Constructing Labor Markets:

The Valuation of Black Labor in the U.S. South, 1831-1867 *

Martin Ruef
Department of Sociology
Duke University
Durham, NC 27708

Citation: M. Ruef. (2012). Constructing Labor Markets: The Valuation of Black Labor in the U.S. South, 1831-1867. *American Sociological Review*, 77(6), 970–998.
https://doi.org/10.1177/0003122412465282

KEY WORDS: Human Capital, Labor Markets, Slavery, Statistical Discrimination

* An earlier version of this article was presented at the 2011 meeting of the American Sociological Association. I thank Dahlia Nahol for her assistance in compiling the sample of Freedmen's Bureau labor contracts, as well as Gabriel Rossman, Valery Yakubovich, and Viviana Zelizer for their feedback.

Constructing Labor Markets:

The Valuation of Black Labor in the U.S. South, 1831-1867

Abstract

In the U.S. South, a free labor market rapidly – though, in some cases, only nominally – replaced the plantation system of slave labor in the years following the American Civil War. Drawing on data comprising 75,099 transactions in the antebellum period, as well as 1,378 labor contracts in the postbellum era, I examine how the valuation of black labor was transformed between the 1830s and years of emancipation. This article traces the process of valuation through four markets for labor, moving from slave purchases and appraisals within the plantation economy to the antebellum system of hiring out to wage-setting for black labor under the auspices of the Freedmen's Bureau. Comparative analysis of labor pricing across these markets reveals systematic differences: slave markets placed price premiums on children and young women, and occupational skills emerged as the most salient influence in the pricing of wage labor. I conclude by theorizing how the transvaluation of labor occurs when markets for unfree and free workers are governed by distinct institutional conditions.

Introduction

Sociological studies of contemporary labor markets have developed nuanced depictions of the processes that affect the valuation of workers. Researchers have examined the effects of sex segregation (e.g., Charles and Bradley 2009; Charles and Grusky 2004), human and social capital (Mouw 2003), organizational and occupational predictors of earnings (Weeden 2002), and racial wage inequality (Huffman and Cohen 2004). Increasingly, scholarship on labor markets has taken on a comparative lens, analyzing differences in the mechanisms of stratification across countries or eras. While earlier scholars confronted a certain degree of ahistoricism, historical research on labor markets in the United States has become prolific, especially in documenting the origins of black wage inequality. Mechanisms involving split labor markets (Bonacich 1975), residential segregation (Massey and Denton 1993; Maloney 2005), and path dependence (Branch 2011) have been posited as durable sources of disadvantage for African Americans.

An ongoing limitation in the existing body of sociological research on labor markets is its overarching emphasis on free wage labor – labor that is nominally at will and free of coercion. Classical scholarship conceptualized the transition to wage labor as being fraught with conflict, uncertainty, and economic upheaval (Weber 1892; Marx 1977: Ch. 27; Polanyi 1944), but the contemporary view of labor markets often takes the price mechanisms of wage labor for granted, rendering them as socially natural rather than as a product of specific institutional circumstances (for critiques, see Steinfeld 2001, Stanley 1998, and Tilly and Tilly 1998). As a consequence, students of social stratification cannot say whether the modern contours of inequality are unique to capitalist labor markets or whether they can also be identified within pre-capitalist systems.

This myopia is especially problematic for understanding the value placed on the labor of blacks, whose work experiences in the United States were dominated by the institutions of chattel slavery and, at early stages, indentured servitude over a period of nearly two-

hundred fifty years. The problem of unfree labor, moreover, has implications well beyond the context of the African slave trade. Historical markets for *most* workers tended to involve unfree labor arrangements. Serfdom, indentured servitude, and various forms of "long" apprenticeship contracts were once the norm for much of the working population in Eurasia and the Americas. In Quaker Philadelphia, to take one example, roughly half of the labor force was unfree in 1750 (Wood 2009: 345). Even today, there are an estimated 12 to 27 million individuals trapped in slavery or forced labor around the globe (ILO 2005; Bales 2012).

In this article, I bring the sociological study of labor markets into dialogue with quantitative historical research in order to understand how the institutional conditions of free and unfree labor impact the valuation of work. Drawing on data and archival materials regarding the pricing of black labor between the Nat Turner revolt and era of Radical Reconstruction, the study addresses two empirical questions about labor markets. First, to what extent does the logic of investment in occupational skills, often emphasized as a central driver of stratification in modern wage labor markets, also apply to markets for unfree labor. And, second, are processes of statistical discrimination – particularly, by age and gender – similar for labor markets that involve wage workers, unregulated hires, and slaves. Despite abundant debate among economic historians regarding the degree of continuity between slave and capitalist labor markets in the U.S. South (e.g., Smith 1998; Fogel 2003), no study has mustered a direct and systematic comparison of pricing in the various antebellum markets for slaves and the market for wage labor that emerged immediately after the Civil War. In more theoretical terms, addressing these questions also allows us to revisit the conceptual divisions established by classical scholars, such as Marx and Weber, between labor arrangements in slave society and under capitalism (see Hippel 2005).

Analyzing archival sources regarding subjective perceptions of the valuation of black labor, as well as roughly eighty thousand transactions, the study traces differences in price mechanisms across markets for free and unfree labor. Rather than conceptualize those

markets in dichotomous terms, the analysis identifies two underlying dimensions that may influence the valuation process – whether employment relationships involve short-term / at will transactions or whether they transfer ownership over labor in perpetuity; and, whether (purportedly unbiased) third parties are involved to monitor the terms of the transaction and, possibly, subsequent labor conditions. I argue that some prototypical features of modern, "free" labor markets – such as investment in occupational skills -- only fully affect the valuation of labor under conditions of third-party monitoring and short-term hiring, while other, pre-modern features – such as the exploitation of children and female sexuality – tend to affect the valuation of labor when those institutional conditions are absent. The study thereby seeks to broaden our understanding of valuation in labor markets, placing the operation of price mechanisms in a comparative context.

A Comparative Theory of Labor Markets

An important insight from the sociological turn in the study of economic behavior is that labor markets are not unitary entities (Tilly and Tilly 1998). A simple typology of these markets can be constructed based on two underlying dimensions (Table 1). One dimension considers whether the buyer in a transaction for labor will exercise perpetual ownership over his or her workers or whether the transfer of labor power is short term, involving either an employment relationship that is terminable at will or one that is contractually delimited. The other dimension considers whether third parties are involved in monitoring the price and conditions under which the transfer of labor power occurs.[1] Cross-tabulating these dimensions, we obtain four ideal-typical labor markets: (a) the unregulated (or weakly regulated) market for unfree labor; (b) the regulated market for unfree labor, conducted within a legal-rational context by third parties such as lawyers, creditors, actuaries, or the state; (c) the unregulated hire market for labor; and (d) the regulated market for wage workers. The last market interface corresponds most closely to what Weber (1968: 127-28) termed "formally 'free' labor," wherein the exchange of labor is subject to a mutual contractual relationship, whether explicit or implied. The contractual nature of the

relationship (and its oversight by third parties) is critical, since it differentiates this market from "free and rightless" hired labor (c), which may be found in a variety of historical circumstances, ranging from the British peasantry removed from their land by the enclosure movement (Marx 1977: 877-904) to contemporary day laborers (Valenzuela 2003).

[Insert Table 1 About Here]

Considering the importance of institutionalized monitoring to free labor, Weber himself recognized that contracts may "be substantively regulated in various ways through a conventional or legal order governing the conditions of labor" (Weber 1968: 128). Historically, third parties who have been involved in monitoring labor contracts and pricing include both governmental and non-governmental agents. In the antebellum South, regulated appraisals for slaves were generally set by third parties when slaves were insured, when a plantation owner passed away, or when legal proceedings required an independent assessment. Valuation in the slave insurance market, for instance, emerged during the 1830s and was concentrated in the urban centers of the upper South (Murphy 2010: Chapter 7). Underwriting was limited to masters who were known not to mistreat their slaves, owing to the problem of moral hazard. To reduce the probability of malfeasance, insurance firms relied on local insurance agents to monitor the character of slave owners and the value of their insured chattel. In judicial sales of slaves, on the other hand, appraisals "were generally made by other planters, that is, by men familiar with market conditions and current price levels" (Coclanis 1982: 535).[2] The presence of such third parties differentiated the institutional conditions of appraisals and underwriting from slave purchases, which relied largely on the personal judgments of slave buyers.

More generally, the dimensions in Table 1 suggest two tradeoffs that have historically affected a diverse set of markets for labor from the perspective of buyers or employers. With respect to regulation, the exploitation of labor – especially, in its baser forms – tended to occur most readily when third parties were unavailable to monitor the terms of exchange

and treatment of workers; yet those third parties may also have been essential to credentialing workers and managing uncertainty regarding labor availability and replacement. With respect to the time horizon of employment, investment in specific skills and the domination of workers occurred most readily when employers were able to exercise perpetual control over their workforce; yet perpetual transfers of labor power also carried the burden of large sunk costs and considerable risk of laborer mortality or disability in the long run (Weber 1968). In developing a comparative theory of labor markets, I now turn to the core question of how these institutional dimensions and tradeoffs affect the way that labor was valued.

Investment in Occupational Skills

For analyses of wage labor, a common explanation of variation in earnings involves the human capital that workers exhibit, as evidenced in their stock of knowledge and occupational skills (Mincer 1958; Becker 1964). Specifically, the process of human capital accumulation under free labor is typified by an opportunity cost that is incurred by the worker (in the interest of acquiring additional education, experience, or training) with the goal of generating future rents that justify that opportunity cost.[3] The logic of human capital accumulation is one in which education or training are typically undertaken early in the lifecourse so that their costs may be amortized over an extended period of time.

In an influential economic interpretation, this idea of investment in the capital of human beings applies equally well, if not even more so, to markets for slave labor – after all, "nobody doubts that human beings were a form of capital in slave society" (Fogel and Engerman 1974: 233). The fundamental difference between slave and free society, according to this account, lies not in the existence of human capital, "but on who may hold title to such property rights" (ibid), whether employers or workers themselves. When human capital is assessed in broad terms, including the health and reproductive capacity of slaves, the ideology of slave owners clearly highlights the importance of investments in this form of "capital" (Ruef and Harness 2009). But when the concept of human capital is operationalized more narrowly, as an investment in occupational skills or education, it is not at all clear that the logic of human capital theory was widespread in slave societies.

One problem concerns the typical duration of slave ownership. In the antebellum South, the moral ideology of the planter class had extolled the paternalism and interpersonal relationships that accompanied the region's peculiar institution of durable bondage (Fox-Genovese and Genovese 2005). If owners in slave societies came to view their chattel as property to be held over their lifetime, then rents for investments in skills would seldom be

realized in the open market for slave labor. In Weber's eyes, the low turnover in slaves alone was sufficient to rule out an equation between chattel slaves and capital (1968: 155).

A related problem in invoking the language of human capital is that durable bondage meant that the skills acquired by slaves were often quite specific to particular work arrangements and masters. In the American South, this skill-specificity was especially apparent among domestic slaves, whose deference behaviors and relationships to owners would not necessarily extend to other employers, nor to conditions following emancipation (Ruef and Fletcher 2003). As a matter of maintaining control on their plantations, many masters offered specialized titles and training as a reward for a slave's talent or loyalty, not as a matter of developing human capital (Fogel and Engerman 1974; Genovese 1974).[4] Insofar as long-term slave holding is entrenched in a society, then, relatively little variation in the value of labor should be explained by the titles that typically serve as a proxy for occupational skill.

The absence of third party monitoring and evaluation likewise generates problems for investments in occupational skill. For skills to generate anticipated rents, employers must have some assurance that workers possess the skills that they claim and skilled labor must have some assurance that unskilled workers will not move into their occupational jurisdictions. Without these structural conditions – typically labeled as credentialing (Collins 1979) and occupational closure (Weeden 2002), respectively – the material returns to skill investments will tend to be diluted.

Under chattel slavery, credentialing and closure were typically weak because occupational training was an idiosyncratic undertaking, remaining largely in the hands of individual slave owners. Owing to high levels of slave mortality and an overwhelming desire among employers to minimize turnover costs (Hanes 1996), there was little effort to create institutional barriers that regulated movement from one slave occupation to another. To a slightly lesser extent, this generalization also applied to hire markets, an interface that

represented a step toward freedom, insofar as unfree laborers were allowed to choose their own employers, negotiate work conditions, and retain some of their earnings (see Eaton [1960] and Nash and Flesher [2005]). While skilled labor was often sought after – especially in urban markets for hired slaves – it remained difficult for employers to verify the capabilities of these workers *ex ante*, given the presence of opportunistic intermediaries, such as slave owners or brokers. In the American South, the potential for ethnic competition with free white labor may also have led some slaves to downplay their credentials in the hire market (Bonacich 1975), contributing to an attenuated effect of human capital.

On the whole, these arguments suggest that (1) investment in occupational skills will primarily affect the valuation of labor in markets that exhibit the joint conditions of regulation by independent third parties (who are in a position to evaluate and protect claims of skill); and short term control of labor power (which subjects the returns on human capital to regular market exchange and removes investment decisions from paternalistic authority).

Statistical Discrimination

While the logic of human capital relies on the differentiation of ability among workers in a labor market, the logic of *statistical discrimination* relies on the differentiation of ascriptive characteristics (e.g., age, sex, race) that are perceived to be correlated with ability. In the context of free labor markets, the use of statistical discrimination is sometimes justified on the basis of a prediction regarding worker productivity that tends to hold on average for a readily observed trait (Phelps 1972; Aigner and Cain 1977). According to economic theory, employers rely on stereotyping with respect to such traits when labor markets are characterized by high levels of uncertainty regarding worker skills and motivations, which are typically unobserved.

Like human capital theory, the theory of statistical discrimination has been applied readily – if implicitly -- to markets that deviate from the institutional conditions of formally free labor. As part of their evidence for the capitalist character of slavery in the antebellum South, Fogel and Engerman (1974: Chapter 3) highlight the age-varying price of slaves, which peaked for male field hands in their twenties and fell precipitously for younger and older slaves. According to their calculations, this age-price profile was correlated (on average) with the earnings of slaves over their lifecycle. Moreover, Fogel and Engerman assert that the lower price of female slaves after the teen years was accounted for by the lower annual earnings of these workers. Thus, rational slave buyers could be said to have discriminated statistically by age, sex, and physiology, using observed characteristics as proxies for the agricultural productivity of field labor.

Though there may be some temptation to apply statistical discrimination theory equally to markets for free and unfree labor, the historical record suggests some important differences. One key distinction concerns the role of uncertainty in these transactions. In purchase markets for slaves, buyers can exercise perpetual ownership over labor power. As a result of this time horizon of ownership, inferences regarding the ability of slaves assume increased importance. Participants in short-term or at will contracts tend to have few sunk costs in the employment relationship (at least initially), but slave buyers place a larger investment at risk. As Weber (1968: 162-163) noted, formal rationality in the management of slaves was particularly difficult to achieve, owing to the high level of sunk costs, the exposure of slave labor to "non-economic influences," and the resulting fluctuations in slave valuation. Consequently, if uncertainty is a pre-condition to statistical discrimination, then such discrimination is likely to be more pronounced in markets for unfree than for free labor.

Another distinction between free and slave labor concerns statistical discrimination against female workers in particular. Almost since their inception, neoclassical theories have

emphasized the disruptive role of childrearing and the resulting tendency of women, under free labor arrangements, to choose lines of work that maximized their earnings with this discontinuity in mind (see England 1984 for a review and critique). In the context of slavery, historians have pointed to an opposite possibility – that women of child-bearing age may be valued especially highly, insofar as slaveholders have a pecuniary interest in slave breeding (Sutch 1975). Whether such statistical discrimination is built directly into the price mechanisms of the slave labor market was disputed by Fogel and Engerman and has continued to provoke debate. What seems clear, however, is that the sexual stereotyping invoked in discussions of slave markets is fundamentally different than that in discussions of free markets, with the extent of ownership over "labor" (literally, including reproduction) representing a key moderating variable.

The time horizon of labor ownership affects statistical discrimination for other demographic groups. In modern free labor markets, child labor is either avoided altogether (due to the regulatory oversight by third parties) or subject to very low wages. As Zelizer (1981: 1038) notes, the cultural shift in the valuation of middle class children, from "object of utility to object of sentiment," was already complete by the mid-19th century, rendering this population "economically worthless." But in slave markets, price discounting at young ages was far more limited. The high valuation of child labor considered the future flow of rents that were expected from adolescent slaves, while the comparable valuation under free labor conditions was largely driven by present productivity. Plantations' internal labor markets likewise influenced the valuation of child labor, insofar as planters sought to recruit promising youth for entry-level tasks and then promote the most loyal of these slaves (see Fogel 1989).

The regulatory dimension of labor markets may also impact the logic of statistical discrimination. Where third party oversight of labor markets is absent, there is an additional risk that employers will illegitimately exploit child or female labor. Under antebellum chattel slavery, for example, the sexual exploitation of women often went

beyond slave breeding, as masters had intercourse with their female chattel and forced them to bear their children. These acts were formally illegitimate, owing to anti-miscegenation sentiments and laws in many Southern states.[5] When hidden from public view, however, such acts of exploitation or intimacy were often tolerated and only infrequently subject to prosecution. Similarly, public norms discouraged the overworking of young slaves (who were to be given 'light tasks'). But the practical effects of these prohibitions on child labor are subject to question (e.g., Tadman 1996: 142n14). Insofar as the capacity for exploitation is built into labor market pricing, we expect that weakly regulated markets for children and young women will display larger price premiums than those found in markets with third party oversight.

These arguments regarding the operation of statistical discrimination across labor markets suggest three additional propositions: (2) that price discrimination by sex and age is more pronounced, on average, in markets for unfree than for free labor; (3) that the value placed on child labor and women of child-bearing ages is greater in markets for unfree labor; and (4) that labor markets with limited third party oversight likewise exhibit price premiums for child labor and young women.

Historical Methods

Setting and Data

In the United States, the formal emancipation of four million slaves in December of 1865 offers a unique historical opportunity to consider the effects of free labor market conditions on the valuation of African-American labor. Earlier that year, Congress established the "Bureau of Refugees, Freedmen, and Abandoned Lands" (hereafter, "Freedmen's Bureau") to guide former bondsmen and women on their path from slavery to freedom. The Bureau existed from 1865 until 1872, issuing rations and other necessities, creating schools, registering marriages, and promoting the general welfare of freedmen (Cimbala 1997;

DuBois 1901). Foremost among the activities of the Bureau's commissioners was the need "to introduce practicable systems of compensated labor" (quote in DuBois), securing the right of former slaves to choose their employers and providing templates for labor contracts.

The Freedmen's Bureau attempted to institute labor market conditions that approximate the ideal-type of regulated wage labor, as shown in Table 1. Labor contracts formed under the Bureau's direction were generally of short duration: from the records of the Washington, DC, and northern Virginia branches (analyzed below), we observe a mean contract length of ten months. Employment arrangements were not at will and some freedman feared the contracts would bring a new form of enslavement (Stanley 1998). Nevertheless, archival evidence suggests some flexibility in contract terms. For instance, Page and Tena Lomax initially signed a contract on September 28th of 1865 with James Bryan of Dorchester County, Maryland, agreeing to a three month term of service with a possibility of a one year extension thereafter. On December 16th of the same year, the Freedmen's Bureau received a letter from Bryan's son, noting that the Lomax's were leaving after the "short trial in consequence of Tiny [*sic*] Lomax's sickness or rather her melancholy on account of separation from her children" (Freedmen's Bureau 1865-67: 108). Although instances of effective slavery persisted and the meaning of 'free' labor continued to evolve (Steinfeld 2001; Goldberg 2006), the Bureau's insistence on oversight by local superintendents (who witnessed contracts between freedmen and employers) tended to produce the institutional conditions of regulated wage labor.

To analyze the valuation of labor under the auspices of the Freedmen's Bureau, I identified and coded all labor contracts that were documented at the bureau's branch offices in Washington, DC and Alexandria, VA between August, 1865 and March, 1867. Despite the urban location of the offices themselves, the contracts covered a large variety of (predominately rural) labor agreements with employers in Virginia, Maryland, and a dozen other states. Only eighteen contracts (less than 2% of the sample) referenced employment

relations within the District of Columbia. Nearly 40% of the contracts pertained to labor arrangements outside the Potomac and Chesapeake region. In total, the archive includes labor contracts with 1,382 individuals, covering such variables as the terms of service, attributes of freedmen (name, age, sex, occupation, family composition), names and locations of employers, and monthly wages (Freedmen's Bureau 1865-70, 1865-1872).

I contrast the postbellum pricing of wage labor with three other labor markets. The antebellum hiring market for slaves in the U.S. South tended to feature short-term contracts and a lack of oversight by independent third parties, placing it in the lower left-hand cell of Table 1. The average term of hire for slaves between 1831 and 1865 was approximately eleven months, almost identical to that observed in the wage labor market subsequently regulated by the Freedmen's bureau. Most antebellum towns and districts, however, were not in a position to exercise regulatory supervision over the hiring process.[6] The sample analyzed here, drawn from Fogel and Engerman's (2006a) records, covers 17,158 transactions with wage data across eight Southern states, including Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia.

The antebellum market for slaves is differentiated into sales and judicial appraisals, corresponding to the upper left- and right-hand cells of Table 1, respectively. While the active domestic trade in slaves meant that ownership was not, in fact, perpetual, the rate of turnover among slaves was much lower than that of blacks hired on contract.[7] Probate records provide data on the antebellum market for slaves, covering price information for 6,709 slave sales and 51,232 appraisals between 1831 and 1865 in eight Southern states (Fogel and Engerman 2006b).

For all three antebellum labor markets, I begin my analysis in 1831, ignoring transactions from the colonial period and early American republic.[8] This helps to ensure comparability in macroeconomic conditions along several dimensions. During this period, the Southern economy was tethered overwhelmingly to cotton as a commodity crop and export, as it was

in the years after the Civil War. There was also no ability to import new slaves (following the cessation of the transatlantic slave trade in 1808), which meant that pricing was strongly influenced by the domestic supply and demography of enslaved black labor. Finally, the Nat Turner revolt in 1831 stirred white fears of slave rebellion and limited the autonomy that Southern slaveholders were willing to give to blacks. These conditions of interracial distrust and control persisted into the postbellum era.

Since a sociological theory of labor markets also hinges on the *perceptions* of employers, price indicators were complemented by archival sources documenting the changing understandings of slaveholders, slave traders, federal authorities, and employers of wage workers in regard to black labor. Three documentary sources were consulted extensively, including Breeden's (1980) sample of antebellum publications concerning slave management, records on the genesis of free labor during the Civil War collected by Berlin and colleagues (1993), and the correspondence of the Freedmen's Bureau immediately after the war (Hahn et al. 2008). Following a multimethod approach to triangulation (Denzin 2009), archival materials were consulted on an iterative basis, in conjunction with the quantitative analyses, in order to examine whether statistical findings could be corroborated by documentary evidence and whether documentary evidence suggested changes to the way that labor market valuations were being modeled statistically.

Statistical Methodology

To assess the valuation of labor across institutional conditions, I estimate hedonic models of labor pricing. Variation in local market conditions (demand and supply) and inflation is controlled for by using fixed effects for the county and year in which each transaction occurs. Specifically, the models include a dummy variable for each relevant year between 1831 and 1867 and a dummy variable for each county, thereby focusing attention on the variation of labor prices by worker characteristics *within* years and *within* counties.[9]

Substantively, the resulting regression models represents the (logged) price of labor (P) as a function of workers' ascribed characteristics (vector $\mathbf{X_1}$), occupational skills ($\mathbf{X_2}$), location (i), and year (t):

$$\ln P_{it} = \alpha_i + \beta_t + \delta' X_1 + \gamma' X_2 + \varepsilon \qquad (1)$$

where $\mathbf{X_1}$ includes the age of each worker, their sex, perceived health issues or disabilities (if any), and relevant interaction terms. Standard errors in the model are clustered by owner / employer to account for unobserved buyer-side characteristics that may affect a number of transactions.

My methodology accounts for four other complications in analyzing these data. One concern is that the most detailed archive of wage labor contracts after the Civil War comes from the Upper South, a region that may have witnessed an earlier and more pervasive impact of free labor ideology than the Lower South. For purposes of comparison, I collected a small sample of 222 Freedmen's Bureau contracts for black wage workers employed in Louisiana, Arkansas, and Mississippi between 1865 and 1868.[10] Employers in these states displayed a conservative attitude toward the rights of wage laborers. Thirteen parishes in Louisiana were exempted from the emancipation proclamation of 1863, as federal authorities sought the support of sugar plantation owners by maintaining an emphasis on centralized plantation routine (Rodrigue 1999). In Mississippi, the chaplain of a black regiment reported a widespread view among planters that former slaves who remained on plantations would need to work "as they always had done," a phrase that "was designed to cover both the matters of discipline and compensation" (ibid: 111). From the perspective of employers, the conditions of wage laborers in these states would thus exhibit little change from those of antebellum slaves.

A second methodological complication is the relatively frequent problem of missing or imprecise data on the age of workers in all of the historical archives. Age data are missing

entirely for over 25% of the cases in the sample of slave sales and appraisals, 69% of the cases in the Freedmen's Bureau sample of wage labor contracts, and 86% of the cases in the sample of slave hires. In order to retain a maximum number of possible cases, I employ multiple imputation for all analyses, with twenty imputations being drawn to construct each dataset (Royston 2004).[11]

A third complication is that the mechanism of statistical discrimination only applies when prospective buyers of labor power use stereotypes regarding observed worker characteristics (such as age and gender) to infer *average* productivity or fecundity, but not when buyers have concrete evidence regarding a specific worker's skills or fertility. Probate records usually did not identify whether a buyer was from the same locale as a slave, which might give the buyer information on worker skills not available at the point-of-sale, nor did the records systematically identify how many children were being sold with female slaves. These data, however, are available in notarized bills of sale for New Orleans, the largest Southern slave market (Johnson 1999). Consequently, I supplemented my analyses of transactions involving unfree labor with a 2.5 to 5% random sample of all transactions conducted in New Orleans between 1831 and 1862, comprising 2,709 cases with data on labor pricing (Fogel and Engerman 2008).[12]

[Insert Table 2 About Here]

A final, and more involved, complication concerns the selection biases that may affect transactions for either free or slave labor. It is quite plausible that the slaves who were allowed to hire themselves out during the antebellum era were systematically different than those forced to labor on owners' plantations or households; similarly, there is no reason to believe that the wage workers sought by employers after the Civil War were a random subset of former slaves. Indeed, descriptive statistics on the four samples suggest variation in demographics and skills across labor markets (see Table 2). The proportion of workers who are female declines from slave labor, to slave hires, to wage labor, while the age

distribution of workers becomes less dispersed. The archival records suggest that there was more attention to occupational skills, even if only for symbolic purposes, under the postbellum regime of free wage labor than there was for any of the antebellum markets for slave labor. Still wage workers, who had to negotiate for compensation on their own behalf, were paid poorly relative to slaves who were hired out by their masters.

The sample differences are problematic insofar as the theory of valuation sketched above maintains that institutional contexts yield distinct price mechanisms *even when the workers themselves are identical*. Ideally, we would analyze matched samples of workers, involving the same individuals across all four labor markets. Such *logical* matching is possible for 701 transactions in the probate records, where slaves were subjected to both appraisal by a third party and sale to a slave owner. To complete the construction of the other samples, I used *propensity score matching* (Rosenbaum and Rubin 1985) to create samples of slave hires and wage laborers that are matched statistically to this subset of 701 probate records. The resulting data exhibit several useful features in terms of sample composition: the workers evaluated in the slave appraisal market are identical to those evaluated in the purchase market; the workers evaluated in the wage labor market are statistically indistinguishable (by age, gender, or occupational skill) from those purchased or appraised; and the workers in the slave hire market, while still statistically distinguishable on age, are far more similar to those in the slave labor market than they were in the original sample (see *Appendix*). The quantitative findings reported below include results based on both the larger set of raw data on labor transactions and smaller data sets involving matched sub-samples.

Findings

Archival Evidence

For the antebellum period, extensive archival evidence on slaveholder valuations can be found in public statements regarding the criteria used to judge black labor, as well as the letters, circulars, and price tables of slave traders. Tyre Glen, a plantation owner and slave trader living near the North Carolina-Virginia border, developed a price table in the early 1850s that tied valuation directly to the age of male slaves. For instance, his price scale placed a value of $300 on an 8 year-old slave and exactly three times that amount on a twenty year-old field hand (Glen 1820-1889). Another trader, the Virginian Richard Reid, used a price table that distinguished both age and sex. Late in the lifecourse, when slaves were fifty years or older, Reid's scale heavily discounted the labor of bondswomen, placing their value at half that of their male counterparts. On the other hand, young slave girls were valued closely to boys of the same age (e.g., $200 for a girl in the age range between 8 and 11 and $250 for a comparable boy) (Reid 1770-1910). Among children, these criteria were often supplemented by physiological characteristics, such as weight and height.

The archival records provide strong support for the intuition that planters exhibited "an almost universal enthusiasm for vigorous natural increase (and hence capital growth)" and that slaves were priced accordingly (Tadman 1996: 122). A planter-physician in Georgia wrote in 1857 that slave owners must pay particular attention to the "procreative relationship" of female slaves, "for the raising [of] a family of young negroes on a plantation is an important item of interest in our capital" (quote in Breeden 1980: 195). The care and value placed on childbearing women was a peculiar concern in slave management. In an essay entitled "The Policy of the Southern Planter," another slave owner emphasized that, "to the breeding women, we give extra clothing, besides favoring them as much as possible in other respects" (ibid: 146). Among traders and planters,

demand for such "breeding women" (i.e., young women who were thought to be fertile) was especially high in the slave labor market (Tadman 1996: 143).

Attention to skilled trades, on the other hand, was limited in the correspondence of antebellum planters and slave traders. Commenting on a prize-winning essay on slave management, Benjamin Griffin noted that the author "omitted any discussion of the management best adapted to develop manufacturing or mechanical skill in the slave, as there is a general and very proper disposition among slave holders to leave the trades and arts to the white population" (Breeden 1980: 26-27). The Tyre Glen price table does not refer to skills at all. The Richard Reid papers do identify black mechanics as worthy of especially high valuations, but restrict attention to the occupational skills of this group. The education of slaves was generally thought to be a matter of religious – rather than vocational – instruction. Even then, religious education typically proceeded on the basis of verbal transmission, thereby avoiding the thorny topic of slave literacy (e.g., Breeden 1980: 226).

During the Civil War, a profound shift in the criteria used to value black labor was already evident in Union-occupied territory. The District of Columbia represented one of the earliest instances of emancipation in the Upper South, abolishing slavery in April of 1862.[13] Many of the able-bodied freedmen were soon employed as military laborers or in government facilities. In an extensive discourse on wages and the possibility of taxation, Lieutenant Colonel Elias Greene, the Chief Quartermaster for the Department of Washington, revealed a logic of compensation that was quite distinct from that of the antebellum period. Greene wrote that "a vast majority of the colored men engaged in the public service [in D.C.] are employed as teamsters, and laborers, and receive the same pay, as white men similarly employed" (Berlin et al. 1993: 315). Whether or not Greene "made any distinction [between black and white workers] on his rolls," the striking feature of his letter is that he inferred wages based exclusively on occupational skills, rather than the age or physical traits of black laborers. Thus, he asserted that farm laborers tended to receive

$10 to $15 per month, waiters were compensated at $16 per month, barbers, stevedores, and quarrymen averaged from $20 to $30 per month, and a small class of federally-employed artisans (e.g., blacksmiths, wheelwrights) received between $35 and $60 per month. The survey of occupationally-defined wages is complemented in Greene's letter with an emphasis on human capital accumulation. Discussing the development of Freedman's Village, an enclave of emancipated slaves located on Robert E. Lee's former plantation in Arlington, Greene highlights the construction of workshops, "where the women and children [may] ... be taught such occupations, as will fit them for a career of independence, and usefulness, when thrown upon their own resources" (ibid: 318).[14] During the winter, men could also be taught the "mechanical occupations," comprising the highly-skilled artisanal trades of the day. Greene concludes that he would like "to see the same course [of action] pursued throughout the country" (ibid: 320).

This last point raises the question as to whether the logic of human capital accumulation was limited to a small number of war-time experiments in free wage labor, such as that showcased by the Freedman's Village, or if it spread more widely in the postbellum South.[15] Even more so than the early experiments, the Freedmen's Bureau maintained a strong emphasis on human capital as an investment. Gilbert Eberhart, the Georgia Bureau's first superintendent of education, insisted that education for emancipated blacks should *not* be free of charge, calling instead for black communities to provide resources to support their schools and, thereby, asking them to incur an opportunity cost (Cimbala 1997: 13). To a surprising extent, this logic was accepted by former bondsmen. In September of 1865, a subcommissioner in Mississippi reported a discussion with an older black worker who "wished to educate his children, thought himself able to pay one dollar per month for school ... and was anxious to have school started" (Hahn et al. 2008: 551). Among Bureau agents, such investments were thought to be essential to ensure that emancipated blacks could be self-supporting. These precepts also reflected the importance of what the Reverend Edward Kirk (1868), president of the American Missionary Association, referred

to as a "duty" of the free labor ideology, and freedpeople themselves, to produce a group of "educated laborers" among emancipated African-Americans.

Wage guidelines proposed by Bureau agents consistently signaled a differentiation of labor value by skills and capabilities. Labor regulations issued in the Gulf States in July of 1865 dictated a specific premium for skilled trades, stating that "mechanics, engineers and foremen will always receive not less than $5 per month in addition to the first class rates" (Hahn et al. 2008: 334). A circular issued in Georgia around the same time proposing an extensive classification of wage workers by agricultural and domestic skills, with monthly compensation specified for each class (ibid: 365). Subsequently, commissioners like Georgia's Davis Tillson vacillated between wage guidelines based on worker skills and a reliance on wage setting in the "open market" (Cimbala 1997). The adoption of federally regulated wages was ultimately opposed at the top by General Oliver Otis Howard, the Bureau's head, who did "not deem it expedient to fix upon a general system of wages" (Hahn et al. 2008: 360). While Howard ostensibly left the returns on occupational skill to the market, the idea of distinguishing wages by skill had become firmly entrenched in the minds of many federal agents and freedmen.

The emphasis of the Freedmen's Bureau on ideals such as individualism, achievement, and equality (Cimbala 1997) weakened the older practice of ranking black labor largely according to demographic characteristics. General Howard worried about any effort to set wages for the "infinite gradation from the able-bodied man to the little child" (Hahn et al. 2008: 360). Although the black Southern work force would continue to encompass women and children, as well as adult men, the criteria used to attribute value to different sub-groups had shifted in subtle ways. Officially, the Freedmen's Bureau encouraged employment outside the home for both men and women, as part of its broader 'war on dependency'. In practice, however, assumptions regarding domesticity and masculinity pervaded the judgments of its agents. Freedwomen were far more likely than freedmen to receive rations and other relief from the Bureau and able-bodied women with young children were far less

likely to receive work (Farmer 1999). The Bureau's leadership also denounced "an apprentice system for children without consent of parent," an arrangement that would "gravitate to slavery in reality if not in name" (Hahn et al. 2008: 360-361). While child labor did not disappear with emancipation, its role and value in the postbellum labor market was greatly muted compared to the antebellum market for young slaves.

Quantitative Results

Tables 3 and 4 present regression analyses of labor pricing for black workers across the four markets, including slave purchases and appraisals (Table 3), the antebellum hiring of slave labor and the postbellum hiring of wage labor (Table 4). For each market, the models are nested such that the second model adds covariates that reflect broad categories of occupational skill (see Table A.3), and a third adds more detailed fixed effects for the occupational labels of workers.

[Insert Tables 3 - 4 About Here]

The results support the hypothesis that occupational skills account for the greatest variation in the value of labor in wage labor markets. Among free wage laborers and slave hires, the most skilled manual workers are valued around 2.4 times the rate of workers with no known skills, while this differential in valuation is only 1.7 times for slave purchases and appraisals (Model 2).[16] The differences are more stark when we consider the total variance explained by occupations (Model 3). While the occupations of bondsmen and women explain 0.7% (or less) of the variance in labor pricing for slave purchases, appraisals, and hiring, they account for over 5% of the variance in wages for the free labor contracts signed under the auspices of the Freedmen's Bureau in the D.C. and Alexandria branches (see Figure 1, gray bars). Notably, this is not driven by the lack of a complex occupational division of labor under chattel slavery. As economic historians (Fogel 1989: Chapter 2) and sociologists (Ruef and Fletcher 2003) have emphasized, midsized and large plantations

displayed extensive occupational differentiation in the antebellum period, with status distinctions ranging from overseers and skilled artisans to domestic servants, semiskilled workers, and common laborers (both agricultural and non-agricultural). Indeed, the probate records analyzed in Table 3 reveal nearly seventy occupational labels. Nevertheless, this occupational division of labor does not translate systematically into differential valuation of occupational skills.

[Insert Figure 1 About Here]

Further analysis suggests that the timing of skill acquisition over the lifecourse of slaves deviates from the pattern anticipated by the logic of human capital investment. For slaves observed in the purchase and appraisal markets between 1831 and 1865, the distribution of those in skilled occupations (including artisans, overseers, domestics, and animal handlers) peaked among workers between their mid 30s and mid 50s (Figure 2). By modern standards, the acquisition of skill was delayed, particularly when one considers that the life expectancy of Southern slaves was only 36 in 1850 (Fogel and Engerman 1974: 125). When the same distribution is plotted for Southern blacks based on 1870 Census data, a rather different pattern emerges.[17] Apprenticeship tended to occur by age twenty and, thereafter, the proportion of free black workers involved in the skilled trades (c. 15%) was fairly stable until age fifty. The pattern for free labor is thus consistent with the tenets of human capital investment, where skills are acquired early and opportunity costs are amortized over a lifetime.

[Insert Figure 2 About Here]

The effect of demographic characteristics on the price of black labor can be seen most clearly in plots by age category and gender (Figure 3).[18] For men, both purchases and appraisals in the antebellum slave market reveal a curvilinear trend, with prices rising slightly until these workers reached their twenties and then falling off. In Figure 3a, a

notable deviation between these two markets occurs for black boys under the age of eleven, who were appraised at roughly the same price as slaves in the oldest age category (> 40 years), but whose purchase prices reveal a 125% price premium over that same category. By contrast, discounting for young males is observed in the markets for slave hires and wage labor. In the antebellum South, boys hired on a short-term basis were paid half the rate paid for mature slave hires, while the youngest freedmen in the postbellum period received very low wages (roughly 30%) compared to those over forty.

[Insert Figure 3 About Here]

For black males older than ten, the plot suggests a more muted impact of age on the price of labor in markets with short-term employment contracts as opposed to those involving chattel slavery. The price for hired or wage labor varies little between adolescence (with monthly rates at slightly under 70% of the reference category) and mature adulthood, consistent with the hypothesis that these markets will exhibit weak statistical discrimination by age. This pattern is also seen for black women, whose wage and hire rates were relatively flat from adolescence until middle age (Figure 3b).

A distinguishing feature of the age-price profile for female slaves is that it is especially peaked in adolescence. While male slaves in their teens and twenties were priced at 80-140% more than mature males, female slaves in their teens and twenties were priced at 170-300% more than mature females. The interaction terms shown in Table 3 indicate that this gender difference is highly statistically significant. Although some scholars have questioned the assertion that considerations of slave breeding affected the market for (and demography) of slaves, the estimates shown here reveal a price premium for women who were entering their prime child-bearing years. The plots also show a gap between the purchase and appraised price of female slaves that attenuates over the lifecycle, supporting the argument that the exploitation (sexual or otherwise) of girls and young women may have lead to price premiums in markets with limited third party monitoring.

The main effects of gender reveal another important difference in valuation across labor markets. Among mature women, whose fecundity is no longer likely to figure in price or wage calculations, price discrimination vis-à-vis male workers is most pronounced in labor markets that are weakly regulated and unfree. Thus, female slaves over the age of forty were only valued at 46 cents on the dollar relative to male slaves in the antebellum purchase market and 44 cents on the dollar in the antebellum hire market (Tables 3 and 4). On the other hand, mature female workers in the postbellum wage market regulated by the Freedmen's Bureau received 59 cents on the dollar relative to male workers.

Does Valuation by Age and Gender Reflect Statistical Discrimination?

Although the age-price profiles are consistent with the intuition that statistical discrimination was especially pronounced in slave markets, it is equally plausible that the purported effects of age (and age-gender interactions) were simply correlated with observable features of individual slaves, such as work experience and fertility. If so, slave traders and buyers would not have needed recourse to stereotyping to infer average productivity and fecundity, but could rely instead on information available from direct inspection, appraisals, or past relations with slaves and their owners. To probe this alternative explanation, I analyzed bills of sale from the New Orleans slave market, which offer more detailed data on the histories of buyers, sellers, and slaves than are available in the probate records (Table 5).

One alternative to the mechanism of statistical discrimination holds that slave traders and buyers could acquire information on the specific experience and skills of a slave if they lived in the same locale as the slave's owner. Such collocation would offer opportunities for a potential buyer to observe a slave, fraternize with their master, and ensure that the slave's abilities matched the local climate and customs. Based on sales prices in New Orleans, it appears that slave traders were willing to pay a small premium (5% in Model 2)

when a seller originated from the same Louisiana parish (or state outside of Louisiana) as the buyer. But even with the inclusion of this variable, the amount of variance in price explained by information on worker skills (occupational or otherwise) was only 0.9%, far less than that observed in the wage labor market after the Civil War. Moreover, when we separate the subsamples based on buyer-seller collocation (Models 3 and 4), there is no evidence that price discrimination on age was significantly weaker when the buyer and seller originated from the same locale.

Another aspect of the argument applies to female slaves exclusively. If age was used as a basis for statistical discrimination with respect to fecundity, then its correlation with price should become attenuated when buyers of labor power were able to observe fertility directly (particularly when dependent slave children were being sold with their mothers). As suggested by the estimates in Table 5, this is the pricing pattern we find in the New Orleans slave market. When women without children were sold, those in their teens and twenties garnered a price that was 50-60% greater than that of female slaves over the age of thirty (Model 5). But for women with children, there was no significant price discrimination by age. Price premiums in the market applied instead to the number of children a female slave had borne (Model 6). More generally, the pattern suggests that aggregate samples – which combine slaves with and without children – may underestimate the extent to which statistical age discrimination influenced the valuation of slave women in the absence of direct evidence on fertility.

[Insert Tables 5 - 6 About Here]

Was the Valuation of Wage Labor Different in the Lower South?

The coefficients in Table 6 indicate that there was little difference in the valuation of wage labor between the sample of postbellum contracts signed in Alexandria and Washington, D.C. (Upper South) and those issued for the smaller sample of freedmen in Louisiana, Arkansas, and Mississippi (Lower South). Both sets of estimates suggest weak price discrimination by age, gender, and the interaction of these demographic variables, particularly for adolescent and adult workers. By comparison, the variance explained by occupational skills is substantial. In the payrolls of wage plantations in the Lower South, workers were ranked by occupational class and ability, ranging from 1st class foremen to 4th class laborers. When this variable is entered as a set of dummy indicators, it alone explains 47% of the variance in wages for the second model shown in Table 6.

Can Differences across Labor Markets be Explained by Selection Biases?

A key caveat in interpreting these findings remains the issue of selection bias. It is well-known, for instance, that the children and adolescents who were "apprenticed" to white employers in wage labor arrangements after the Civil War were typically either orphans or were compelled by destitute parents to hire themselves out (Farmer 1999: 176-177). It is quite possible then that the valuation of such child laborers is not comparable to that of young slaves in the antebellum period, owing to differences in skills and demographic composition. To guard against such selection biases, I reestimated all of the models after matching workers across labor markets on the basis of sociodemographic characteristics.

For the most part, the amount of variance explained by occupations remains similar when samples of workers are matched by gender, age, and occupational skills (Figure 1, bars with diagonals). A notable exception is the antebellum market for slaves who were hired out. The variation in pricing explained in the sample matched by propensity scores (1.4%) is greater than that observed in the raw data (0.2%), suggesting that selection biases may

reduce the estimated effect of occupational skills in this market. The larger effect of occupation on prices dovetails with claims by historians that the practice of hiring out "contributed to the upgrading of slave labor" and represented an "incipient stage of wages" (Eaton 1960: 678), with returns to skill possibly explained by the practice of allowing hired workers to select their own jobs and the greater diversity of trades that were staffed by hired slaves.

Using samples that are matched to the data on slave appraisals, Figure 4 replicates the age-price profiles for black men and women following a propensity score analysis. One additional difference stands out compared to the results shown in Figure 3. Age-dependent price differences between the purchase market for slaves and the appraisal market largely disappear after the samples are matched. Insofar as the exploitation of young women and children was reflected in the purchase market for slaves, appraisers may have built the "value" of such exploitation into their own assessments. The remaining variation across labor markets in the age-price profile centers around the distinction between short-term wage contracts (whether they involve slave or free labor) and the perpetual ownership of labor.

[Insert Figure 4 About Here]

Discussion

What was the fundamental innovation of the 'free' labor market that replaced the plantation system of slave labor in the years following the American Civil War? The greatest ambitions of the Freedmen's Bureau held that the rise of free labor would produce a shift in moral order, in which the barbaric and inefficient habit of Southern slaveholding yielded to more enlightened tendencies. Indeed, the civilizing power of the market was touted not only by General Otis Howard (the head of the Bureau) and his agents, but also by Northern abolitionists, such as the Reverend Edward Kirk.[19] In the period immediately after emancipation, many emancipated slaves believed that Southern landowners could change their mindset and were prepared to negotiate with them in good faith. Whether such hopes were advanced out of idealism or necessity, they were bound to be met with disappointment. Few former slaveholders bought into the moral impetus behind the free labor ideology and the prevalent view among Southern employers, instead, was that former slaves would need to work "as they had always done".

A more modest claim for the rise of a free labor market was that it would create a subtle shift in the motivation of employers and workers, primarily owing to the absence of coercion. In his *Wealth of Nations,* Adam Smith argued that the essential problem of unfree labor resided in the misaligned interests of employer and worker. "The experience of all ages and nations," Smith believed, "demonstrates that the work done by slaves, though it appears to cost only their maintenance, is in the end the dearest of any ... whatever work [the slave] does beyond what is sufficient to purchase his own maintenance can be squeezed out of him by violence only". The interests of the slave owner were compromised, in this theory, by a love of domination, which led him to "prefer the service of slaves to that of freemen" (Smith 1776: 471). Even if some of the civilizing tendencies of the market were absent, the removal of coercive means would thus improve the productivity of workers and focus the motivations of employers on pecuniary considerations.

Rather than shifts in morality and the propensity toward coercion, the argument presented in this article suggests that other institutional conditions were more salient to the valuation of emancipated labor. Historically, both 'free' wage labor and other markets tended to involve some element of duress in which the ultimate source of power for workers was the ability to withdraw labor power, whether by reduction of effort, flight, or legal termination of contracts (Steinfeld 2001). The Freedmen's Bureau itself, for instance, acted as much to discipline black laborers as it did to limit recourse to physical punishment among Southern planters (Goldberg 2006: 40-42). The fundamental transformation in the labor market interface, which soon had to be accepted by both employers and black labor, relied instead on a shift in the duration of control over labor power and the oversight of a third (regulatory) body when labor contracts were signed.

For African Americans, these institutional conditions yielded a new logic of compensation during Reconstruction. In the antebellum era, occupational skills explained relatively little of the variance in the price of Southern slaves, though they accounted for some variation in the wages of equivalent slave hires. Investment in occupational skills occurred relatively late in the life course and some Southern observers even suggested that masters "leave the trades and arts [entirely] to the white population". Price discrimination by age and gender, on the other hand, was more pronounced in the market for slaves. Under the Freedmen's Bureau, apprenticeship in the skilled crafts tended to occur by the time black workers reached their early twenties and differences in contractual wages were more clearly correlated with those skills. The latter process is consistent with the logic of human capital, in which opportunity costs are borne early in the life course and are justified by subsequent differentials in earnings, while the former is consistent with the logic of statistical discrimination.

A distinctive contribution of this study, therefore, is to suggest that the mechanisms of valuation emphasized within labor economics may only apply under certain institutional scope conditions. While it has by now become common sociological wisdom to suggest that labor market processes, such as job search and wage allocation, are embedded within a context of interpersonal relationships (Granovetter 1985) and, more recently, institutional relationships (e.g, Brinton and Kariya 1998), the institutional foundations of labor markets have often gone unexamined, particularly from a historical perspective. Through comparative analysis, it is possible to recover the unique conditions that differentiate free labor from its counterparts and to develop a more relational account of labor valuation (Tilly and Tilly 1998).

Such comparative analysis is remarkably rare in existing scholarship on labor markets. The tendency among sociologists has been to focus on inequality within formally free labor markets, while historians and economists have tended to consider the valuation of unfree labor in isolation (Johnson 1999). As a consequence, past empirical studies of markets for unfree labor, such as the New Orleans slave market, have suggested an economically 'rational' market with "a strong incentive for owners to invest in the human capital of their slaves" (Pritchett and Hayes 2011: 18). When these markets are considered alongside transactions for wage labor, the investment in occupational skill is less compelling and the 'rationality' of the market appears to be directed toward the evaluation of different attributes (age, reproductive capacity, and health) than labor transactions after emancipation.

Comparative analysis may also illuminate the ongoing problems posed by unfree and unregulated labor markets for the allocation of workers and valuation of work today. The transition to formally free labor was first studied extensively in the 19th century by observers such as Karl Marx and Max Weber, who used examples from ancient and late medieval societies to illuminate processes of abolition that they observed as contemporaries (Nippel 2005). Aside from the moral failings of slavery, serfdom, and

unregulated labor, Marx and Weber recognized that these forms of labor organization presented fundamental problems to the economic and social development of the pre-modern world. As unfree and informal labor continues to persist, it is essential that sociologists document the implications that these markets may hold for investment in skills, discrimination against various classes of workers, and intergenerational legacies of forced labor.

APPENDIX

This study uses logical and propensity score matching to reduce selection biases that have historically affected different pools of black workers. The samples are first matched geographically by limiting transactions to those conducted in a few Southern states that served as centers of the slave trade since the early American Republic, including Louisiana, Maryland, and Virginia.[20] A core sample was constructed by beginning with 701 transactions between 1831 and 1863, with information on both slave appraisals and sales prices for the same individuals. Slave hires and wage laborers that were recruited in the same states were then linked to these records based on propensity score matching with a Mahalanobis metric (Guo and Fraser 2010). The algorithm draws the hired worker or wage laborer who most closely matches a slave observed in the purchase market based on gender, age, and occupational skill. The difference between workers is defined by the Mahalanobis distance *d*, where **u** and **v** are the values of the variables to be matched for a slave and hired / wage worker, respectively, and **C** is the sample covariance matrix for the matching variables from the full sample of laborers outside the slave purchase market:

$$d = (\mathbf{u} - \mathbf{v})^T \mathbf{C}^{-1} (\mathbf{u} - \mathbf{v}) \qquad (2)$$

Table A.1 shows the resulting reduction in standardized bias for age, gender, and occupational skill, computed as $100(1 - b_M/b_I)$, where b_I is the initial difference in sample means and b_M is the difference after matching (Rosenbaum and Rubin 1985). The reduction in bias for all samples and covariates is substantial, ranging from 79% to 100%. After matching, t-statistics comparing the sample of wage workers and slave purchases suggest no statistically significant differences on these characteristics. For the sample of slave hires, differences in age composition persist, but covariate balance is improved considerably.

[Insert Table A.1 and A.2 About Here]

Table A.2 displays the coefficient estimates for the valuation of black workers after matching samples (model specifications correspond to Model 3 in Tables 3 and 4). Weights are computed for each observation in order to make the pool of hired slaves and wage laborers more representative of the population of black workers as a whole. Let $\hat{e}(x)$ be a propensity score indicating the probability that a given individual will be hired out (antebellum period) or sign a wage contract (postbellum period), based on a logistic regression for each outcome that considers a combined sample of slave purchases and hires or slave purchases and wage contracts, respectively. Then the weight for hires and wage labor can be defined as $w = 1 / \hat{e}(x)$ (Guo and Fraser 2010: 161). For the remaining sample of slave purchases and appraisals, the weight is calculated as $w = \hat{e}(x) / (1 – \hat{e}(x))$.

ENDNOTES

[1] For the sake of simplicity, the distinctions are presented as polar opposites, although historical observers have often imagined a continuum of employment relationships along each dimension. Thus, English workers employed under long contracts in the nineteenth century were said to be "bound like slaves to the employers," while those hired under short contracts were considered to be "free" labor (Steinfeld 2001: 13).

[2] Judicial sales also offered locales for slave traders to meet and obtain important information regarding price trends (Tadman 1996).

[3] As Baron and Hannan (1994) argue, a common mistake in sociological treatments of human capital is to simply equate the concept with years of education or training in a regression model. Proper application of human capital theory requires that an attribute be "regarded as an investment for which there is a capital market and opportunity cost" (ibid: 1124). Moreover, for there to be sustained rents from human capital investment, there must be barriers that prevent others from readily acquiring the same education or training.

[4] Fogel and Engerman agree that this feature of skill acquisition under chattel slavery deviates markedly from the conditions of free labor markets. Under the typical logic of human capital investment, "the earlier an investment is made in occupational training, the more years there are to reap the returns on that investment" (1974: 150). Under slavery, however, the slaveholder would "treat entry into skilled occupations as a prize" (ibid).

[5] In 1860, 21 out of 34 states had adopted laws against interracial sex, although enforcement and penalties varied considerably (Robinson 2003).

[6] Some Southern cities did regulate slave hires, but the extent and effectiveness of oversight was limited. New Orleans, Mobile, Savannah, and Charleston passed badge laws that credentialed a subset of slaves to hire themselves out for specified trades (Wade 1964). However, these laws served primarily as a means to raise tax revenue from slave owners, not to produce occupational closure.

[7] Tadman (1996) estimates that the typical slaveholder in the Upper South made a sale every 10 to 12 *years*, far longer than the average 10 or 11-month contract observed in the antebellum and postbellum hire markets.

[8] This constraint removes roughly 10 percent of the cases from the original data on slave hires (Fogel and Engerman 2006a) and slightly under 25 percent of the cases in the data on sales and appraisals (Fogel and Engerman 2006b).

[9] For the sake of model parsimony, this approach assumes that the deviation of local labor market prices from the regional average in the South only changes over time as a function of the local workforce's changing demography. In analyses of postbellum transactions, where all contracts were signed in either Washington, DC, or Alexandria, VA, I also control for the location (state) where workers were to be employed.

[10] Specifically, these data include a 10 percent systematic sample of payrolls and contracts in St. Martin and St. Mary's parishes in Louisiana (Freedmen's Bureau 1863-1872), as well as the complete payrolls of the McGavock plantation in Arkansas and the Anderson plantation in Mississippi.

[11] By missing entirely, I mean that the archival records do not have information on either the exact age of a worker nor the worker's approximate life stage (e.g., boy, girl, or old). Listwise deletion of cases with missing age information does not produce findings that are substantively different from those obtained with multiple imputation.

[12] As described in Fogel and Engerman (2008), 5 percent samples were drawn in 1835, 1840, 1845, 1850-55, and 1860, while 2.5 percent samples were drawn in other years during our study period.

[13] Earlier cases of slave emancipation tended to occur on a piecemeal basis around federal military facilities, especially in tidewater Virginia and North Carolina (Berlin et al. 1993).

[14] In contrast to the antebellum regime, the understanding of child and female labor also displays a historical shift in the Freedmen's Bureau documents. Greene suggests that many freedmen will "have their wives, children, aged parents, [etc.] dependent upon Government for shelter and rations" (ibid: 316). In his eyes, this was hardly an unreasonable arrangement, as long as black children attended common school, women engaged in domestic trades, and freedmen of means (those earning $25+ per month) remitted a tax in support of the aged, indigent, infirm, and other dependents.

[15] The question is especially salient because the preponderance of wage labor at Freeman's Village was limited, despite Elias Greene's aspirations. In September of 1863, only 150

of the camp's 900 residents were able-bodied, employable men (Berlin et al. 1993). Repeated efforts to move residents into private employment were met with mixed success.

[16] Note, however, that some occupations that were valued during the antebellum period, such as domestic service, become devalued and feminized after the Civil War (see also Branch 2011).

[17] Statistics for 1870 are based on the IPUMS 1.2 percent sample of all blacks in Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia (Ruggles et al. 2010). Given the relatively small number of wage labor contracts in our Freedmen's Bureau sample, it is not possible to reliably construct a corresponding distribution for the immediate postbellum period.

[18] The plots in Figures 3a and 3b control for occupations (i.e., they are based on the coefficient estimates in Tables 3 and 4, Model 3).

[19] Following Albert Hirschman, Fourcade and Healy (2007) identify a long legacy of claims among liberal economists that associate markets with such civilizing virtues as honesty, respect, cooperation, creativity, and freedom.

[20] Tadman (1996) estimates that Virginia and Maryland were the only Southern states that were significant net exporters of slaves throughout the period from the 1790s until the 1850s. The coastal trade between the Chesapeake region and Louisiana was especially prominent, given the heavy labor demands of the sugar crop.

REFERENCES

Aigner, Dennis and Glen Cain. 1977. "Statistical Theories of Discrimination in Labor Markets." *Industrial and Labor Relations Review* 30: 175-187.

Bales, Kevin. 2012. *Disposable People: New Slavery in the Global Economy* (Revised Edition). Berkeley, CA: University of California Press.

Baron, James and Michael Hannan. 1994. "The Impact of Economics on Contemporary Sociology." *Journal of Economic Literature* 32:1111-1146.

Becker, Gary. 1964. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago: University of Chicago Press.

Berlin, Ira, Steven Miller, Joseph Reidy, and Leslie Rowland. 1993. *The Wartime Genesis of Free Labor: The Upper South*. New York: Cambridge University Press.

Branch, Enobong. 2011. *Opportunity Denied: Limiting Black Women to Devalued Work*. New Brunswick, NJ: Rutgers University Press.

Breeden, James. 1980. *Advice Among Masters: The Ideal in Slave Management in the Old South*. Westport, CT: Greenwood.

Bonacich, Edna. 1975. "Abolition, the Extension of Slavery, and the Position of Free Blacks: A Study of Split Labor Markets in the United States, 1830-1863." *American Journal of Sociology* 81: 601-628.

Brinton, Mary and Takehiko Kariya. 1998. "Institutional Embeddedness in Japanese Labor Markets," pp. 181-207 in M. Brinton and V. Nee (eds.), *The New Institutionalism in Sociology*. New York: Russell Sage Foundation.

Charles, Maria and Karen Bradley. 2009. "Indulging our Gendered Selves? Sex Segregation by Field of Study in 44 Countries." *American Journal of Sociology* 114: 924-976.

Charles, Maria and David Grusky. 2004. *Occupational Ghettos: The Worldwide Segregation of Women and Men*. Stanford, CA: Stanford University Press.

Cimbala, Paul. 1997. *Under the Guardianship of the Nation: The Freedmen's Bureau and the Reconstruction of Georgia*, 1865-1870. Atlanta, GA: University of Georgia Press.

Coclanis, Peter. 1982. "Rice Prices in the 1720s and the Evolution of the South Carolina Economy." *Journal of Southern History* 48: 531-544.

Collins, Randall. 1979. *The Credential Society: An Historical Sociology of Education and Stratification*. New York: Academic Press.

Denzin, Norman. 2009. *The Research Act: A Theoretical Introduction to Sociological Methods*. Piscataway, NJ: Aldine Transaction.

DuBois, W.E. Burghardt. 1901. "The Freemen's Bureau." *Atlantic Monthly* 87: 354-365.

Eaton, Clement. 1960. "Slave-Hiring in the Upper South: A Step toward Freedom." *Mississippi Valley Historical Review*, 46: 663-678.

England, Paula. 1984. "Wage Appreciation and Depreciation: A Test of Neoclassical Economic Explanations of Occupational Sex Segregation." *Social Forces* 62: 726-749.

Farmer, Mary. 1999. " 'Because They are Women': Gender and the Virginia Freedmen's Bureau's 'War on Dependency'." Pp. 161-192 in P. Cimbala and R. Miller (eds), *The Freedmen's Bureau and Reconstruction*. New York: Fordham University Press.

Fogel, Robert and Stanley Engerman. 1974. *Time on the Cross*. Boston: Little, Brown.

_____. 2006a. *Slave Hires, 1775-1865*. Ann Arbor: ICPSR.

_____. 2006b. *Slave Sales and Appraisals, 1775-1865*. Ann Arbor: ICPSR.

_____. 2008. *New Orleans Slave Sale Sample, 1804-1862*. Ann Arbor. ICPSR.

Fogel, Robert. 1989. *Without Consent or Contract: The Rise and Fall of American Slavery*. New York: W.W. Norton.

_____. 2003. *The Slavery Debates, 1952-1990: A Retrospective*. Baton Rouge, LA: Louisiana State University Press.

Fourcade, Marion and Kieran Healy. 2007. "Moral Views of Market Society." *Annual Review of Sociology* 33: 285-311.

Fox-Genovese, Elizabeth and Eugene Genovese. 2005. *The Mind of the Master Class: History and Faith in the Southern Slaveholders' Worldview*. New York: Cambridge University Press.

Freedmen's Bureau. 1865-70. *Records of the Field Offices for the District of Columbia*, (Microfilm 1902, Roll 18). Washington, DC: National Archives.

_____. 1865-72. *Records of the Field Offices for the State of Virginia* (Microfilm 1913, Roll 52). Washington, DC: National Archives.

_____. 1863-72. *Records of the Field Offices for the State of Louisiana* (Microfilm 1905, Rolls 38 and 49). Washington, DC: National Archives.

Genovese, Eugene. 1974. *Roll, Jordan, Roll: The World the Slaves Made*. New York: Pantheon.

Glen, Tyre. 1820-1889. *Letters and Papers*. Duke University, John Hope Franklin Collection.

Goldberg, Chad Allen. 2006. *Citizens and Paupers: Relief, Rights, and Race, from the Freedmen's Bureau to Workfare.* Chicago: University of Chicago Press.

Granovetter, Mark. 1985. "Economic Action and Social Structure: The Problem of Embeddedness," *American Journal of Sociology,* 91: 481-510.

Guo, Shenyang and Mark Fraser. 2010. *Propensity Score Analysis: Statistical Methods and Applications*. London: Sage.

Hahn, Steven, Steven Miller, Susan O'Donovan, John Rodrigue, and Leslie Rowland. 2008. *Land and Labor, 1865* (Series 3, Volume 1 in *Freedom: A Documentary History of Emancipation, 1861-1867*). Chapel Hill, NC: UNC Press.

Hanes, Christopher. 1996. "Turnover Cost and the Distribution of Slave Labor in Anglo-America," *Journal of Economic History,* 56: 307-329.

Huffman, Matt and Philip Cohen. 2004. “Racial Wage Inequality: Job Segregation and Devaluation across U.S. Labor Markets.” *American Journal of Sociology* 109: 902-936.

International Labour Office. 2005. *A Global Alliance Against Forced Labour* (Report I(B)). Geneva: ILO.

Johnson, Walter. 1999. *Soul by Soul: Life Inside the Antebellum Slave Market*. Cambridge, MA: Harvard University Press.

Kirk, Edward. 1868. *Educated Labor, Or, Our Duty in Regard to the Americo-African Race: An Address Delivered before the American Missionary Association*. New York: Holt.

Maloney, Thomas. 2005. “Ghettos and Jobs in History: Neighborhood Effects on African American Occupational Status and Mobility in World War I-Era Cincinnati.” *Social Science History* 29: 241-267.

Marx, Karl. 1977. *Capital: A Critique of Political Economy* (Volume 1). New York: Vintage.

Massey, Douglas and Nancy Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

Mincer, Jacob. 1958. “Investment in Human Capital and Personal Income Distribution.” *Journal of Political Economy* 66: 281-302.

Mouw, Ted. 2003. “Social Capital and Finding a Job: Do Contacts Matter?” *American Sociological Review* 68: 868-898.

Murphy, Sarah. 2010. *Investing in Life: Insurance in Antebellum America*. Baltimore, MD: Johns Hopkins University Press.

Nash, Claire and Dale Flesher. 2005. “Employee Leasing. The Antebellum 1800s and the Twenty-First Century: A Historical Perspective on the Contingent Labour Force.” *Accounting, Business, and Financial History* 15: 63-76.

Nippel, Wilfried. 2005. “Marx, Weber, and Classical Slavery,” *Classics Ireland,* 12: 31-49.

Phelps, Edmund. 1972. “The Statistical Theory of Racism and Sexism.” *American Economic Review* 62: 659-661.

Polanyi, Karl. 1944. *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.

Pritchett, Jonathan and Jessica Hayes. 2011. “The Occupations of Slaves Sold in New Orleans: Missing Values, Cheap Talk, or Informative Advertising,” Working Paper 1113, Tulane Department of Economics.

Ransom, Roger and Richard Sutch. 2001. *One Kind of Freedom: The Economic Consequences of Emancipation* (2nd Edition). Cambridge: Cambridge University Press.

Reid, Richard. 1770-1910. *Papers*. University of Virginia, Special Collections.

Robinson, Charles. 2003. *Dangerous Liaisons: Sex and Love in the Segregated South*. Fayetteville, AR: University of Arkansas Press.

Rodrigue, John. 1999. “The Freedmen’s Bureau and Wage Labor in the Louisiana Sugar Region.” Pp. 193-218 in P. Cimbala and R. Miller (eds), *The Freedmen’s Bureau and Reconstruction*. New York: Fordham University Press.

Rosenbaum, Paul and Donald Rubin. 1985. “Constructing a Control Group using Multivariate Matched Sampling Methods that Incorporate the Propensity Score.” *The American Statistician* 39: 33-38.

Royston, Patrick. 2004. “Multiple Imputation of Missing Values.” *Stata Journal* 4: 227-241.

Ruef, Martin and Ben Fletcher. 2003. “Legacies of American Slavery: Status Attainment among Southern Blacks after Emancipation.” *Social Forces* 82: 445-480.

Ruef, Martin and Alona Harness. 2009. “Agrarian Origins of Management Ideology: The Roman and Antebellum Cases,” *Organization Studies,* 30: 589-607.

Ruggles, Steven, Trent Alexander, Katie Genadek, Ronald Goeken, Matthew Schroeder, and Matthew Sobek. 2010. *Integrated Public Use Microdata Series: Version 5.0* [Machine-readable database]. Minneapolis: University of Minnesota.

Smith, Adam. 1776. *An Inquiry into the Nature and Causes of The Wealth of Nations*. London: Strahan and T. Cadell.

Smith, Mark. 1998. *Debating Slavery: Economy and Society in the Antebellum American South*. Cambridge, UK: Cambridge University Press.

Stanley, Amy Dru. 1998. *From Bondage to Contract: Wage Labor, Marriage, and the Market in the Age of Slave Emancipation*. New York: Cambridge University Press.

Steinfeld, Robert. 2001. *Coercion, Contract, and Free Labor in the Nineteenth Century*. New York: Cambridge University Press.

Sutch, Richard. 1975. "The Breeding of Slaves for Sale and the Westward Expansion of Slavery, 1850-1860." Pp. 173-210 in S. Engerman and E. Genovese (eds.), *Race and Slavery in the Western Hemisphere*. Princeton, NJ: Princeton University Press.

Tadman, Michael. 1996. *Speculators and Slaves: Masters, Traders, and Slaves in the Old South*. Madison, WI: University of Wisconsin Press.

Tilly, Chris and Charles Tilly. 1998. *Work under Capitalism*. Boulder, CO: Westview Press.

Valenzuela, Abel. 2003. "Day Labor Work." *Annual Review of Sociology* 29: 307-333.

Wade, Richard. 1964. *Slavery in the Cities: The South 1820-1860*. New York: Oxford University Press.

Weber, Max. 1892. *Die Verhältnisse der Landarbeiter im Ostelbischen Deutschland*. Leipzig: Duncker and Humblot.

_____. 1968. *Economy and Society: An Outline of Interpretive Sociology*. New York: Bedminster.

Weeden, Kim. 2002. "Why do Some Occupations Pay More than Others? Social Closure and Earnings Inequality in the United States." *American Journal of Sociology* 108: 55-101.

Wood, Gordon. 2009. *Empire of Liberty: A History of the Early Republic, 1789-1815*. New York: Oxford University Press.

Zelizer, Viviana. 1981. "The Price and Value of Children: The Case of Children's Insurance." *American Journal of Sociology* 86: 1036-1056.

		Third Party Monitoring and Evaluation	
		Little or None	*Considerable*
Duration of Ownership of Labor Power	*Perpetual*	**Slave Purchases**, Servile Marriage, Child Servitude, Sexual Slavery	**Judicial Appraisals of Unfree Labor**, Penal Labor, Debt Bondage, Serfdom
	Short-Term / At Will	**Unregulated Hire Market**, Day Labor, Illicit Labor	**Regulated Wage Labor**

Table 1. A Typology of Labor Markets

Note: Entries in boldface correspond to those analyzed empirically in this article; other entries are intended to be illustrative and may appear in different cells depending on the specific legal frameworks and norms of the society being analyzed.

Table 2. Means for Worker and Transaction Characteristics across Four Labor Markets

	Slave Purchases (1831-1865)	Slave Appraisals (1831-1865)	Slave Hires (1831-1865)	Wage Labor (1865-1867)
Workers				
Age (1-10 years) [a]	0.08	0.22	0.09	0.02
Age (11-20 years)	0.35	0.25	0.43	0.31
Age (21-30 years)	0.25	0.22	0.21	0.54
Age (31-40 years)	0.14	0.14	0.10	0.10
Age (41+ years)	0.18	0.17	0.18	0.03
Female	0.39	0.42	0.36	0.18
Skilled Labor [b]	0.02	0.03	> 0.01	0.22
Health Issue / Disability	0.03	0.02	> 0.01	---
Transactions				
Price / Wage Rate [c]	$638.21	$559.97	$54.99	$117.55
Period of Hire (months)	---	---	11.40	10.38
Number of Cases	6,709	51,232	17,158	1,378

[a] Proportions are only listed for those workers with precise ages in the archival records.

[b] All workers with occupational skills that do not involve field work or common labor are defined as skilled.

[c] Nominal prices (in dollars) are listed for slave purchases and appraisals; nominal rates (in dollars per year) are listed for slave hires and wage labor.

Table 3. Regression Models for (Logged) Prices of Slaves in the U.S. South, 1831-1865

	Purchase Prices			Appraised Prices		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Demographics & Health						
Age (1-10 years) [a]	0.79 (0.11) ***	0.80 (0.11) ***	0.81 (0.11) ***	-0.04 (0.03)	-0.02 (0.03)	-0.02 (0.03)
Age (11-20 years)	0.81 (0.09) ***	0.82 (0.09) ***	0.82 (0.09) ***	0.56 (0.03) ***	0.58 (0.03) ***	0.58 (0.03) ***
Age (21-30 years)	0.89 (0.09) ***	0.89 (0.09) ***	0.89 (0.09) ***	0.71 (0.03) ***	0.72 (0.03) ***	0.72 (0.03) ***
Age (31-40 years)	0.71 (0.09) ***	0.72 (0.09) ***	0.72 (0.09) ***	0.61 (0.03) ***	0.61 (0.03) ***	0.60 (0.03) ***
Female	-0.78 (0.09) ***	-0.77 (0.09) ***	-0.77 (0.09) ***	-0.58 (0.03) ***	-0.56 (0.03) ***	-0.57 (0.03) ***
Health Issue / Disability	-0.45 (0.10) ***	-0.45 (0.10) ***	-0.45 (0.10) ***	-0.82 (0.05) ***	-0.82 (0.05) ***	-0.82 (0.05) ***
Interactions						
Age1-10*Female	0.52 (0.11) ***	0.51 (0.11) ***	0.51 (0.11) ***	0.37 (0.04) ***	0.36 (0.03) ***	0.36 (0.04) ***
Age11-20*Female	0.58 (0.10) ***	0.58 (0.10) ***	0.58 (0.10) ***	0.41 (0.03) ***	0.39 (0.03) ***	0.40 (0.03) ***
Age21-30*Female	0.38 (0.11) **	0.38 (0.11) **	0.38 (0.11) **	0.28 (0.03) ***	0.27 (0.03) ***	0.27 (0.03) ***
Age31-40*Female	0.32 (0.12) **	0.31 (0.12) **	0.31 (0.12) **	0.19 (0.04) ***	0.19 (0.04) ***	0.20 (0.04) ***
Occupation [b]						
Unskilled Agriculture	---	0.15 (0.12)	Fixed	---	0.19 (0.04) ***	Fixed
Unskilled Manual / Domestic	---	0.24 (0.10) *	Fixed	---	0.34 (0.04) ***	Fixed
Semiskilled Agriculture	---	0.60 (0.12) ***	Fixed	---	0.24 (0.06) ***	Fixed
Semiskilled Manual	---	0.23 (0.11) *	Fixed	---	0.40 (0.04) ***	Fixed
Skilled Domestic	---	0.23 (0.10) *	Fixed	---	0.40 (0.04) ***	Fixed
Skilled Manual / Driver	---	0.56 (0.08) ***	Fixed	---	0.55 (0.02) ***	Fixed
Controls						
Year	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
County	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Owner	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered
R-Squared [c]	0.398	0.401	0.402	0.429	0.435	0.436
Number of Cases	6,658			50,982		

* p < .05; ** p < .01; *** p < .001 (two-tailed tests)

[a] Reference category for age is 41 or older; variable is subject to multiple imputation.

[b] Includes 68 detailed occupations; reference is "no trade".

[c] Average model fit across twenty imputations.

Table 4. Regression Models for (Logged) Monthly Wages of Blacks in the U.S. South, 1831-1867

	Wages (Antebellum Period)			Wages (Postbellum, Upper South)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Demographics						
Age (1-10 years) [a]	-0.74 (0.13) ***	-0.73 (0.13) ***	-0.73 (0.13) ***	-1.24 (0.28) ***	-1.26 (0.29) ***	-1.24 (0.29) ***
Age (11-20 years)	-0.45 (0.08) ***	-0.44 (0.08) ***	-0.44 (0.08) ***	-0.56 (0.12) ***	-0.57 (0.12) ***	-0.57 (0.13) ***
Age (21-30 years)	-0.30 (0.04) ***	-0.29 (0.05) ***	-0.29 (0.05) ***	-0.23 (0.09) *	-0.24 (0.10) *	-0.25 (0.11) *
Age (31-40 years)	-0.18 (0.04) ***	-0.17 (0.04) ***	-0.17 (0.04) **	-0.13 (0.08)	-0.14 (0.10)	-0.16 (0.11)
Female	-0.81 (0.04) ***	-0.80 (0.04) ***	-0.80 (0.04) ***	-0.58 (0.16) **	-0.56 (0.17) **	-0.53 (0.18) **
Interactions						
Age1-10*Female	0.06 (0.07)	0.05 (0.07)	0.05 (0.07)	0.35 (0.36)	0.34 (0.36)	0.45 (0.37)
Age11-20*Female	0.08 (0.07)	0.07 (0.07)	0.07 (0.07)	0.19 (0.20)	0.19 (0.20)	0.21 (0.20)
Age21-30*Female	0.04 (0.06)	0.03 (0.06)	0.03 (0.06)	0.02 (0.17)	0.02 (0.18)	0.05 (0.19)
Age31-40*Female	0.03 (0.06)	0.02 (0.06)	0.02 (0.06)	0.00 (0.18)	0.01 (0.18)	0.03 (0.20)
Occupation [b]						
Unskilled Agriculture	---	---	---	---	0.09 (0.08)	Fixed
Unskilled Manual / Domestic	---	---	---	---	0.01 (0.07)	Fixed
Semiskilled Agriculture	---	---	---	---	0.41 (0.21) *	Fixed
Semiskilled Manual	---	---	---	---	0.43 (0.16) **	Fixed
Skilled Domestic	---	---	---	---	0.11 (0.14)	Fixed
Skilled Manual / Driver	---	0.88 (0.08) ***	Fixed	---	0.84 (0.18) ***	Fixed
Controls						
Period of Hire (months)	0.02 (0.01) *	0.02 (0.01) *	0.02 (0.01) *	-0.01 (0.00) ***	-0.01 (0.00) ***	-0.01 (0.00) ***
Year	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
County / State [c]	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Owner / Employer	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered
R-Squared [d]	0.328	0.330	0.330	0.585	0.601	0.636
Number of Cases		16,921			1,372	

* p < .05; ** p < .01; *** p < .001 (two-tailed tests)

[a] Reference category for age is 41 or older; variable is subject to multiple imputation.

[b] Includes 7 occupations in antebellum era and 28 occupations in postbellum era; reference category is "no trade".

[c] Postbellum fixed effects are included for states as a whole.

[d] Average model fit across twenty imputations.

Table 5. Regression Models for (Logged) Purchase Price of Slaves in the New Orleans Slave Market, 1831-1862

	All Slaves (Individual Sales)		Buyer & Seller in Different Locale	Buyer & Seller in Same Locale	Women without Children	Women with Children
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demographics & Health						
Age (1-10 years) [a]	-0.32 (0.10) **	-0.31 (0.10) **	-0.31 (0.09) **	-0.31 (0.13) *	---	---
Age (11-20 years)	0.25 (0.04) ***	0.26 (0.04) ***	0.19 (0.07) **	0.26 (0.06) ***	0.44 (0.04) ***	-0.10 (0.07)
Age (21-30 years)	0.43 (0.04) ***	0.43 (0.04) ***	0.32 (0.07) ***	0.49 (0.06) ***	0.48 (0.04) ***	-0.11 (0.05)
Female	-0.25 (0.05) ***	-0.26 (0.05) ***	-0.38 (0.11) **	-0.21 (0.07) **	---	---
Health Issue / No Guarantee	-0.34 (0.03) ***	-0.33 (0.03) ***	-0.41 (0.05) ***	-0.29 (0.04) ***	-0.29 (0.05) ***	-0.13 (0.08)
Number of Children	---	---	---	---	---	0.17 (0.03) ***
Interactions						
Age1-10*Female	0.01 (0.13)	0.03 (0.13)	0.10 (0.17)	0.10 (0.15)	---	---
Age11-20*Female	0.17 (0.06) **	0.18 (0.06) **	0.28 (0.11) *	0.16 (0.08) *	---	---
Age21-30*Female	0.03 (0.06)	0.04 (0.06)	0.16 (0.12)	-0.01 (0.07)	---	---
Information on Skills						
Buyer and Seller from same Locale	---	0.05 (0.02) *	---	---	0.07 (0.04) #	-0.07 (0.08)
Occupation [b]	---	Fixed	Fixed	Fixed	Fixed	Fixed
Controls						
Year	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Parish / State of Origin	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Seller	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered
R-Squared	0.567	0.576	0.662	0.532	0.575	0.605
Number of Cases	2,114		940	1,174	988	264

# p < .05 (one-tailed test); * p < .05; ** p < .01; *** p < .001 (two-tailed tests)

[a] Reference category for age is 31 or older.

[b] Includes 25 occupational categories.

Table 6. Regression Models for Wages of Blacks in the Postbellum Lower South, 1865-1867

	Model 1	Model 2
Demographics		
Age (11-20 years) [a]	-0.21 (0.19)	0.00 (0.09)
Age (21-30 years)	0.04 (0.13)	0.05 (0.10)
Age (31-40 years)	-0.02 (0.14)	0.06 (0.10)
Female	-0.35 (0.19) #	-0.28 (0.13) *
Interactions		
Age11-20*Female	0.16 (0.19)	0.10 (0.13)
Age21-30*Female	0.08 (0.20)	0.07 (0.15)
Age31-40*Female	0.07 (0.35)	0.04 (0.19)
Occupation / Skill Rating [b]		
First Class (Foreman)	---	1.53 (0.22) ***
First Class (Other)	---	1.45 (0.19) ***
Second Class	---	1.20 (0.20) ***
Third Class	---	0.85 (0.22) **
Fourth Class	---	0.67 (0.21) **
Controls		
Period of Hire (months)	0.02 (0.02)	0.01 (0.01)
Year	Fixed	Fixed
County	Fixed	Fixed
Owner	Clustered	Clustered
R-Squared [c]	0.319	0.790
Number Cases	218	

# p < .05 (one-tailed tests); * p < .05; ** p < .01; *** p < .001 (two-tailed tests)

[a] Reference category for age is 41 or older; variable is subject to multiple imputation.

[b] Reference category is "no occupational class / no skill ".

[c] Average model fit across five imputations.

Table A.1. % Reduction in Standardized Bias from Logical and Propensity Score Matching †

	Slave Appraisals	Slave Hires	Wage Labor
Worker Attributes			
Age	100%	79.3% (t=10.6)	96.7% (t=0.50)
Female	100	100.0 (t=0.00)	100.0 (t=0.00)
Skilled Labor ‡	100	100.0 (t=0.00)	100.0 (t=0.00)

† All samples are matched to data on slave sales.

‡ All workers with occupational skills that do not involve "field work" or "common labor" are defined as skilled.

Table A.2. Regression Models for Valuation of Black Labor, with Matched Samples

	Prices (Logged)		Wages (Logged)	
	Slave Purchases	Slave Appraisals	Slave Hires	Wage Labor
Demographics & Health				
Age (1-10 years) [a]	0.13 (0.17)	-0.05 (0.15)	-0.71 (0.18) ***	-1.41 (0.25) ***
Age (11-20 years)	0.55 (0.12) ***	0.39 (0.11) ***	-0.39 (0.16) *	-0.54 (0.16) **
Age (21-30 years)	0.79 (0.12) ***	0.71 (0.12) ***	-0.17 (0.14)	-0.25 (0.13)
Age (31-40 years)	0.64 (0.13) ***	0.58 (0.14) ***	-0.03 (0.14)	-0.16 (0.16)
Female	-0.70 (0.15) ***	-0.63 (0.14) ***	-0.86 (0.10) ***	-0.50 (0.20) *
Health Issue / Disability	-0.45 (0.12) ***	-0.51 (0.12) ***	---	---
Interactions				
Age1-10*Female	0.40 (0.22)	0.35 (0.18)	0.13 (0.14)	0.60 (0.42)
Age11-20*Female	0.57 (0.16) ***	0.56 (0.14) ***	0.05 (0.14)	0.08 (0.28)
Age21-30*Female	0.30 (0.18)	0.36 (0.17) *	-0.01 (0.12)	-0.02 (0.21)
Age31-40*Female	0.31 (0.20)	0.25 (0.19)	-0.03 (0.14)	-0.00 (0.23)
Occupation	Fixed	Fixed	Fixed	Fixed
Controls				
Period of Hire (months)	---	---	0.07 (0.02) **	-0.01 (0.00) ***
Year	Fixed	Fixed	Fixed	Fixed
State	Fixed	Fixed	Fixed	Fixed
Owner / Employer	Clustered	Clustered	Clustered	Clustered
R-Squared [b]	0.584	0.569	0.480	0.556
Number of Cases	701	701	4,216	865

* p < .05; ** p < .01; ** p < .001 (two-tailed tests)

[a] Reference category for age is 41 or older; variable is subject to multiple imputation.

[b] Average model fit across five imputations.

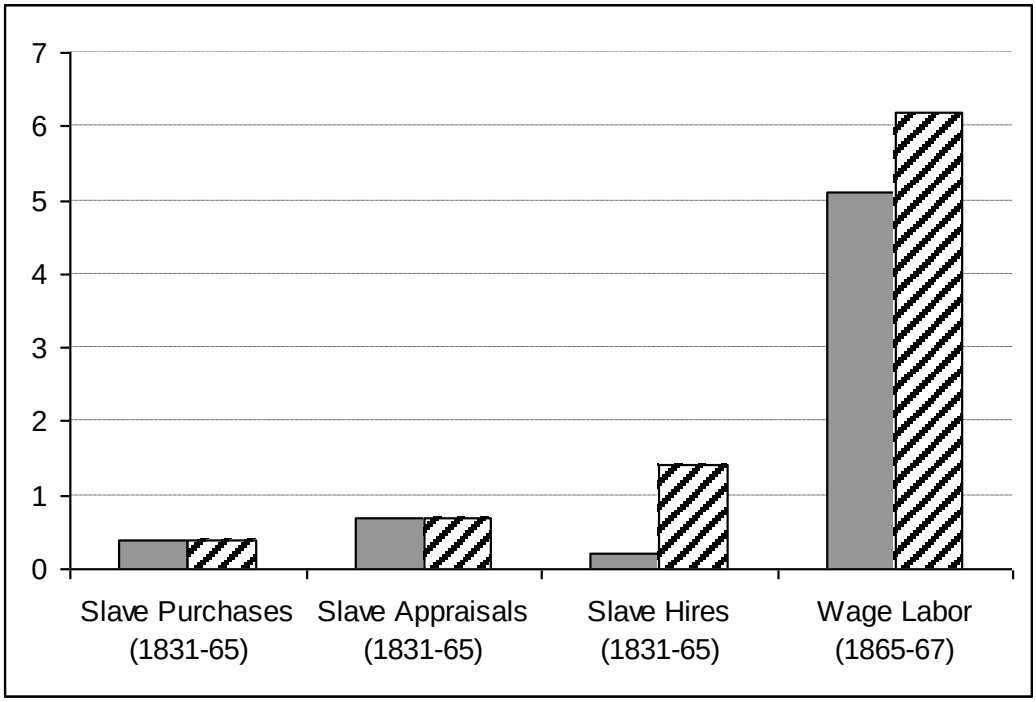
Table A.3. Classification of Occupational Skill Level

Skill Level	*Specific Occupations and Trades*
Unskilled Agriculture	Fieldhand, Field Slave
Unskilled Manual / Domestic	Servant (house), Tool Pusher, Washerman / woman
Semiskilled Agriculture	Calf Driver, Cattle-Minder, Fisherman, Gardener, Herdsman, Hunter, Oyster Catcher, Ploughman
Semiskilled Manual *	Axman, Boatman, Coachman, Drayman, Groom, Hostler, Jockey, Railroad Worker, Sawyer, Skinner, Stevedore, Tanner
Skilled Domestic	Butcher, Candy Maker, Cook / Baker , Fineryman, Hairdresser, Hawker / Salesman, Midwife, Nurse, Seamstress, Tailor, Weaver
Skilled Manual **	Blacksmith, Boilermaker, Brassmoulder, Carpenter, Cobbler, Cooper, Mason, Mechanic, Miller, Painter, Plasterer, Printer, Refiner, Ropemaker, Shipbuilder, Shingler, Shoemaker, Wheelwright

* Category also includes apprentices to skilled manual trades.

** Category also includes supervisors under various titles (e.g., driver, foreman, head man, overseer, steward, superintendent)

Figure 1. Variance (%) in Price of Black Labor Explained by Occupations *

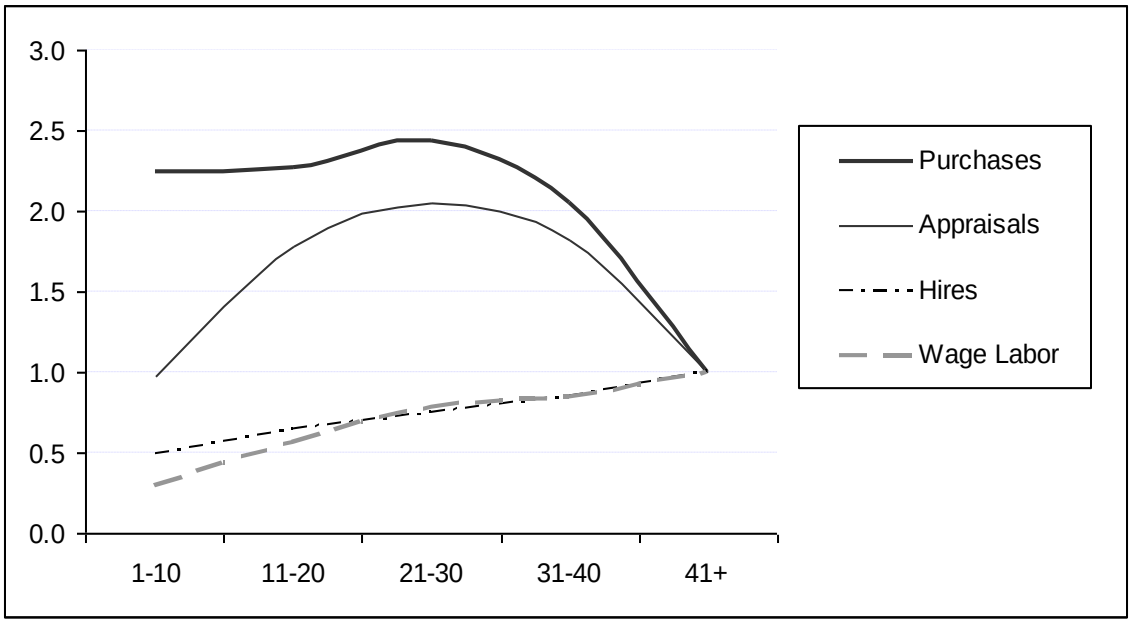


* Difference between Model 1 and Model 3. Gray bars correspond to raw data; bars with diagonals correspond to matched samples.

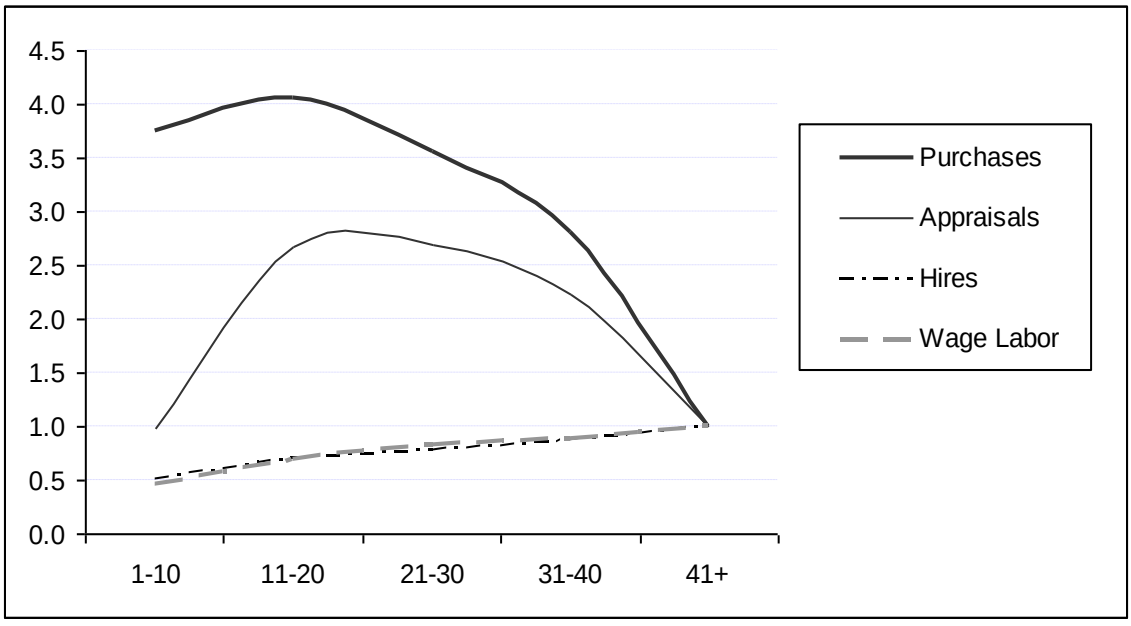
Figure 2. Age Distribution of Skilled Black Labor *

* "Skilled" occupations include all work activities aside from unskilled agricultural and general labor. Dots indicate raw proportions; lines indicate estimates obtained via local polynomial smoothing.

Figure 3. Relative Price of Black Labor by Age Category *



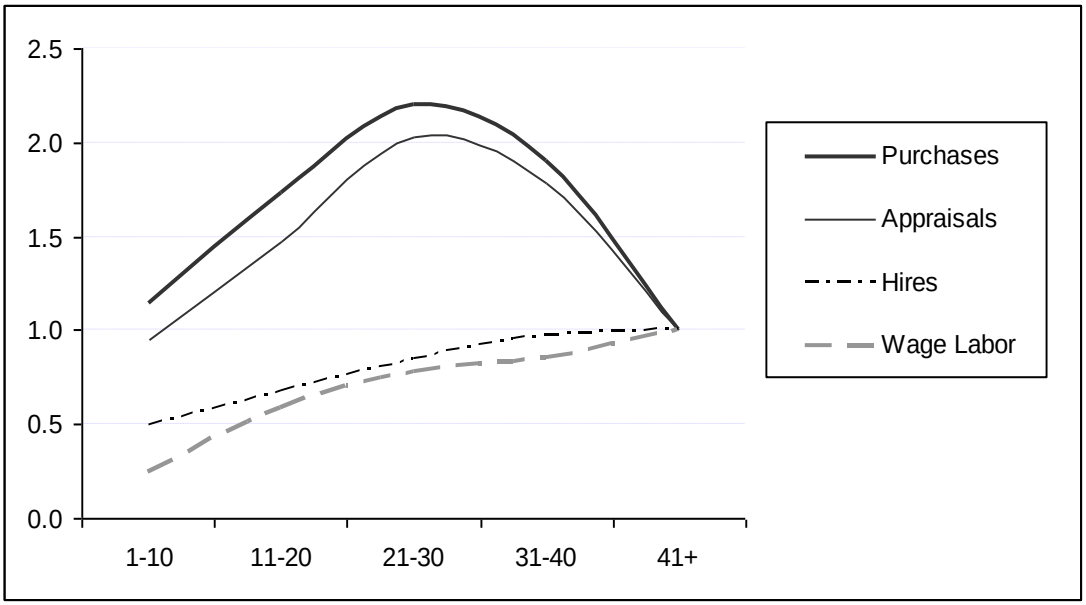
a. Male Slaves and Free Laborers



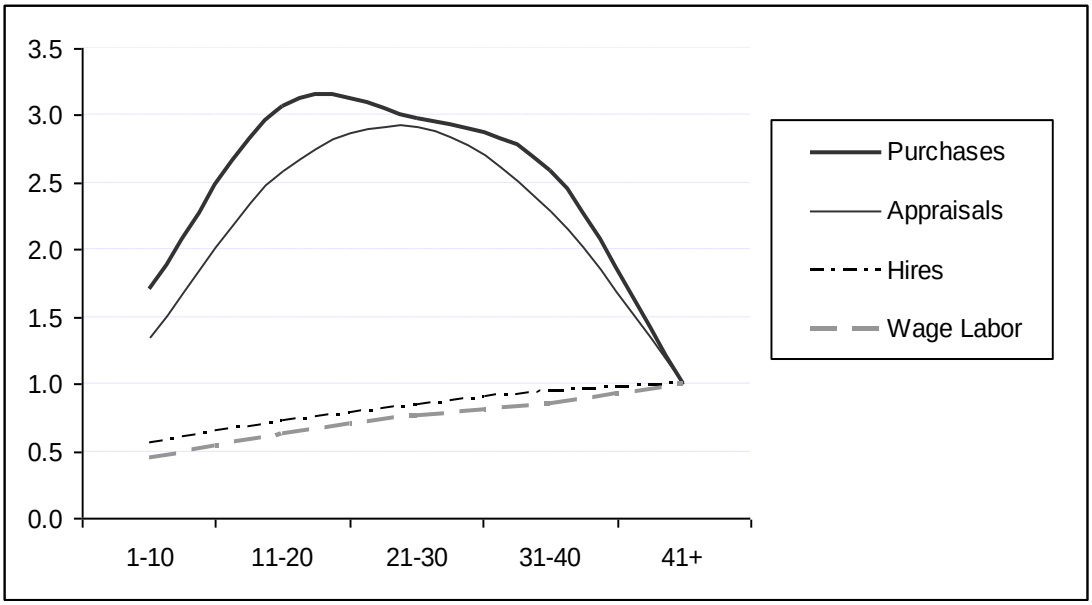
b. Female Slaves and Free Laborers

* Prices are relative to reference category (=1.0) for slaves or free laborers who are older than 40 years.

Figure 4. Relative Price of Black Labor by Age Category, with Matched Samples *



a. Male Slaves and Free Laborers



b. Female Slaves and Free Laborers

* Prices are relative to reference category (=1.0) for slaves or free laborers who are older than 40 years.