probabilities simply reflect changes in the productivity of enslaved labor. According to this line of reasoning, prime-aged men were more likely to be hired out due to their greater productivity. There are several problems with this argument.

First, greater productivity is not enough to lead to a higher probability of being hired out. As productivity increases, the value of enslaved labor increases for both hirers and masters, and the former will have to pay the latter higher rental fees to compensate for the greater opportunity cost. Indeed, Figure 7, panel A, shows that payments for a month of a hireling's services (identified by the dashed line) varied with age, suggesting that they reflected variations in hirelings' expected productivity.

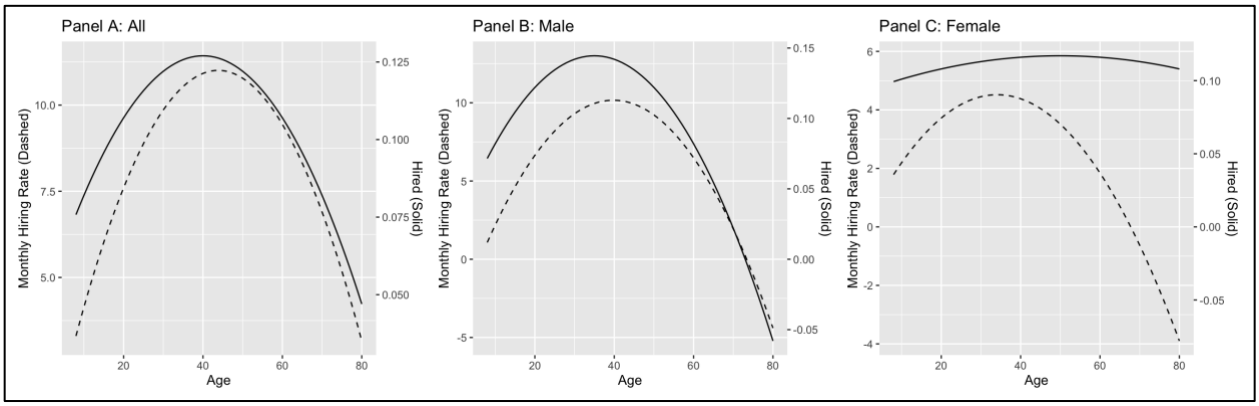

Figure 7: Comparison between predicted probability of being a hireling (Hired) and predicted monthly hiring rate by age. Source (Hired): Authors' calculations from 1860 US Census data. Source (Monthly Hiring Rate): Fogel and Engerman's Slave Hires, 1775-1865. Hiring rates are in real terms and were calculated using the CPI time series from Samuel H. Williamson, "The Annual Consumer Price Index for the United States, 1774-Present," MeasuringWorth, 2023. URL: http://www.measuringworth.com/uscpi/, retrieved September 6, 2023.

For demand to drive the changes in hiring probability, higher productivity must increase the value of an enslaved laborer to potential hirers more than to her own master while leaving the hirers' willingness to purchase the same enslaved laborer unaffected. Second, demand-side interpretations fail to explain why the two curves in Figure 6 have different shapes. Suppose productivity is the leading cause of variation in hiring out probabilities. In that case, we'd expect the market value of male and female enslaved labor services to follow drastically different paths: an inversed U-shaped one for the former and a flat one for the latter. Instead, while the level of

[61] Consistent with the idea that women were more sensitive to (and thus their owners experienced greater losses from) excess violence, the results in Table B.1 show that that sex statistically significantly affected the probability of being hired out (negatively, for women) in the farming sector only.

productivity differed between the sexes,[62] it followed a similar trajectory over an enslaved laborer's lifetime. Figure 7, panels B and C show the average monthly payment for a hireling by age for male and female enslaved laborers respectively against their probability of being hired out.[63] Though payments for female hirelings peak earlier (34 years of age) and at a lower rate ($4.5) than for male ones (40 and $10.16), the two curves follow similar inverted U-shaped paths.[64] These findings cannot be easily reconciled with the hypothesis that differences in productivity are driving the variation in prevalence of slave-hiring across genders and by age.

Third, evidence on the prevalence of skilled enslaved labor across occupations casts doubt on the idea that age influenced the probability of being hired out via the productivity channel. If this were so, we'd expect this probability to peak at a later age in the craft sector, given that skilled enslaved workers tended to be older (Marks 1987). Indeed, data collected by Ruef (2012) suggests that the share of enslaved workers in skilled occupations peaked at around age 35 and remained stable until about age 60.[65] Given that the probability of being hired out fell after age 40, Ruef's data implies a declining share of hirelings among the enslaved laborers employed in skilled occupations. This is confirmed by our analysis, which shows that the probability of being a hireling in the craft sector starts falling earlier than in the other sectors (see Figure B.3, Appendix B). Thus, as enslaved laborers in these occupations grew old, they were more likely to be owned outright by their employers. The productivity hypothesis cannot explain why a craftsman would prefer hiring a 30-year-old enslaved worker but then prefer owning the same worker when he turns 40. Our interpretation offers a simple answer. Ownership of the enslaved laborer mitigated information asymmetry problems as these grew more substantial with the laborer's age.

Finally, consistent with the sexual abuse hypothesis of gender differences hiring probability, Zaborney (2012, 30) has argued that "pregnancy *increased* a female slave's likelihood of being hired out." While pregnancy did not necessarily protect the woman from the threat of sexual abuse while on hire, it eliminated much of its burden on the slaveholder. Enslaved women with young children could only be hired out at a discount, in some cases up to half the regular rate (Hughes 1978, 277). An already-pregnant enslaved woman was unlikely to return to him with an additional unwanted (from the perspective of the owner, that is) pregnancy, saving her master a significant financial loss.

Conclusion

The partial and temporary transfer of property rights over an enslaved person's services was widespread in the antebellum south. The practice grew in popularity up to the immediate aftermath of the Civil War and was instrumental to the penetration of the slave economy into

[62] In agriculture, the evidence suggests that for both male and female enslaved laborers cotton-picking productivity increased steadily from and peaked in the mid (females) to late (male) 20's (Olmstead & Rhode 2020, figure 7). See also Fogel & Engerman (1974, 76), especially Figure 19.
[63] Data on payment for hirelings are from the Fogel and Engerman's *Slave Hires, 1775-1865* database.
[64] Since age and its quadratic have no statistical influence on the probability that an enslaved woman will be hired out, the solid line in Figure 7, panel C, which represents the curve of best for the underlying observations, overstates the inverted U-shapedness of the relationship.
[65] See Ruef (2012, 985), especially Figure 3.

urban environments (Wade 1967; Martin 2004; Zaborney 2012). Despite all this, economists and economic historians have paid little attention to this institution.[66]

We argue that at the heart of this institution was a multi-layered agency relationship. Because of the impossibility of perfect policing, if left unchecked, hirers' incentives lead them to indulge in more violence (and/or lesser care) than slaveholders were willing to tolerate. Slaveholders and the legal system responded to this threat by forcing costly constraints on hirers' ability to dispose of hirelings as they pleased. Combined with an understanding of the institutional, economic, and legal features of the antebellum south's slave economy, our framework implies that hirelings and hirers will differ in important ways from other enslaved laborers and slaveholders, respectively. We argue that, in equilibrium, the interaction of the incentives of hirers and masters favored the employment of hirelings in industries that relied on positive incentives over violence. We further argue that an enslaved laborer's age and sex would have influenced her chances of being hired out, with men in their prime facing the highest likelihood and women facing the lowest.

We test these claims against two novel data sets on slaveholding in Fauquier County, Virginia. We first collect information from the 1860 US Census' Slave' and 'Free Schedules' for that county, leveraging the fact that the census workers took exceptionally detailed notes on whether each enslaved person in the county was living with her master or currently on hire. The resulting data set contains demographic information as well as information on the hireling status of over 10,000 enslaved people. We then match everyone identified as employing at least one hireling by the schedules and a random sample of non-hiring slaveholders with entries from the 'Free Schedules,' which contain demographic, occupational, and wealth information about every free person in Fauquier County. Empirical investigation of these two data sets provides evidence to support our economic interpretation of slave-hiring. We find that slaveholders in the farm sector were much less likely to employ hirelings than were slaveholding craftsmen. We also find that enslaved males were substantially more likely to be hired out than female ones and that these differences were largest for enslaved men in their prime.

Our findings shed light on one of slavery's most successful institutions. Others have noted that slave-hiring played a crucial role in the evolution of slavery over the 19th century, and that contributed to the surprising success of the peculiar institution in southern cities (Wade 1967; Goldin 1976). Our argument and evidence suggest that slave-hiring's association with urban slavery stems from the fundamental economic logic behind this practice. Slaveholders favored hiring out their enslaved laborers to hirers from industries that relied more on positive incentives as motivation tools than on violence. The concentration of these industries in cities explains why hirelings tended to flow toward urban environments.

[66] The one major exception being Wahl (2002), who dedicates a whole chapter to the economics of the law of slave-hiring. Interestingly, Evans (1962), one of the earliest works in the economics of antebellum slavery, dedicated significant space to a discussion of slave-hiring. However, this discussion was only instrumental to his use of hiring rates to estimate the profitability of slavery.

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Appendix for *Servant of two masters: The economics of ‘‘slave-hiring’’ in the antebellum South*

Appendix A: Summary Statistics

Table A.1: Summary Statistics (Hirer)

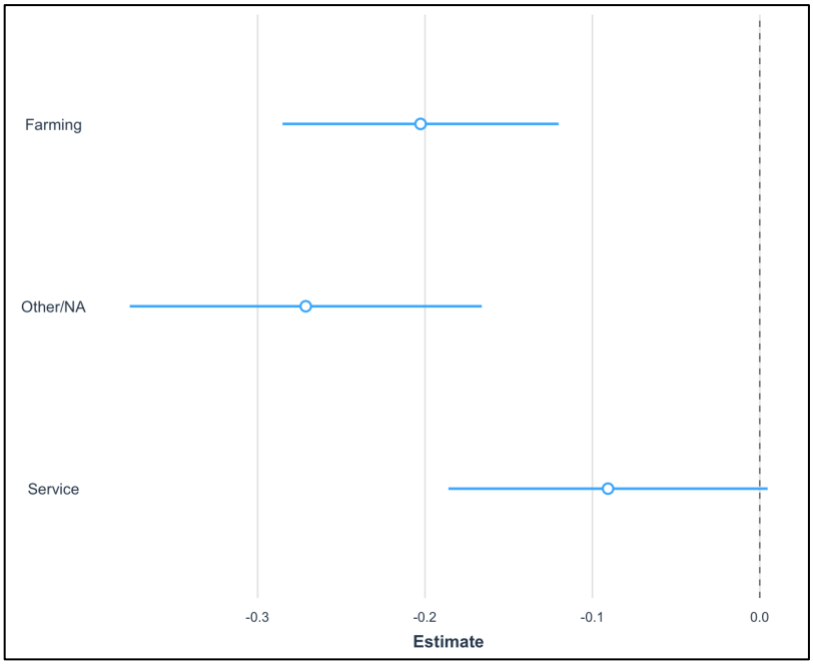
Statistic	N	Mean	St. Dev.	Min	Max
Hirer	777	0.486	0.500	0	1
Share Hired	777	0.308	0.414	0	1
Male	777	0.817	0.387	0	1
Age	777	45.682	14.119	15	90
Real Estate	777	9,174	19,178	0	248,000
Personal Estate	777	10,397	15,626	0	189,875
Total Estate	777	19,572	32,228	0	337,000
Total Enslaved	777	8.523	9.847	1	89
Total Hirelings	777	1.148	1.808	0	16
Farm	777	0.580	0.494	0	1
Craft	777	0.127	0.334	0	1
Service	777	0.147	0.354	0	1
Other/NA	777	0.145	0.353	0	1

Table A.2: Summary Statistics (Hired)

Statistic	N	Mean	St. Dev.	Min	Max
Age	7,497	26.963	16.711	8	79
Male	7,497	0.495	0.500	0	1
Hired	7,497	0.112	0.315	0	1

Appendix B: Additional Results

Figure B.1: *Marginal Effects of Industry on Share Hired*



The effects depicted in Figure B.1 are generated from the Logit coefficients from Table 2 in the main text.

Table B.1: *Logit Coefficients by Industry (Hired)*

	Dependent variable:											
	Hirer											
	Farm			Craft			Service			Other/NA		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age	0.005	0.037***	0.039***	-0.008	0.060*	0.060*	0.021***	0.065***	0.066***	-0.030	-0.030	-0.031
	(0.003)	(0.014)	(0.014)	(0.008)	(0.032)	(0.032)	(0.005)	(0.025)	(0.025)	(0.036)	(0.036)	(0.036)
Age2		-0.0005**	-0.0005**		-0.001**	-0.001**		-0.001*	-0.001*	0.0004	0.0004	0.0004
		(0.0002)	(0.0002)		(0.0005)	(0.0005)		(0.0004)	(0.0004)	(0.001)	(0.001)	(0.001)
Male			0.474***			-0.039			0.053			0.190
			(0.110)			(0.271)			(0.180)			(0.315)
Observations	3,449	3,449	3,449	235	235	235	617	617	617	580	580	580
McFadden Pseudo-R2	0.001	0.003	0.011	0.002	0.016	0.017	0.019	0.024	0.024	0.002	0.002	0.003

Note: *p<0.1; **p<0.05; ***p<0.01

All standard errors are robust to heteroskedasticity.

Figures B.2 through B.5 plot the predicted value of *Hired* by *Age* by industry using the coefficients from Table B.1, columns 3, 6, 9, and 12, respectively. These plots show that the inverted U-shaped relationship between the two variables is stronger in farming than in other sectors (and is indeed absent in our Other/NA category).

Figure B.2: *Hired* by *Age* (Farm)

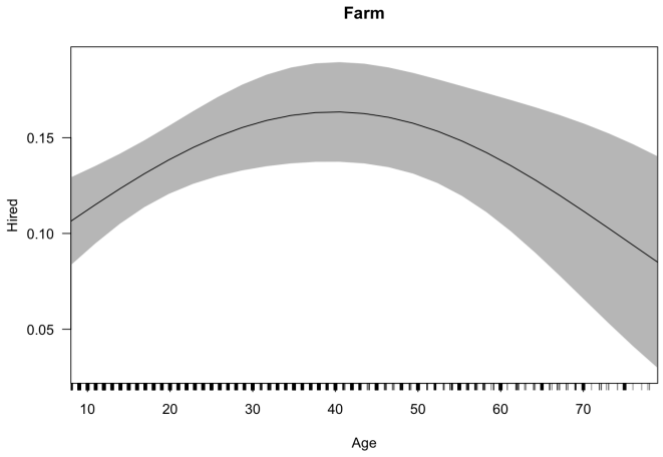


Figure B.3: *Hired* by *Age* (Craft)

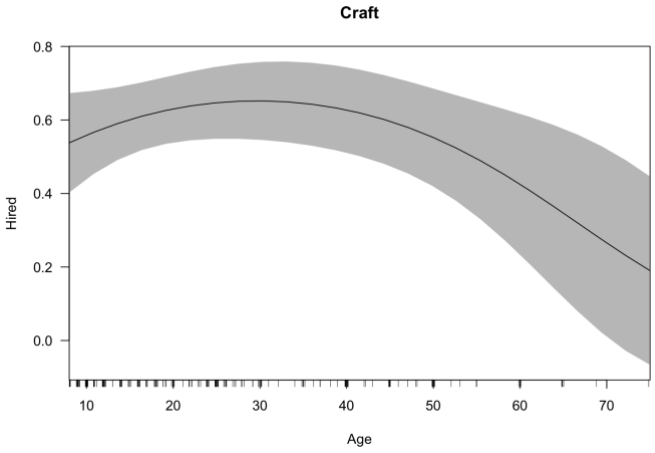


Figure B.4: *Hired* by *Age* (Service)

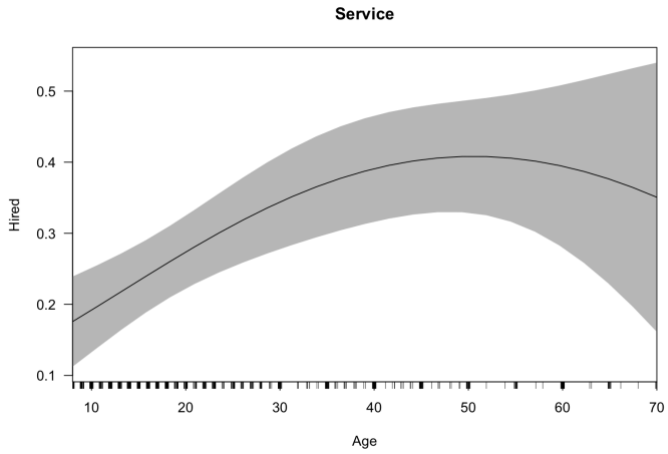
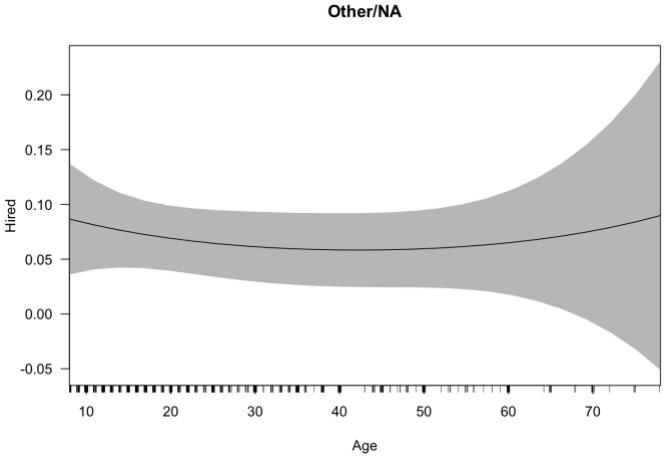


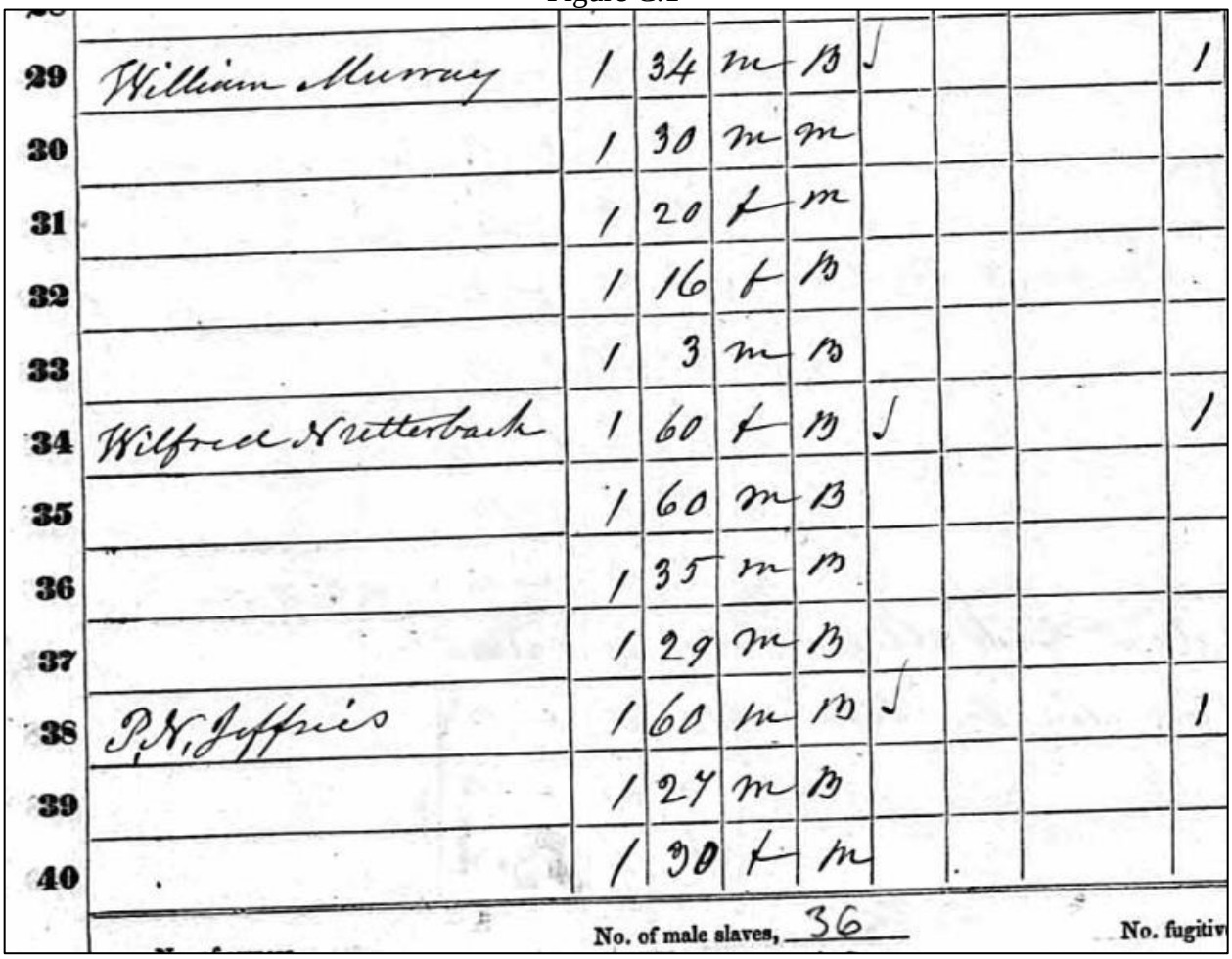
Figure B.5: *Hired* by *Age* (Other/NA)



Appendix C: Data Collection

To construct our data set of enslaved laborers, we accessed the 'Slave Schedules' of the 1860 US Census for Fauquier County via Ancestry.com, a website run by the Church of Jesus Christ of the Latter-Day Saints.[67] These schedules contain demographic information on each enslaved individual residing in the county and the identity of the slaveholder with whom they resided (see Figure A.1). For each entry, we recorded age, sex, and color as well as the identity of the free white person with whom each enslaved person lived. In Virginia, Census workers recorded whether each enslaved person resided with their legal owner or whether they were currently on hire to someone else. In the latter case, they generally included a note stating that the enslaved person "belongs to [owner's name]" or "from [owner's name]," usually followed by the district or county of residence of the owner. When the schedules indicate that an enslaved person resided with someone other than her legal master, we coded her as being on hire ("Hired=1"). [68]

Figure C.1

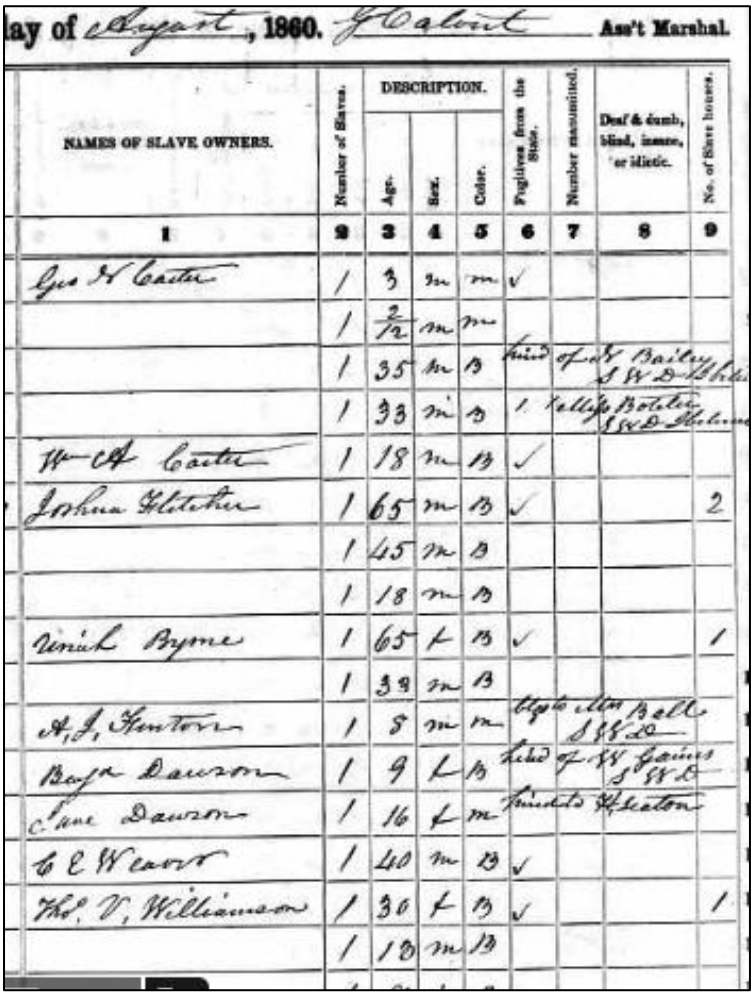


[67] A free account is necessary to access the information at Ancestry.com and FamilySearch.com.
[68] Unfortunately, pages 1-6 of the 'Slave Schedules' of the 1860 US Census for the North East Revenue District of Fauquier County are missing. Hence, our data set contains 10,311 observations for enslaved individuals, 144 short of the 10,455 enslaved blacks reported in the Census.

Figure 1.

Take the example shown in Figure C.1. Page 12 of the Fauquier County's District 9 + North East Revenue District Schedule[69] indicates that there were four enslaved individuals living with one Wilfred Utterback. Because the Census workers did not report that they "belong[ed] to" another free white, we coded them as not being not on hire ("Hired=0"). Consider, on the other hand, the example shown in Figure C.2.[70] According to the schedule, there were four enslaved people living on his property. For only two of these, the Census workers report that they were on hire from other residents of the same county. Thus, we code these enslaved individuals as having been on hire ("Hired=1") but not the other two ("Hired=0").

Figure C.2



[69] Available at the following link: https://www.ancestry.com/imageviewer/collections/7668/images/vam653_1390-0014?ssrc=&backlabel=Return&pId=1034562 (last accessed on December 11, 2023).

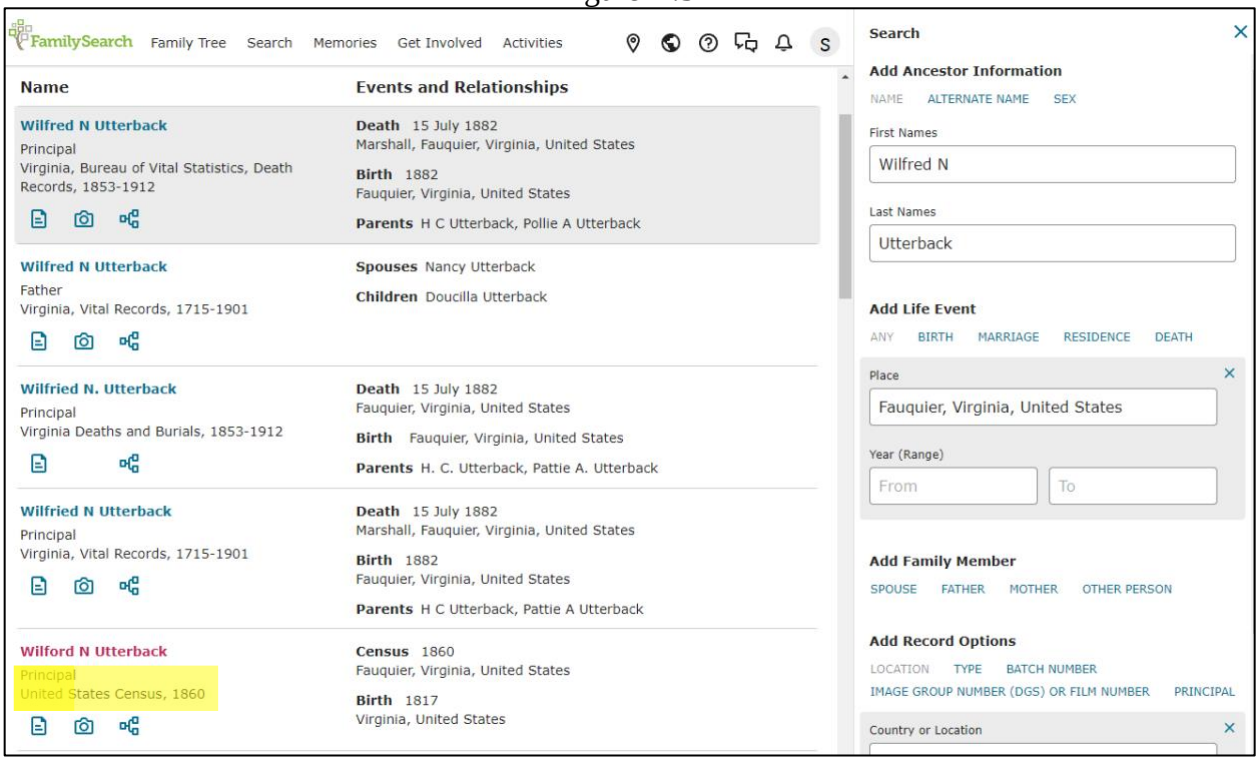
[70] Available at the following link: https://www.ancestry.com/imageviewer/collections/7668/images/vam653_1390-0057?ssrc=&backlabel=Return&pId=1034562).

To construct the data set of employees of enslaved workers, we matched the identity of individuals whom the 'Slave Schedules' reported as living with enslaved laborers owned by some other party with the 'Free Schedules' of the 1860 US Census for Fauquier County. These schedules are available through Familysearch.org, which is also run by the LDS Church. The schedules contain information on the age, sex, occupation, real estate value, and personal estate value of all free residents of the county. To ensure an exact match, we used the following information:

1. Name of slaveholder
2. Age (in case of multiple individuals with the same name, we dropped those under the age of 17)
3. District of slaveholder
4. The order in which the name of slaveholders appears in the 'slave' and 'free' schedules of the 1860 US Census

Consider once again the case of Wilfred N Utterback from Figure C.1.A search of his name on FamilySearch.org produced the result shown in Figure C.3[71] The search produces only one individual with this name in Fauquier County according to the 1860 US Census.

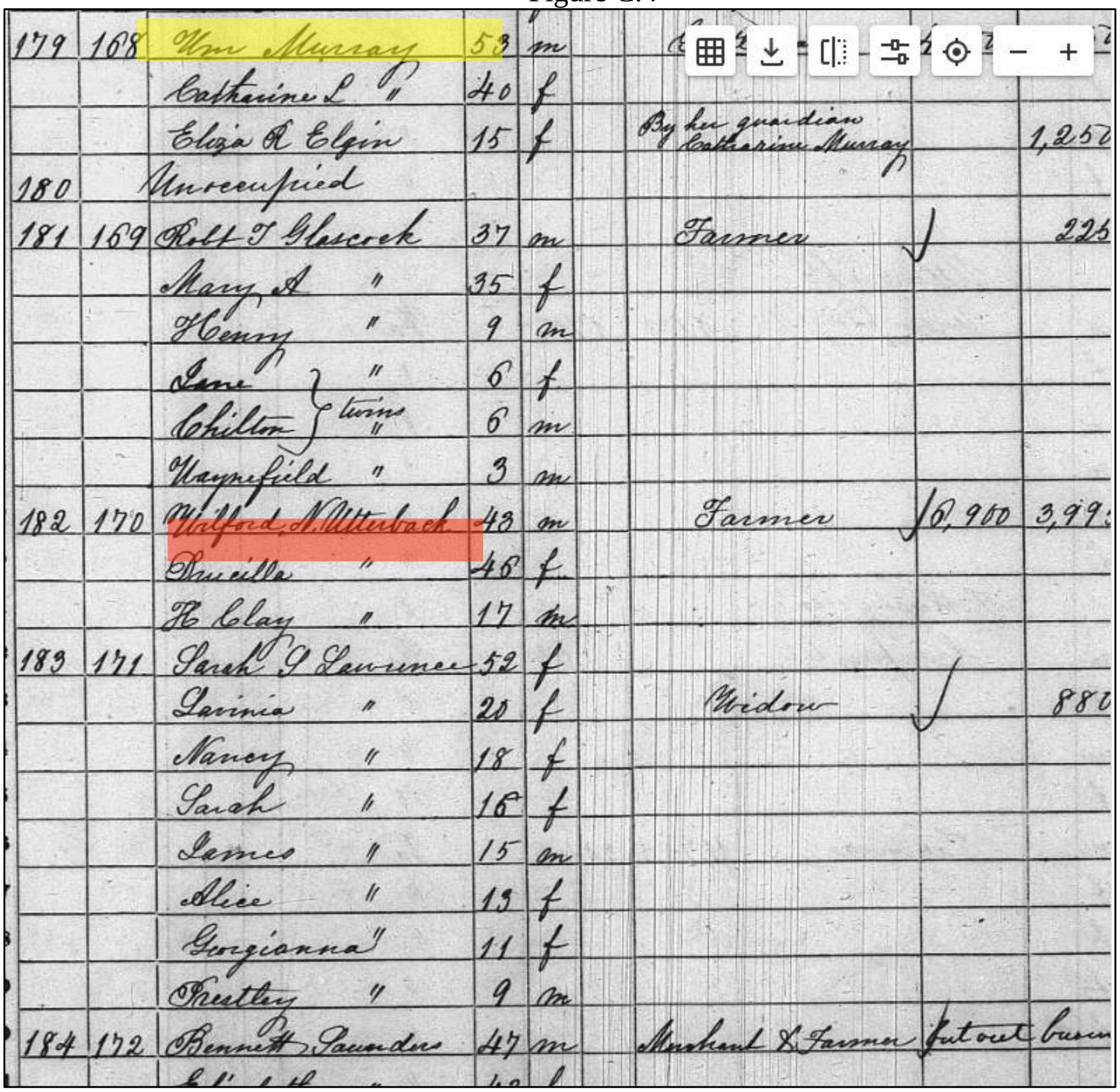
Figure A.3



[71] Available at the following link: https://www.familysearch.org/search/record/results?count=20&q.anyPlace=Fauquier%2C%20Virginia%2C%20United%20States&q.givenName=Wilfred%20N%20%20&q.surname=Utterback (last accessed on December 11, 2023).

The name “Wilford N Utterback” appears on page 23 of the Census (figure C.4).[72] To ensure this is indeed the same individual, we checked the identity of the individuals listed above and below him in the ‘free schedules.’ According to the schedules, Wilford lived just a few houses from one Wm (short for “William”) Murray, who also appears right above him in the ‘Slave Schedule.’ Below Wilford in the ‘Slave Schedule’ is one P. N. Jeffries. According to the ‘Free Schedule,’ there was a Presley N. Jeffries living twelve houses down the road from Wilford N Utterback figure C.5). Thus, the three slaveholders appear in the same order (and in the same district) in both schedules, which we take as confirmation that the Wilford Utterback who owned four enslaved people according to the ‘Slave Schedules’ is the same as the 48 years old farmer found in the ‘Free Schedules.’

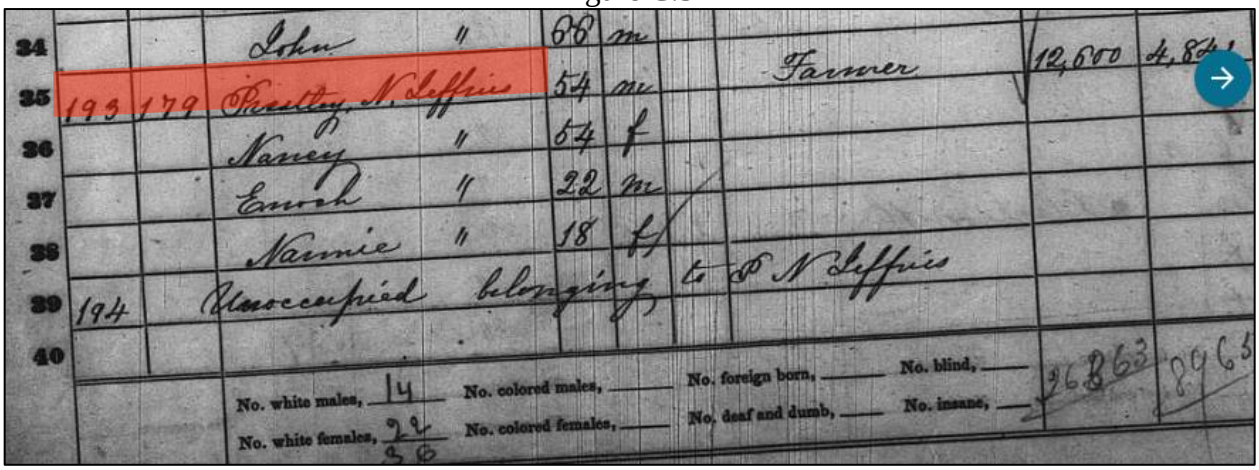
Figure C.4



179	168	Wm Murray	53	m			
		Catharine L "	40	f			
		Eliza R Elgin	15	f	By her guardian Catharine Murray		1,25[illegible]
180		Unoccupied					
181	169	Robt T Glascock	37	m	Farmer		225
		Mary A "	35	f			
		Henry "	9	m			
		Jane } twins "	6	f			
		Chilton } "	6	m			
		Waynefield "	3	m			
182	170	Wilford N Utterback	48	m	Farmer	6,900	3,99[illegible]
		Priscilla "	46	f			
		H Clay "	17	m			
183	171	Sarah G Lawrence	52	f			
		Lavinia "	20	f	Widow		880
		Nancy "	18	f			
		Sarah "	16	f			
		James "	15	m			
		Alice "	13	f			
		Georgianna "	11	f			
		Prestley "	9	m			
184	172	Bennett Saunders	47	m	Merchant & Farmer	[illegible]	

[72] Available at the following link: https://www.familysearch.org/ark:/61903/3:1:33SQ-GBSN-9H3?view=index&personArk=%2Fark%3A%2F61903%2F1%3A1%3AM417-F2D&action=view (last accessed on December 11, 2023).

Figure C.5



34			John	"	68	m			
35	193	179	Penelty N Jeffries		54	m	Farmer	12,600	4,84[illegible]
36			Nancy	"	54	f			
37			Enoch	"	22	m			
38			Nannie	"	18	f			
39	194		Unoccupied belonging to P N Jeffries						
40									

No. white males, 4 No. colored males, ____ No. foreign born, ____ No. blind, ____

No. white females, 2 No. colored females, ____ No. deaf and dumb, ____ No. insane, ____

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Appendix D: Variable construction (Industry)

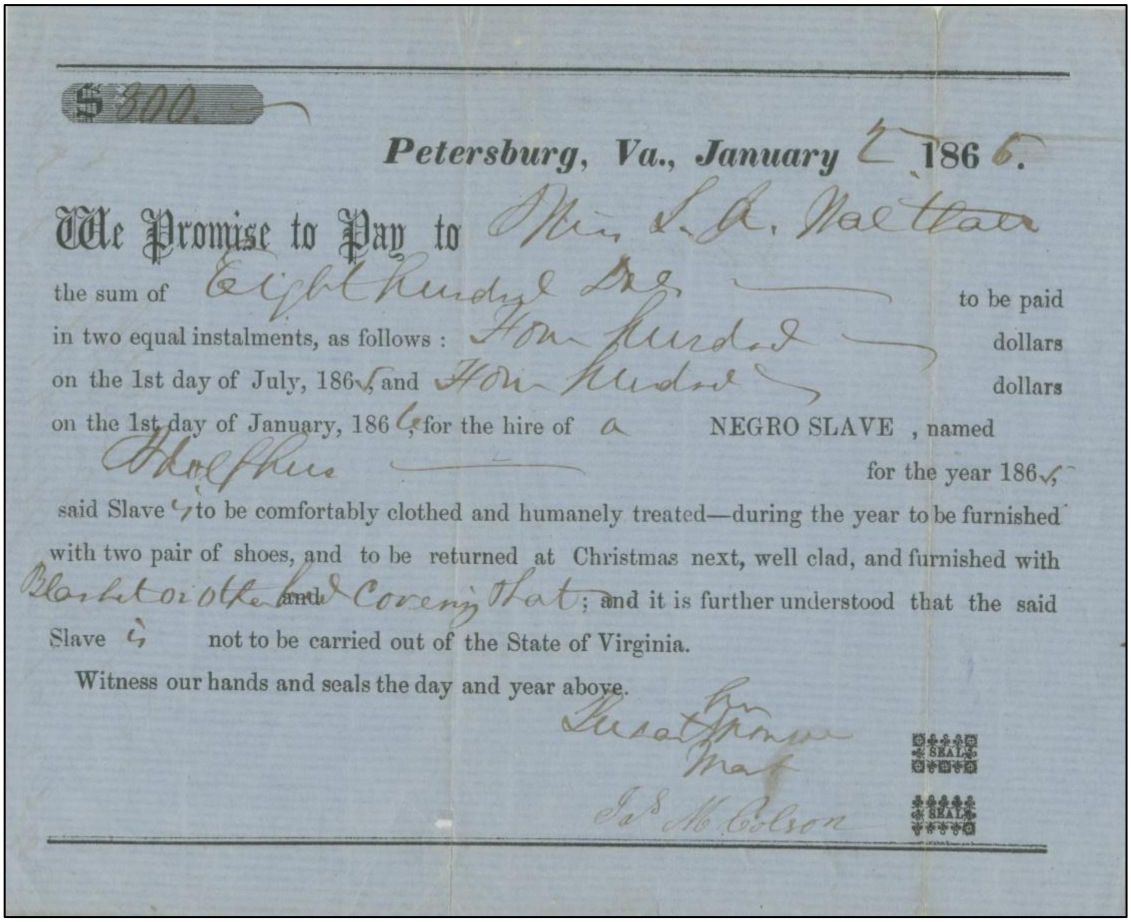
Table D.1 provides the occupations of the slaveholders in our data set, as indicated in the 'Free Schedules' of the 1860 US Census. Each column corresponds to the occupations in each of the four categorical values of our *Industry* variable. The numbers in parenthesis represent the number of entries for each occupation in our data set.

Table D.1: Variable construction (Industry)

Farm	*Craft*	*Service*	*Other/NA*
Cattle Driver (1)	Baggage Maker (1)	Attorney (1)	Gentleman (2)
Doctor & Farmer (2)	Blacksmith (9)	Clerk (1)	Housekeeper (20)
Farm Hand (1)	Brick Mason (1)	Commissioner (1)	Housework (1)
Farm Laborer (3)	Bricklayer (2)	Constable (2)	Laborer (7)
Farmer (370)	Cabinet Maker (1)	Dentist (1)	NA (70)
Farmer & Courier (1)	Carpenter (18)	Disciple of Rarey (1)	Nursery Man (1)
Farmer & Planter (3)	Carriage Maker (2)	Doctor (4)	Single Lady (2)
Farmer & Merchant (2)	Coach Maker (2)	Doctor MDFE (1)	Unemployed (1)
Farmer & Miller (1)	Factory (1)	Druggist (2)	Widow (9)
Farming (40)	Founder (Caster) (1)	Editor (1)	
Farming Widow (1)	Gunsmith (1)	Grocer (2)	
Lawyer & Farmer (1)	House Carpenter (1)	Hotel Keeper (4)	
Overseer (19)	Leveler (1)	Hotel Waiter (1)	
Tenant (5)	Machinist (2)	Judge (1)	
	Miller (8)	Keeper of Pub House (1)	
	Milliner (1)	Lawyer (7)	
	Nursery Man (1)	Manager (3)	
	Painter (3)	Managing (1)	
	Plasterer (1)	MD (3)	
	Railroad Hand (3)	Merchant (29)	
	Saddler (2)	Merchant (Retired) (1)	
	Seamstress (2)	Merino Sheep Business (1)	
	Sewing (6)	Minister (9)	
	Shoemaker (8)	Negro Trader (1)	
	Spooling (1)	Paymaster (1)	
	Stone Mason (1)	Physician (9)	
	Stone Fencer (2)	Postmaster (3)	
	Tailor (4)	Proprietor of Hotel (1)	
	Tanner (1)	Prosecutor (1)	
	Tin Sheet Iron & Copper Worker (1)	School Principal (1)	
	Wagon Maker (1)	Superintendent (1)	
	Weaver (3)	Superintendent of the Poorhouse (1)	
	Wheelwright (8)	Surveyor (1)	
		Teacher (8)	
		Tollgate Keeper (2)	
		Town Sergeant (1)	
		Weighmaster (1)	
Tot (449)	Tot (99)	Tot (114)	Tot (113)

Appendix E: Miscellaneous

Figure E.1 shows an example of a preprinted hiring contract dated January 2, 1866.



$ 800.

Petersburg, Va., January 2 1866.

We Promise to Pay to

the sum of Eight hundred Dollars to be paid

in two equal instalments, as follows : Four hundred dollars

on the 1st day of July, 186 and Four hundred dollars

on the 1st day of January, 1866, for the hire of a NEGRO SLAVE , named

for the year 186

said Slave to be comfortably clothed and humanely treated—during the year to be furnished with two pair of shoes, and to be returned at Christmas next, well clad, and furnished with ; and it is further understood that the said Slave not to be carried out of the State of Virginia.

Witness our hands and seals the day and year above.

[SEAL]

[SEAL]

Figure E.1: A Preprinted Slave-Hiring Contract. Source: The Encyclopedia of Virginia, https://encyclopediavirginia.org/entries/hiring-out-of-the-enslaved/.