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# The Occupations of Free Women and Substitution with Enslaved Workers in the Antebellum United States

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Abstract

This paper analyzes the occupational status and distribution of free women in the antebellum United States. It considers both their reported and unreported (imputed) occupations, using the 1/100 IPUMS files from the 1860 Census of Population. After developing and testing the model based on economic and demographic variables used to explain whether a free woman has an occupation, analyses are conducted comparing their occupational distribution to free men, along with analyses among women by nativity, urbanization, and region of the country. While foreign-born and illiterate women were more likely to report having an occupation compared to their native-born and literate counterparts, they were equally likely to be working when unreported family workers are included. In the analysis limited to the slave-holding states, it is shown that the greater the slave-intensity of the county, the less likely were free women to report having an occupation, particularly as private household workers, suggesting substitution in the labor market between free women and enslaved labor.

Keywords: Women, Labor Force Participation, Occupational Distribution, Unreported Family Workers, Enslaved Workers, Immigrants, 1860 Census of Population

JEL Codes: N31, J16, J21, J82

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## I. Introduction

This paper is concerned with the occupational attainment and distribution of free women in the antebellum United States. The country was largely rural and agrarian in the mid-nineteenth century. Manufacturing and factory work was in its infancy. What we think of as the professions – those working as doctors, dentists, lawyers, religious officials, and professors – were few in number and were male dominated activities. Clerical workers were also relatively few in number. So, what work did women who were reported as having an occupation actually do? As immigration was increasing in the decades leading up to the Civil War, did immigrant working women engage in different occupations than native-born women? Moreover, given the regional differences in industrialization and the institution of slavery, as well as differences in the incidence of slavery where it was legal, were there regional differences in the occupational distribution of free women?

This paper seeks to address these questions. It does this by using the microdata on free people from the one-percent 1860 Census of Population (Schedule 1) Integrated Public Use Microdata Sample (IPUMS) compiled by the Minnesota Population Center at the University of Minnesota. To address questions relating to slavery, the paper uses the 1860 Public Use Microdata Sample of the Slave Population from the 1860 Census of Slave Inhabitants (Schedule 2).

Although the 1860 Census of Population did ask about occupation for all free individuals – male and female – over the age of 15, there was a great disparity by gender in whether an occupation was recorded. This was likely in part due to the novelty of asking for women's occupations and in part due to social expectations about women's roles. At that time, a woman's primary social identity was as a wife or daughter. It was expected that she would also take on the necessary duties of running the household, supporting her husband or father in his occupation, and

assisting with providing for the family wherever possible. For example, women regularly contributed to the household (in terms of labor and finances) by engaging in "industrial homework" (light manufacturing done at the woman's home), taking in boarders, and participating in agricultural production (Smuts, 1960; Folbre and Abel, 1989). However, this labor was largely viewed as an incidental feature of women's lives and, in contemporary perceptions, did not equate to the market work of men.

This attitude was so ingrained in the nineteenth century that the Census Office issued a statement with the 1870 Census of Population Report addressing the underenumeration of occupation for women (U.S. Office of the Census, 1873, p. 375):[1]

> "It is taken for granted that every man has an occupation… It is precisely the other way with women and young children. The assumption is, as the fact generally is, that they are not engaged in remunerative employment. Those who are so engaged constitute the exception, and it follows from a plain principle of human nature, that assistant marshals will not infrequently forget or neglect to ask the question."

However, this did not mollify those who felt the census officials were unjustly underenumerating women. The officers of the Association for the Advancement of Women issued a statement to Congress in 1878, pointing out the "errors, discrepancies, and incompleteness" of the 1870 Census, particularly in regards to the role of women (U.S. Congress, Senate, 1878, p. 1). In fact, their letter to Congress claims that "more than twelve millions of American women [were] overlooked as laborers or producers" (U.S. Congress, Senate, 1878, p. 1). The 1860 Census enumerators were at least as culpable, if not more so, than those in 1870 of discounting the work of women.

[1] While the 1850 Census was the first to ask the occupational status of men, it was not until the 1860 Census that occupational status was first asked for women.

Section II discusses the microdata file from the 1860 Census, focusing on Schedule 1 for free inhabitants, but also discussing Schedule 2 on the enslaved population. Section III presents descriptive statistics on the occupational distribution of adult (age 16 and older) free women. The hypotheses regarding whether free women had an occupation reported in the Census files or were "unreported family workers" are developed in Section IV. These hypotheses are tested in Section V in the logistic analysis of which women had an occupation. The analysis is performed for the United States as a whole and separately for the urban areas. Section VI looks at the different occupational distributions of US-born and foreign-born women, including differences among the latter by country of birth. Section VII focuses on the Southern states for an analysis of the substitution in the labor market between free women and enslaved people, using a county-level measure of "slave intensity." The paper closes with Section VIII, the Summary and Conclusions.

## II. The 1860 Census of Population

The 1860 Census of Population was the Eighth Census of the United States. Census Day, or the date on which enumeration began, was June 1, 1860. Over 99 percent of the Census was enumerated by the end of October 1860, although some enumeration occurred through February 1861. The Census was completely enumerated before the start of the US Civil War in April 1861.

The 1860 Census questionnaire consisted of: Schedule 1 (population schedule for free inhabitants), Schedule 2 (population schedule for enslaved people), manufacturing schedule, agricultural schedule, and mortality schedule. Schedule 1 included 14 questions for each individual, including a question on occupation. The enumerator was instructed to list the "profession, occupation, or trade of each person, male and female, over 15 years of age" (U.S.

Office of the Census, 1860, p.15).[2] Although clearly instructed to list the occupation of females, almost 78 percent of the entries for occupation for females ages 16 and older were left blank, compared to only about 11 percent of those for males.

The total population of the United States, both free and enslaved, according to the 1860 Census report was 31.4 million (U.S. Office of the Census, 1864). Of those, 49 percent were female. Almost 86 percent of the population was listed as White, with the remainder being listed as enslaved people (12.6 percent), "free colored" (1.6 percent), and Native Americans ("Civilized Indians" in the language of the 1860 Census, 0.1 percent).[3] The total free population numbered 27.4 million.[4] Just over 15 percent of the free population was foreign born (53 percent of who

[2] There is no information in the 1860 Census on the respondents' current employment status, earnings, or number of hours worked. For the purposes of this study, all individuals with a recorded gainful occupation are considered to be participating in the labor force.

[3] Only a small portion (approximately 13 percent) of the Native American population was included in this count. The instructions for the enumerators stated that "Indians *not taxed* are not to be enumerated. The families of Indians who have renounced tribal rule, and who under State or Territorial laws exercise the rights of citizens, are to be enumerated" (U.S. Office of the Census, 1860, p. 14, italics in original). While not enumerating the Native Americans who "retained tribal character," the Census did provide an estimate of those individuals by state or territory. There were 44 thousand enumerated Native Americans in the Census and 295.4 thousand who were not enumerated. The largest population was in present-day Oklahoma, which was then termed "Indian Territory" or, alternatively, "west of Arkansas." We appreciate the assistance from Anne F. Hyde on this footnote.

[4] The racial distribution of the free population in the 1860 Census was (percent):

| | Male | Female |
|---|---|---|
| White | 97.9 | 97.9 |
| Black / African American | 1.0 | 1.2 |
| "Mulatto" | 0.5 | 0.7 |
| American Indian ("Civilized Indians") | 0.2 | 0.2 |
| Chinese | 0.4 | 0.0 |
| Total | 100.0 | 100.0 |

Detail may not add to total due to rounding.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

were male). There were 8.5 million free males, ages 15 and older, and 8.0 million free females of that age group. There were 8.3 million individuals with a recorded occupation – approximately half of the working age population; however, the official 1860 Census Report does not delineate occupational status by gender.

The IPUMS file contains the data for each individual as reported in the 1-in-100 sample, as well as a number of constructed variables, particularly with regards to the relationships among household members, such as marital status, number of children, and ages of children, deduced from the order of individuals listed on the Census enumeration forms, as well as names, ages, etc. Further, the IPUMS data link the responses for each observation to the individual's presumed head of household, mother, father, or spouse, if available for those living in the same household as the respondent. Additionally, this paper makes use of the IPUMS Slave Schedule (Schedule 2), which is a roughly 1-in-20 sample of the enslaved population, in order to approximate the ratio of enslaved people relative to free people by state and county.[5]

The sample for this study is restricted to adults (age 16 and older), as the question on occupation was only to be asked of those above the age of 15. Additionally, individuals who were

[5] It is not possible to link enslaved people to their owners in the 1860 microdata file, but this has been done for the IPUMS 1850 Census file. See Chiswick and Robinson (2022) for a discussion of this linkage.

likely unable to work were dropped from the sample, specifically the incarcerated, invalids without an occupation (including those designated as "idiotic" or "insane"), and "paupers."[6]

Due to attitudes at the time, it was common practice for Census enumerators to largely ignore even the possibility of women having an occupation, which can help explain the exceedingly large number of blank entries for women's occupations in the 1860 Census data.[7] Between the hesitancy to report females having an occupation due to social stigma, the discounting of female labor as part of their daily duties rather than reporting an occupation, and the omission of even requesting female's occupational status, it is no wonder that general accounts in the economic history literature of free female labor force participation in the nineteenth century are so low, about 11 percent (Lebergott, 1966; Weiss 1986, 1992).

Elsewhere, Chiswick and Robinson (2021) used the 1860 IPUMS microdata file to identify family members who, while not being reported as having an occupation, were likely to be providing labor in a farm or business owned or operated by a relative living in the same household. These unreported family workers were primarily the wives and daughters of farmers (farm owners,

[6] "Paupers" was the contemporary term for persons dependent upon assistance from charities or local welfare, such as an almshouse. The 1860 instructions to enumerators defined a pauper as a person who, at the time of enumeration or during the past year, was "so indigent or destitute of the means of support as to require the support of the community, obtained either by alms-begging or public maintenance, by taxation or poor fund" (U.S. Office of the Census, "Instructions to US Marshalls," 1860, p. 17).

[7] This practice continued beyond 1860, with census marshals and officials making presumptions about the (non-)employment status of married and adult women and, in fact, going so far as to alter data when occupations were unusual and atypical for females (Goldin, 1990; Conk, 1980). In fact, the 1920 Census Report includes a section on "unusual occupations for women" and claims that census enumerators in the 1920 Census, as presumably was also the case in previous censuses, reported women "as following many occupations which are very peculiar or unusual for women," which were then "corrected" by the classifying clerks (U.S. Bureau of the Census, 1921, Volume IV, p. 12).

tenants, or managers), with smaller numbers in self-employed merchant, craft, and boardinghouse businesses. Inclusion of this category of workers has little effect on the 1860 labor force participation rate of free men (raising it from 88 percent to 93 percent), but did have a substantial effect for that of free women (raising it from 16 percent having a reported occupation to 57 percent) (Table 1).[8] That procedure for identifying unreported workers will be used in this paper to supplement the recorded occupations of free women for a broader analysis of their labor force participation.

## III. The Free Female Occupational Distribution

This section explores the reported occupational distribution of adult free females in 1860. Table 1 summarizes the occupational distribution of females in comparison to males overall and in urban and rural areas. The most common occupation for free women was in Service (8.4 percent of all women and 53.6 percent of those with a reported occupation), particularly private household workers, including housekeepers and laundresses (see Table 2). The second most common reported occupation category was Operatives, which was comprised primarily of dressmakers and seamstresses, weavers, milliners, and other textile workers.[9] If unreported family workers are

[8] The percentage point effects were:

| Unreported Family Workers | Males | Females |
|---|---|---|
| Farm | 5.1 | 35.8 |
| Other | 0.5 | 5.1 |
| All Unreported Family Workers | 5.6 | 40.9 |

Source: Chiswick and Robinson (2021), Table 2.

[9] The four most common occupations, totaling two-thirds of females with a reported occupation, are: private household workers, textile workers (in various capacities), farmers, and teachers. However, an additional almost 22 percent were coded as "keeping house." For the purposes of this study, keeping house alone does not qualify as providing market labor; however, this does illustrate how prevalent that was considered an occupation for women in 1860.

considered, the most common occupation for women would be farming (37 percent), followed still by Service, then Operatives and merchant family workers.

In comparison, the most common occupation for males was as a farmer (owners, tenants, or managers) – 31.5 percent of reported occupations, increasing to 36.6 percent if unreported farm family workers are included, and up to 47.0 percent if farm laborers are included. This is followed by Craft workers (15.1 percent), primarily carpenters and shoemakers. Service is a much less common reported labor category for free males (only 1.3 percent) – and those are primarily private household workers and porters, of whom a much higher-than-average proportion are free non-Whites (18 percent of free males in Service are non-White versus 2 percent of all free males).[10]

This racial disparity is also true for free females in Service, but to a lesser extent: 6.5 percent of females in service occupations are free non-Whites versus 2 percent of all females being free non-Whites. Further, free female private household workers are more common outside of the Southern states; therefore, these data for 1860 suggest the substitution of enslaved people for hired free private household workers in the South. This hypothesis is tested below.

## IV. The Hypotheses

This section develops the econometric model and hypotheses for the determinants of labor market activities of adult free women in both reported and unreported activities. The occupations explicitly reported in the census are analyzed separately from the unreported occupations of the family workers, who were primarily the wives and adult daughters of male farmers.

[10] Recall that enslaved people were enumerated on a separate Schedule 2 in the 1860 Census, which did not inquire into their occupation or primary work assignments.

It is hypothesized that married women are less likely to report an occupation outside of their household, but that, given the prevalence of family operated businesses (especially farms), married women are more likely to be engaged in the family business, and by the Chiswick-Robinson (2021) algorithm would be classified as unreported family workers. The expected lower incidence of married women working outside the home is due, in part, to and is also a consequence of attitudes that led to the institution of Marriage Bars (legislation and regulations limiting the eligibility of married women to be employed in certain sectors, particularly teaching and clerical work) in the nineteenth century (Mosca and Wright, 2021).

Furthermore, children are likely to inhibit a women's reporting of an occupation, but are not likely to affect the measure of unreported family workers as this designation is based on another related household member owning a business. Moreover, in 1860 working in a family business is less likely to take the mother away from her children during working hours as would having a reported occupation, as the residence would typically be close to the business and the children could be brought to the workplace, even on a farm.

Compared to urban residents, women living in rural areas are less likely to have access to employment outside of the household, and those living on farms are more likely to be engaged in informal or unreported family farm activities. Those living in the more densely populated and industrialized Northeast region are more likely to find employment outside of the household than are the women living in other regions of the country. Urbanization and industrialization provided more opportunities for employment in repetitive light-weight work, registration, and other services, and thus an increase in the supply of occupations more suitable to women than the pre-industrial labor more common in rural areas (Zijdeman, 2015).

Women from poorer families are more likely to seek remunerative employment to augment the smaller income and lower wealth of other family members. As a result, we would expect that, among free women, those who were non-Whites (primarily Blacks) and the illiterate (more likely to have poor and illiterate husbands and fathers) to be more likely to report an occupation. Yet, these are also the very populations that are less likely to be owners of family-based businesses and, hence, the women are less likely to be unreported family workers.

While it would be useful to look at differences among free White ethnic groups, it is not possible to do this directly in the 1860 Census data. This can be done indirectly using two variables: whether the woman was foreign born and whether she was Hispanic. While we know who was foreign born, and their country of birth, they were not asked when they came to the United States. Most immigrants of working age in 1860 would have been fairly recent arrivals.[11] It is hypothesized that the immigrant women would be more likely than other women to report a gainful occupation because of the poorer economic status of their husbands. Those classified as Hispanic for 1860 by the IPUMS coders (see Appendix A) would primarily be rural residents of the southwest, of Mexican origin, and Catholic by religion. The Hispanic women may be less likely to report an occupation because of their more traditional and Catholic backgrounds (implying a woman's role in the household), even after controlling for their primarily rural residence in the southwest from Texas to California.

The age of the woman is hypothesized to affect their employment. Given that the ages being studied are 16 and over, it is hypothesized that gainful employment, other variables the same,

[11] Immigration increased nearly continuously over the preceding 30 years from 23 thousand in 1830 to 428 thousand in 1854 and declined thereafter to 121 thousand in 1859 (U.S. Department of Homeland Security, 2019, Table 1, p. 5).

would be lower for the youngest and the oldest women, resulting in a non-linear (inverted U) relationship between age and having a reported occupation. Given that many young women would have left their family farm to work as servants or in factories in the cities and towns, they would not be enumerated in their family's household. They would not be unreported family workers until they married and lived on their husband's farm or worked in his business. Thus, a non-linear age relationship would also be expected among farm and non-farm female family workers.

Moreover, those young women who are reported as being students, either in the occupation question or are listed as being enrolled in school, are less likely to report an occupation. They may be more likely to be working part-time in a family operated farm, merchant, craft, or boardinghouse business. In the 1860 sample, only about 16 percent of females age 16 and over who reported attending school also reported a gainful occupation, most commonly private household workers (9.9 percentage points), teachers (2.3 percentage points), and dressmakers and seamstresses (1.1 percentage points). In contrast, over half (51.6 percent) of males age 16 and over who reported attending school also reported a gainful occupation, mainly as farmers and farm laborers (40.3 percentage points).

The most common reported occupation for women is that of private household worker, which includes housekeepers, laundresses, cooks, childcare providers, and other household employments (see Table 2). They constituted 8.0 percent of all women and 50.8 percent of women who reported an occupation. These are household services that could be provided by enslaved workers (whether male or female). These enslaved household workers may be owned by the family using their services, or they might be rented.[12] It is hypothesized that the gainful

[12] Fogel and Engerman (1989, p. 53) report that "there was an extremely active rental market for slaves." See also, Clark (2013), Foshee (1985), and Zaborney (2012).

employment opportunities for free women in the South, especially as private household workers, would be affected by the relative prevalence of enslaved labor in their area. Transportation in the largely rural south was difficult, so it is assumed that the labor market for household workers (as it is even today) was largely local. Thus, a testable hypothesis is that the greater the "slave intensity" of the county of residence of a free woman, the lower would be the probability of her having a reported occupation, especially as a private household worker. This hypothesis is tested in Section VII.

The labor supply model for free women is tested in Section V; the employment of foreign-born women is studied in Section VI: and, the model regarding the substitution with enslaved labor in the states in which slavery was legal is tested in Section VII. The variables used in the econometric analyses are defined in Appendix A.

## V. The Econometric Analysis: Which Women Worked in 1860?

A logit regression model is used to determine which characteristics were associated with statistically significant differences in the likelihood of women working (both reported and unreported). The results are first presented for free women in the country as a whole (V.1), and then separately for free women in urban areas (V.2).

### V.1. The United States

The results reported in Table 3 give marginal effects at the means (MEM), with Column (1) showing the results for having a reported occupation, Columns (2) and (3) for unreported

occupations as imputed family workers (farm and non-farm, respectively), and Column (4) for the total (both reported and unreported labor).[13]

Among free women age 16 and older, other variables the same, there was a significantly greater likelihood of having an occupation recorded by the census enumerators (Table 3, Column (1)) if she was currently unmarried, non-White, foreign-born, illiterate, and not reported as being a student. The likelihood of having a reported occupation increases with age, but at a decreasing rate, reaching a peak at about age 27 and declining slowly thereafter. Having children at home is associated with a lower probability of reporting an occupation, but the effect is very small and marginally significant ($t$ = -1.6). Additionally, living in an urban area or in the Northeast region, where paid employment opportunities would be more prevalent, is associated with a greater likelihood of having a reported occupation. Hispanic women, primarily of Mexican origin, who lived in the Southwest, were less likely to report a gainful occupation.

These characteristics also describe the typical domestic servants – the most common reported occupation among women. Free women working as domestic servants were generally young, childless, illiterate, disproportionately foreign-born, and disproportionately non-White – the latter possibly often emancipated former slaves. Free domestic servants were over three times as likely as the overall free female population to be non-White. As the Northeast was more densely populated, wealthier, and had more established communities, there was also a higher rate of

[13] Notably, a simplified version of the model was computed, including only the rural and farm status variables (rural farm household, rural non-farm household, with urban household as the benchmark, Appendix B Table B-3). This model has virtually the same predictive power as all of the others. This suggests that the location of the household was the single most important contributing factor as to whether a woman had a reported or unreported occupation, and the type of work she performed. This reflects the fact that farming was such a huge part of the 1860 economy and was a determinant of many types of occupations.

domestic labor than for homesteaders in the Midwest or West. In the South, slavery provided much household labor. This model predicts the likelihood of female labor force participation correctly in close to 86 percent of cases (Table 3).

The regression equations are repeated in Table 3, columns (2) and (3), for unreported farm family workers and non-farm family workers, respectively. When statistically significant, the signs of the explanatory variables tend to be the opposite of those for a reported occupation. Unreported family workers (who do not report an occupation themselves and live in a household with a self-employed business owner) are more likely to be married, White, native born, students, literate, and live outside of the Northeast. While non-farm family workers are less likely to live in a rural farm household, almost by definition farm family workers are more likely to live in rural farm households.

Whereas the likelihood of having a reported occupation increases at a decreasing rate with age, the likelihood of being an unreported farm family worker decreases with age, and there is no relation between age and being a non-farm family worker.

These equations show a greater likelihood of correctly classifying free female workers' activity, 92 percent for farm family workers and 96 percent for non-farm family workers.

Finally, Table 3 Column (4) shows the results for the likelihood of females working either as reported or unreported labor. Yet, some important insights regarding female labor supply emerge in Table 3 when comparing women with a reported occupation (Column 1) to those who have either a reported or unreported occupation (Column 4). The marginally significant negative effect of children on reporting an occupation disappears when family workers are included. The large significant positive effects of being an immigrant and being illiterate on reporting an

occupation both become very small insignificant effects. Additionally, the lower employment rate for women in the West, compared to the Northeast, disappears when unreported workers are included. And, most dramatic, the impression that women in rural farm households are much less likely to work than those in urban areas turns around into a highly significant greater likelihood of their working when unreported family workers are considered. In short, the determinants of working among free women in 1860 differ greatly depending on whether the analysis focuses only on reported occupations or whether it also includes unreported family workers.

Proxy variables for level of wealth of the household (the real estate value and the personal property value of the individual's head of household) were included in the model to test the relationship between family socio-economic status and employment (Appendix B Tables B-4 and B-5). Only 6.5 percent of women were themselves the head of their household. Most females in this study were the spouse (55.8 percent) or daughter (20.4 percent) of the head of household. The level of wealth of the head of household is positively and statistically significantly associated with an increase in any form of female labor.[14] The model was also computed with the individual's

[14] A woman (without an occupation) married to a farm owner had more family wealth and is counted as part of the unreported labor force. However, a woman (without a reported occupation) married to a farm laborer has less family wealth and, by the definition used here, is not counted as part of the labor force. This would imply higher unreported family worker labor force participation for women in wealthier families.

own real estate or personal property value; however, the coefficients were virtually zero and not statistically significant.[15]

Variables for parental nativity and parental literacy were included in the analyses (Appendix B Table B-6). Having a foreign-born parent living in the household is associated with an increase in female's reporting an occupation and a decrease in her being an unreported family worker, all else constant. Conversely, having a literate parent is associated with a decrease in the likelihood of having a reported occupation and an increase in the likelihood of being an unreported family worker, all else constant. This is perhaps because native-born parents and literate parents living in the same household were more likely to be self-employed farmers or business owners, and thus the adult daughters with whom they lived worked in the family enterprise.

[15] The legality of women owning property varied by state and women's marital status. The New York Married Women's Property Act of 1848 and the US Homestead Act of 1862 marked important changes in women's legal rights regarding real and personal property ownership (Law Library of Congress, n.d.; Chused, 1983). However, it was not until the early 1900s that a version of the Property Act was implemented in all states. Therefore, the reporting of women's own personal property in the 1860 Census data may be determined by the then-prevailing state law. Analyses of married women's economic behavior in relation to the passing of married women's property acts show that the immediate impact of the passage of these acts was slight; female labor force participation did not change substantially (Roberts, 2006).

Although the enumerators were instructed to query and record the personal property value and real estate value for each individual within the household, in general these data were apparently only recorded for the head of household. In fact, the entries for personal property value were left blank or recorded as zero for over 98 percent of females who were not themselves the head of their household, and the same was true for 99 percent of those females for real estate value. This is likely due to attributing the wealth of all individuals within the household to the household head.

Additionally, there is an endogeneity concern when relating level of wealth to labor force participation. Did the higher level of family wealth result, in part, from the woman having a gainful occupation? Or did having more wealth discourage them from working?

The relationship is tested between the likelihood of a free woman reporting an occupation and whether her mother, living in the same household, had a recorded occupation (Appendix B Table B-7). The results are strong and statistically significant. If a woman's mother had a reported occupation, she was much more likely to also have a reported occupation ($t$=28.9), all else constant, and less likely to be an unreported family worker, particularly on a family farm ($t$=-15.3). This is reflecting that if there were a family business, all females in the household would likely work in it, and there would likely not be a reported occupation for any of them. Moreover, it may reflect an intergenerational consistency of unmeasured variables that influence a woman's behavior regarding having, and reporting, an occupation.

### V.2. Urban Areas

Free adult women living in urban areas differed from those in rural areas not only in their demographic characteristics, but also their labor force participation (see Appendix Tables A-1 and C-1). Free women residing in urban areas were less likely than their rural counterparts to be married and to have children. They were also less likely to be students or to be illiterate. Relatively more foreign-born women lived in urban areas, particularly those born in Ireland. The Northeast was the most urbanized region of the U.S. at the time, and therefore women living in urban areas were more concentrated in that region.

The overall labor force participation rate for free adult women in urban areas (considering both reported occupations and unreported family workers) was 34.3 percent, compared to 63.8 percent in rural areas (Table 1). However, this is due primarily to the disproportionate concentration of family-owned businesses (farms) in rural areas compared to urban areas, and the large number of women who were unreported family workers in those rural

farm households. While the proportion of free women supporting a family farm business obviously was smaller in urban areas (2.0 percent versus 47.5 percent), the proportion of women supporting a merchant family business was larger in urban areas (6.2 percent versus 2.1 percent) (Table 1). Adult free women were also slightly more likely to support other non-farm family businesses in urban areas than rural areas: 2.8 percent of women in urban areas were unreported craft or boardinghouse family workers compared to 0.8 percent in rural areas. The reported labor force participation rate paints an interesting picture – women were much more likely to have a reported occupation outside the home if they lived in an urban area, but were more likely to be (reported or unreported) workers in rural areas.

The most common reported occupations for urban women remained private household workers and textile workers. A greater proportion of women in urban than in rural areas reported occupations as managers (such as grocers or owner/managers of other retail establishments) and as operative and kindred workers (particularly working in mills or factories). Additionally, it was much less common for free women in urban areas to be reported as "keeping house" (not considered a gainful occupation) than for free women in rural areas.[16]

The three most populated metropolitan areas (defined in Appendix A) in the US in 1860 were New York, NY, Philadelphia, PA, and Boston, MA. Of free, adult women living in urban areas, 20.7 percent lived in the New York metropolitan area, 10.3 percent in Philadelphia, and 7.6 percent in Boston (Appendix C, Table C-2). The free female labor force participation rate, including both reported and unreported family work, in these metropolitan areas was 32.1

[16] According to IPUMS, any woman who reported an occupation of housekeeping and was related to the head of household was coded into the non-gainful occupation "keeping house." That is, only women not related to the household head serving as live-in housekeepers would be recorded with a gainful occupation.

percent (23.5 percentage points having a reported occupation) for New York, 36.1 percent (26.4 percentage points reported occupation) for Philadelphia, and 37.6 percent (26.4 percentage points reported occupation) for Boston. The most common occupations held by women in these areas mirrored that of the total United States, with the obvious exception of farmers. As women in urban areas were more likely to have a reported occupation, the proportions of women engaged in the common occupations (e.g., private household workers, textiles workers, teachers) was higher in urban areas than rural areas.

Regression analysis shows that the characteristics associated with adult free women's likelihood of working – either in a reported or unreported occupation – do not vary much between urban women and all free women nationwide (Appendix C, Table C-3). That is, other variables the same, among free women age 16 and older in urban areas, there was a significantly greater likelihood of the census enumerator recording a reported occupation if she was unmarried, non-white, foreign-born, illiterate, and not reported as being a student. Having her own children at home also significantly decreased the likelihood of an urban woman reporting an occupation (whereas for the total U.S. this marginal effect was slightly significant, $t$= -1.6). These results are consistent with the hypotheses developed in Section IV.

## VI. Foreign Born Participation

Almost one-quarter of the adult free population in 1860 were foreign born, 24 percent of males and 22 percent of females. By far the most common countries of origin were Ireland (41 percent), Germany (30 percent), and England (11 percent), with most of the remaining 18 percent coming from a variety of countries in northwestern Europe. Previous research has suggested that the "limited evidence available does not indicate any difference in the participation rates" between

native-born and foreign-born males or females (Weiss, 1992, p. 39). Yet, the analysis of the 1860 microdata shows a higher reported labor force participation rate for the foreign born – 92 percent versus 86 percent for males and 21 percent versus 14 percent for females. The regression analyses in Table 3 report that, other variables the same, among women the immigrants are significantly more likely to report having an occupation, but less likely to be unreported family workers (farm or non-farm). These effects balance out so that immigrant and native-born women are equally likely to be (reported or unreported) workers.[17] These differences in Table 3 arise even after controlling for the greater tendency for the immigrant women, especially the Irish, to live in urban areas.

These nativity differences are likely due to the lower rate of ownership of farms and non-farm businesses by the male members of immigrant households. The foreign born were younger on average than the native born and tended to have a relatively short duration of residence in the U.S. (see footnote 11), and hence less likely to have established businesses.

[17] Appendix Table B-5 shows that this pattern holds for each of the four country categories (Germany, England, Ireland, and Other), except that Irish women are more likely to have a reported occupation and work overall, other variables the same.

Irish-born women, in particular, show very different labor market patterns than the native-born or other foreign-born women.[18] They have particularly high reported occupation rates and low unreported rates. German and English immigrant women show patterns closer to that of native-born women, although they are still less likely to provide unreported family labor than native-born women.

[18] Free Female Reported and Unreported Family Worker Participation Rates by Birthplace, 1860 (percents)

| | Reported Occupation | Unreported Occupation | No Occupation | Sample Size |
|---|---|---|---|---|
| U.S. Born | 14.1 | 46.1 | 39.8 | 59,979 |
| Foreign Born | 21.3 | 20.8 | 57.9 | 16,767 |
| Germany | 13.2 | 28.2 | 58.6 | 4,748 |
| Ireland | 29.1 | 11.5 | 59.4 | 7,540 |
| England | 14.7 | 26.2 | 59.1 | 1,728 |
| Other | 17.9 | 29.8 | 52.3 | 2,751 |
| Total | 15.7 | 40.6 | 43.7 | 76,746 |

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

Among women reporting an occupation, the immigrant women were more likely than the native born to report being private household workers, especially among the Irish.[19] The immigrant women were less likely than the native born to report being farm workers, again especially among the Irish.

[19] Occupation Reported by Free Women, age 16 and older, by country of birth, 1860, one-in-a-hundred sample:

| Occupation | Country of Birth | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ireland | Germany | England | Other | Sample Size | All Foreign Born (percent) | Native Born (percent) |
| Private Household Worker [a] | 1,509 | 361 | 113 | 259 | 2,242 | 62.9 | 45.8 |
| Operative [b] | 417 | 81 | 87 | 134 | 719 | 20.2 | 22.7 |
| Farm [c] | 34 | 58 | 10 | 18 | 120 | 3.4 | 12.6 |
| Tailoress | 60 | 46 | 8 | 18 | 132 | 3.7 | 3.0 |
| Other | 174 | 79 | 36 | 73 | 351 | 9.8 | 15.9 |
| Country of Birth (percent) | 61.6 | 17.5 | 7.1 | 13.8 | -- | 100.0 | 100.0 |
| Sample Size | 2,194 | 625 | 254 | 491 | 3,564 | 3,564 | 8,464 |

[a] Includes housekeepers (private household), laundresses (private household), and private household workers not elsewhere classified (n.e.c.).
[b] Includes deliverymen and routemen, dressmakers and seamstresses, metal filers, grinders and polishers, laundry and dry-cleaning operatives, meat cutters, milliners, mine operatives and laborers, textile spinners, truck and tractor drivers, textile weavers, and operative and kindred workers n.e.c.
[c] Includes owners, tenants, managers, and laborers.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

## VII. Substitution with Enslaved Labor

Recall that Table 2 shows that the primary reported occupation of free women was as a private household worker. Although private household workers are the most common reported occupation in each of the regions, the proportion of these workers among those reporting an occupation is lower for free women in the South than in the other regions (36.0 percent compared to 40.7 percent). In contrast, among those reporting an occupation, the proportion of females who reported being farmers is much higher in the South (13.7 percent compared to 3.7 percent in other regions). Although the reported labor force participation rate for free women does not vary by region (15.7 percent in the South and in the other three regions combined), there are differences when other variables are held constant (Table 3). Compared to the Northeast, there is a statistically lower participation rate in the South (as well as the West and Midwest) for a woman having a reported occupation or for having either a reported or unreported occupation. There is, however, a greater propensity in the South (as well as the West and Midwest) to be an unreported farm family worker or an unreported non-farm family worker.

As enslaved labor was still legal and prevalent in the South but not in the other regions at the time of the 1860 Census, might there have been competition in private household work and other occupations between free and enslaved labor that discouraged the formal labor market

activities of free women?[20] Given the high cost of transportation in this period, it is assumed that both free and enslaved labor worked in the same county in which they lived. Although it is not feasible to match slave owners with the slave sample in the 1860 IPUMS data, this is not necessarily a problem for addressing this issue. As there was a rental market for enslaved people, enslaved workers need not have worked on the land, in the households, or in the factories of their owners.[21] Moreover, there was considerable variation across the South in the share of enslaved people in the population.

Both Schedule 1 on the free people and Schedule 2 on the enslaved population include the person's county of residence. It is, therefore, possible to compute a "slave intensity" index – the ratio of enslaved people relative to the size of the free population in the county. The estimated number of enslaved people in a given county was calculated from the 1860 Census Schedule 2, Slave Schedule, IPUMS, microdata file. This was divided by the estimated free population (children and adults) of the county from the 1860 Census Schedule 1 (Free Population) microdata file. The validity of this ratio as an indicator of "slave intensity" is tested using the enslaved and free population counts by state based on the full count from the 1860 Census Report. When

[20] While enslaved people and their owners cannot be matched in the 1860 Census data, this can be done with the IPUMS 1850 Census (Chiswick and Robinson, 2022). The 1850 slaveholders were nearly all White, adult, male (only 11 percent female), native-born (3.1 percent foreign-born), rural residents (92.7 percent), who lived on farms (67.4 percent), in the Southern states and the District of Columbia. The most common occupation of slaveholders was being a farmer (owner or tenant – 62.1 percent), followed by non-farm managers and proprietors (6.7 percent), physicians and surgeons (2.3 percent), and carpenters (1.6 percent). The remaining slaveholders (27.3 percent) recorded a range of occupations from clergymen to retirees. The types of jobs or tasks performed by the enslaved people were not recorded.

[21] In his review of Zaborney's Slaves for Hire, Clark (2013) writes about slave renting in Virginia: "It was common in rural as well as urban areas; in agriculture as well as in manufacturing; in domestic work as well as craft productions…" as well as "middle class households' desire for domestic workers." See also, Fogel and Engerman (1989) pp. 53-56, Foshee (1985), and Zaborney (2012).

calculated at the state level, the estimates from these samples can be compared to those from the official full count Census Report (results included in Appendix B, Table B-1). The "slave intensity" measure at the state level from both sources are comparable. By state, the slave intensity measure varied from a high of 1.3 in South Carolina to a low of 0.01 in Delaware (Appendix B, Table B-2).

A visualization of the share of the enslaved people in the total population by county for the Southern states from the 1860 Census is provided in Figure 1 (Library of Congress Geography and Maps Division, 1861).[22] Note the disparate proportion of enslaved peoples not only across the southern states, but also within the southern states. This map not only provides a visualization of the slave intensity across the southern region in 1860, but also carries a greater historical significance. It was the Census Office's first attempt to map population density, represents an early use of statistical information from the Census, and was used as a political tool during and after the Civil War (Schulten, 2010). President Abraham Lincoln allegedly consulted the map to determine areas in which the slave intensity was greatest, and then sent his armies to free enslaved peoples in those counties in order to "destroy one of the Confederacy's greatest assets" (Schulten, 2010, p. 8).

The analysis of the effect of the presence of slaves on the employment activities of free women is limited to the Southern states. Table 4 shows the results of the logit regression analysis for free women after including "slave intensity" in the model, that is, the number of enslaved people per free persons in the respondent's county of residence. The intent is to determine the

[22] Note that in the econometric analysis in this paper the measure of slave intensity is the number of enslaved people divided by the free population of the county.

relationship between the prevalence of slavery and the likelihood of free female formal labor force participation.

When comparing the regression equation for a reported occupation limited to the South including the slave intensity variable (Table 4, Column (1)), and the equation for the country as a whole (Table 3, Column (1)), the signs of the statistically significant variables are largely the same. The only notable differences are that: the effect of the number of children on their mother's having a reported occupation is significantly positive ($t$=4.4) in the South, while the effect was negative and marginally significant ($t$=-1.6) for the country as a whole, and that while the rural farm variable compared to urban residence was not significant in the South ($t$=-0.7), it was negative and significant for the country as a whole ($t$=-4.7).

The marginal effect of enslaved persons is negative and statistically significant ($t$= -3.1) for the likelihood of free women having a reported occupation (Table 4, Column (1)). This could be related to two factors. First, the most common reported occupation for free women was being a domestic servant. Enslaved people, either female or male, could serve as a substitute for this labor, which would result in a decreased demand for free women in domestic service. Secondly, enslaved people were an expensive "commodity" so the prevalence of enslaved labor as domestic servants could also be capturing the wealth of an area. Women from wealthier families (perhaps wealthy urban merchants or large, prosperous plantations with many enslaved people), might be less likely to work for pay outside the household due to an income effect.

To examine the latter hypothesis, the model was recomputed with the inclusion of explanatory variables for the head of household's reported personal property value and reported real estate value, with the caveat that the woman was a relative of the head of household (rather

than a boarder, servant, etc.). Controlling for the head of household's wealth, the marginal effect of the prevalence of slavery on free female reported employment remains negative and statistically significant, although with a slightly smaller magnitude compared to when measures of wealth are not held constant (see Appendix Table B-8 and Table 4) (marginal effect of -0.00787 ($t$= -2.3) compared -0.0107 ($t$= -3.1)). This is consistent with the hypothesis of a wealth or income effect inducing the use of enslaved workers rather than free women engaging in reported labor market work.

Did the slave intensity of the county affect the extent of free women being classified as unreported family workers? In the counties with a greater slave intensity, free women were more likely to be classified as farm family workers, but there was no significant effect for non-farm family workers (Table 4, Columns (2) and (3)). When combining reported and unreported work, there was no significant effect of the slave intensity of the county on whether free women worked ($t$= 1.54, Table 4, Column (4)). Thus, it appears that there was substitution in the formal labor market between free women and enslaved labor; where the slave intensity of the population was greater, free women were less likely to report an occupation.

To test whether this labor market competition affected some occupations more than others, another series of logit models was conducted with the dependent variables indicating work in one of the three primary occupations for free women. These results are provided in Table 5. As can be seen, the prevalence of slavery had the strongest effect on free women's labor in private household work, that is, domestic service (Column (1)). The marginal effect of a 1 percent increase in slave intensity is just under a 14 percent decrease in the likelihood of a free woman in the South reporting an occupation as a private household worker. In contrast, slave intensity is positively and statistically significantly associated with the likelihood of free women working as farmers or

especially as textile workers, activities that may have been relatively more attractive if jobs as household workers were less plentiful (Table 5, Columns (2) and (3)).

It is noteworthy that, other variables the same, in the South, foreign-born and free non-white women were more likely to be private household workers and less likely to be textile workers. This might be reflecting the lower level of skill required of private household workers or greater discrimination against immigrant and non-white women in the textile industry.

When the slave intensity analysis is conducted only for free women living in urban areas, interesting patterns emerge. Other variables the same, there is no significant effect of the slave intensity of the county of residence on the probability that the free urban women have a reported occupation, although they are more likely to be classified in the very small category of unreported farm family worker. This apparently reflects that these women do not report an occupation, but their husbands or fathers are farmers, yet they live in an urban area near their farms or as absentee farmers (Appendix C, Table C-4). When the analysis is limited to women who report an occupation, the greater the slave intensity of the county, fewer free women in urban areas report working as private household workers ($t$= -3.47), but more report they are textile workers ($t$= 1.88) (Appendix C, Table C-5). Again, the analysis by type of reported occupation indicates that in urban areas immigrant women were more likely than native-born women to report they are private household workers and less likely to be textile workers.

## VIII. Summary and Conclusions

This paper appears to be the first econometric analysis of the occupational distribution of free females in the antebellum United States using microdata from the 1860 Census of Population. It is concerned with the determinants of whether free women age 16 and older had a reported

(gainful) occupation or an unreported occupation in a family-owned farm or non-farm business. The analysis compares free women and free men, and analyzes differences among women by urban/rural residence, nativity, and the "slave intensity" of the county of residence in the Southern states.

The most common reported occupation for free women was in the Service sector (53.6 percent of women with a reported occupation), in particular as private household workers, followed by Operatives (22.0 percent), in particular as seamstresses and tailoresses, followed by Agricultural work (9.9 percent). When unreported family workers are included, agriculture is by far the most prevalent occupation for free women.

The most important determinant of whether an occupation was reported for a woman was the location of the woman's household, specifically whether it was in a rural or urban area and a farm/non-farm household. Living in an urban area is associated with a significantly increased likelihood of a female having a reported occupation or working as an unreported worker in the merchant, craft, or boardinghouse sectors. In contrast, almost by definition, living in a rural, farm household was strongly associated with a female providing unreported farm labor.

The logistic analysis indicates that for women age 16 and over the likelihood of having a reported occupation increased with age (up to about age 27), but was lower if she were married or enrolled in school. Other things the same, free non-White women (mainly Blacks), as well as foreign-born and illiterate women, were more likely to report an occupation, but Hispanic women (predominantly Catholics living in the Southwest) were less likely to have a reported occupation. By region of the country, women were more likely to have a reported occupation if they were urban residents or lived in the more industrialized Northeast.

These patterns largely persist when unreported family workers are included in the labor market, except that being foreign born, being illiterate, and living in the West (compared to the Northeast) are no longer statistically significant. The findings indicate that immigrant and illiterate women were more likely to have a reported occupation (predominantly as household servants) but less likely to be (farm or non-farm) family workers, and equally likely compared to native-born and literate women to be workers. Looking only at reported occupations distorts the picture of female labor supply.

Similar patterns are found when the analysis is limited to the Southern states, except that the marginally significant negative effect of the presence of children on women reporting an occupation becomes significant and positive. A "slave intensity" index, the ratio of enslaved people to all free people, was created for all counties in the Southern states. The prevalence of slavery is associated with a significantly lower likelihood of a free female having a reported occupation in an analysis across the counties in the South, even after controlling for the level of wealth of the household. This is likely because enslaved people provided substitute labor for free women as domestic servants: this result was tested through several models and ample evidence was provided to support the idea of competition between enslaved workers and free female labor in the South, particularly for domestic service occupations. Further research on this topic could include analysis of the linkage between a household's ownership of slaves and their free female labor supply, which was not possible to identify in the 1860 Census.

In conclusion, this paper adds to our current understanding of free women's roles in the labor force in 1860. Using only the reported occupational status of women provides a limited and distorted view of female labor force participation, as the majority of women's work was in support of (farm and non-farm) family businesses. A woman's demographic background (such as family

self-employment status, nativity, and literacy) was more likely to affect the type of work she performed as well as whether or not she worked. The adage emphasizing the importance of family and location comes to mind as a surprisingly apt method of summarizing free women's occupational choices: existence of a family business and place of residence (rural/urban, South/non-South, and slave intensity) largely dictated the types of occupations available to women and the degree of competition they faced for the relatively less plentiful gainful employment opportunities.

**Tables and Figures**

**Table 1**

Occupational Distribution of Free Persons by Gender and Urban/Rural Residence, Age 16 and Older, 1860, in Percents

| Occupation Category | Males | Females | Males in Urban Areas | Females in Urban Areas | Males in Rural Areas | Females in Rural Areas |
|---|---|---|---|---|---|---|
| All Reported Occupations | 87.6 | 15.7 | 90.9 | 23.0 | 86.6 | 13.2 |
| *PTK* | *2.8* | *1.0* | *3.8* | *1.0* | *2.5* | *1.0* |
| *Farmers* | *31.5* | *1.3* | *2.0* | *0.0* | *40.1* | *1.8* |
| *Managers* | *4.9* | *0.3* | *10.9* | *0.6* | *3.2* | *0.2* |
| *Clerical* | *0.5* | *0.0* | *1.7* | *0.1* | *0.2* | *0.0* |
| *Sales* | *2.4* | *0.1* | *7.0* | *0.3* | *1.0* | *0.0* |
| *Craft* | *15.1* | *0.6* | *29.2* | *1.6* | *11.0* | *0.3* |
| *Operatives* | *8.2* | *3.4* | *15.7* | *7.0* | *6.0* | *2.2* |
| *Service* | *1.3* | *8.4* | *3.3* | *12.3* | *0.7* | *7.1* |
| *Farm Workers* | *10.4* | *0.2* | *1.3* | *0.0* | *13.0* | *0.3* |
| *Laborers (non-farm)* | *10.5* | *0.3* | *15.9* | *0.3* | *8.9* | *5.5* |
| All Family Workers | 5.6 | 40.6 | 1.2 | 11.3 | 6.9 | 50.6 |
| *Craft Family Worker* | *0.1* | *0.8* | *0.1* | *1.3* | *0.0* | *0.6* |
| *Merchant Family Worker* | *0.3* | *3.1* | *0.6* | *6.2* | *0.2* | *2.1* |
| *Farm Family Worker* | *5.1* | *35.9* | *0.2* | *2.0* | *6.6* | *47.5* |
| *Boardinghouse Family Worker* | *0.1* | *0.5* | *0.2* | *1.5* | *0.0* | *0.2* |
| *Multiple-Job Family Worker* | *0.1* | *0.3* | *0.1* | *0.4* | *0.0* | *0.3* |
| No Occupation | 6.8 | 43.7 | 7.9 | 65.7 | 6.5 | 36.2 |
| **Total** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Sample Size | 81,810 | 76,746 | 18,539 | 19,511 | 63,271 | 57,235 |

Note: PTK is Professional, Technical and Kindred occupations; Farmers includes farm owners, farm tenants, and farm managers; Managers is limited to non-farm managers; Farm Workers includes farm laborers; Laborers is limited to non-farm laborers; "No Occupation" includes housekeeping at home/housewife, imputed keeping house, helping at home, current student, retired, and other non-occupations. Urban/Rural defined by place of residence. Detail may not add to total due to rounding.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table 2**

Selected Occupations for Free Females with a Reported Occupation, Age 16 and Older, by Southern and Non-Southern States, for the United States and Urban Areas, 1860, Percent

(A) United States

| Occupation | Total | South | Non-South |
|---|---|---|---|
| Gainful Occupation Reported: | | | |
| Private Household Workers [a] | 39.4 | 36.0 | 40.7 |
| Textile Operatives [b] | 14.5 | 13.6 | 14.8 |
| Farmers [c] | 6.5 | 13.7 | 3.7 |
| Teachers | 4.3 | 1.8 | 5.3 |
| Other | 12.7 | 10.6 | 13.5 |
| Non-Occupation: [d] | | | |
| Keeping House | 21.8 | 23.5 | 21.2 |
| Other | 0.7 | 0.7 | 0.8 |
| Total | 100.0 | 100.0 | 100.0 |
| Sample Size | 15,533 | 4,359 | 11,174 |
| Reported Free Female LFPR | 15.67 | 15.65 | 15.68 |

(B) Urban Areas

| Occupation | Total | South | Non-South |
|---|---|---|---|
| Gainful Occupation Reported: | | | |
| Private Household Workers [a] | 44.8 | 49.7 | 43.9 |
| Textile Operatives [b] | 23.2 | 25.4 | 22.8 |
| Farmers [c] | 0.1 | 0.3 | 0.1 |
| Teachers | 3.4 | 2.9 | 3.4 |
| Other | 21.4 | 17.9 | 22.1 |
| Non-Occupation: [d] | | | |
| Keeping House | 6.5 | 3.3 | 7.1 |
| Other | 0.6 | 0.5 | 0.6 |
| Total | 100.0 | 100.0 | 100.0 |
| Sample Size | 4,825 | 767 | 4,058 |
| Reported Free Female LFPR | 22.99 | 22.53 | 23.09 |

Detail may not add to total due to rounding.

[a] Private Household Workers includes individuals categorized as housekeepers (distinct from "keeping house"), laundresses (private household), and other private household workers using the 1950 Occupational Classification System.

[b] Textile Operatives includes individuals categorized as dressmakers, seamstresses, tailoresses, milliners, and other textile workers using the 1950 Occupational Classification System.

[c] Farmers includes individuals categorized as farm owners, tenants, and managers using the 1950 Occupational Classification System.

[d] Non-Occupation indicates a category for responses provided for the census question on occupation that were not considered gainful occupations by the IPUMS coding scheme.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table 3**
Logit Analysis of Free Women's Likelihood of Working, by Type of Work, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00273*** | -0.00445*** | 0.0000794 | 0.00273** |
| | (7.27) | (-9.28) | (0.97) | (3.08) |
| Age Squared | -0.0000523*** | 0.0000507*** | -0.000000747 | -0.0000768*** |
| | (-11.67) | (9.33) | (-0.78) | (-7.42) |
| Married | -0.218*** | 0.197*** | 0.00894*** | -0.187*** |
| | (-84.90) | (28.81) | (11.77) | (-33.72) |
| Number of Children | -0.00119 | -0.00120 | 0.0000392 | -0.00195 |
| | (-1.60) | (-1.51) | (0.32) | (-1.34) |
| Non-White | 0.0820*** | -0.104*** | -0.0241*** | 0.0685*** |
| | (15.02) | (-8.62) | (-6.94) | (5.04) |
| Hispanic | -0.0439*** | 0.0282 | -0.00440 | -0.110*** |
| | (-3.30) | (1.33) | (-1.41) | (-3.78) |
| Foreign Born | 0.0542*** | -0.0470*** | -0.00942*** | -0.000612 |
| | (21.76) | (-11.48) | (-11.81) | (-0.11) |
| Student | -0.0731*** | 0.0548*** | 0.00774*** | -0.105*** |
| | (-16.28) | (10.52) | (6.49) | (-7.90) |
| Illiterate | 0.0344*** | -0.0238*** | -0.0134*** | -0.00945 |
| | (9.73) | (-5.07) | (-8.99) | (-1.12) |
| Rural Farm HH | -0.0123*** | 0.480*** | -0.0532*** | 0.847*** |
| | (-4.69) | (32.93) | (-25.80) | (132.29) |
| Rural Non-Farm HH | -0.0252*** | -0.189*** | -0.00693*** | -0.136*** |
| | (-9.52) | (-24.22) | (-11.14) | (-24.77) |
| South | -0.0133*** | 0.00784* | 0.00130* | -0.0187** |
| | (-5.39) | (2.51) | (2.50) | (-3.13) |
| West | -0.0485*** | 0.0600*** | 0.00289* | -0.00181 |
| | (-6.85) | (6.73) | (2.39) | (-0.12) |
| Midwest | -0.0280*** | 0.0244*** | 0.00150** | -0.0165** |
| | (-10.69) | (7.46) | (2.93) | (-2.74) |
| Sample Size | 76,746 | 76,746 | 76,746 | 76,746 |
| Correctly Classified | 85.7% | 91.5% | 95.5% | 82.5% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0. Benchmark region is Northeast

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table 4**

Logit Analysis of Free Women's Likelihood of Working, by Type of Work, With Slave Intensity, Southern States, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00573*** | -0.0120*** | -0.0000682 | 0.00212 |
| | (7.10) | (-8.33) | (-1.15) | (1.42) |
| Age Squared | -0.0000640*** | 0.000112*** | 0.000000669 | -0.0000444* |
| | (-6.84) | (6.86) | (0.95) | (-2.54) |
| Married | -0.197*** | 0.325*** | 0.00359*** | -0.0358*** |
| | (-37.74) | (24.21) | (3.85) | (-3.86) |
| Number of Children | 0.00573*** | -0.00663** | 0.0000335 | 0.00645** |
| | (4.40) | (-3.05) | (0.42) | (2.81) |
| Non-White | 0.120*** | -0.254*** | -0.00878** | 0.102*** |
| | (12.93) | (-8.14) | (-3.25) | (6.11) |
| Hispanic | -0.117** | 0.0353 | 0.0000953 | -0.129* |
| | (-2.99) | (0.42) | (0.05) | (-2.32) |
| Foreign Born | 0.0625*** | -0.0646** | -0.00220*** | 0.00940 |
| | (7.76) | (-2.88) | (-3.31) | (0.75) |
| Student | -0.0780*** | 0.101*** | 0.00304** | 0.00250 |
| | (-6.11) | (5.35) | (2.95) | (0.11) |
| Illiterate | 0.0390*** | -0.0380*** | -0.00437*** | 0.00425 |
| | (6.51) | (-3.52) | (-3.55) | (0.37) |
| Rural Farm HH | -0.00454 | 0.913*** | -0.0211*** | 0.667*** |
| | (-0.65) | (32.00) | (-5.70) | (60.00) |
| Rural Non-Farm HH | -0.0392*** | -0.147*** | -0.00317*** | -0.135*** |
| | (-5.39) | (-4.64) | (-3.80) | (-12.57) |
| Slave Intensity [b] | -0.0107** | 0.0288*** | 0.000178 | 0.00834 |
| | (-3.12) | (5.23) | (1.01) | (1.54) |
| Sample Size | 21,097 | 21,097 | 21,097 | 21,097 |
| Correctly Classified | 84.6% | 89.4% | 96.5% | 85.3% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0.

[b] Slave Intensity is the number of slaves per capita of the free population in the county of residence.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table 5**

Logit Analysis of Free Women's Likelihood of Working in a Given Occupation among Those who Reported an Occupation, With Slave Intensity, Southern States, 1860

| | Private Household Worker [a] | Textile Worker [b] | Farmer [c] |
|---|---|---|---|
| Age | -0.0177*** | 0.00516* | 0.00502*** |
| | (-5.19) | (2.01) | (4.87) |
| Age Squared | 0.000141*** | -0.0000803* | -0.0000395*** |
| | (3.55) | (-2.56) | (-4.30) |
| Married | 0.282*** | -0.0267 | -0.0691*** |
| | (11.55) | (-1.59) | (-5.36) |
| Number of Children | -0.0232*** | -0.00988* | 0.00742*** |
| | (-4.06) | (-2.41) | (4.70) |
| Non-White | 0.203*** | -0.179*** | -0.0262** |
| | (6.00) | (-7.00) | (-2.61) |
| Hispanic | -0.216 | 0.0533 | -0.000230 |
| | (-1.26) | (0.50) | (-0.00) |
| Foreign Born | 0.190*** | -0.151*** | 0.0119 |
| | (5.54) | (-6.72) | (1.06) |
| Student | 0.0355 | 0.0135 | 0.00794 |
| | (0.64) | (0.35) | (0.73) |
| Illiterate | 0.0728** | 0.00979 | -0.00265 |
| | (2.97) | (0.57) | (-0.61) |
| Rural Farm HH | 0.0854** | -0.220*** | 0.155*** |
| | (2.79) | (-11.64) | (8.70) |
| Rural Non-Farm HH | 0.0793* | -0.0929*** | 0.0258 |
| | (2.53) | (-4.92) | (1.24) |
| Slave Intensity [d] | -0.137*** | 0.0434*** | 0.00643* |
| | (-7.32) | (4.83) | (2.20) |
| Sample Size | 3,302 | 3,302 | 3,302 |
| Correctly Classified | 65.1% | 82.1% | 90.9% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent Variable: Private Household Worker; Equal to 1 if the individual has a reported occupation as a private household worker (including housekeepers, laundresses, other), 0 otherwise.

[b] Dependent Variable: Textile Worker; Equal to 1 if the individual has a reported occupation in textiles (Tailoresses, Dressmakers, Seamstresses, Milliners, Spinners, and Weavers), 0 otherwise.

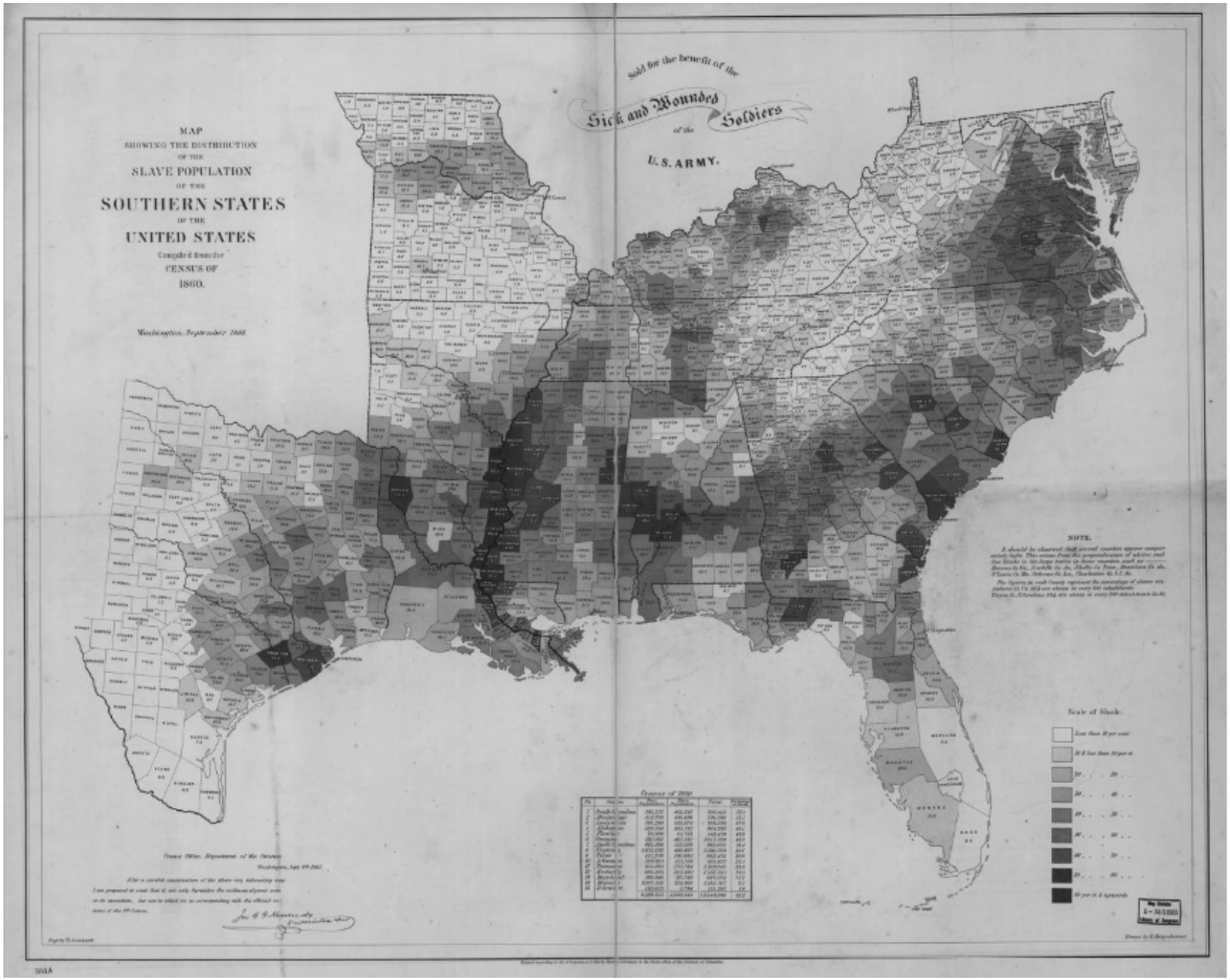
**Table 5 continued**

[c] Dependent Variable: Farmer; Equal to 1 if the has a reported occupation as a Farmer (owner, tenant, or farm manager), 0 otherwise.
[d] Slave Intensity is the number of slaves per capita of the free population in the county of residence.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Figure 1**

Map Showing the Proportion of Enslaved People in the Population of the Southern States, by County, 1860 Census



## Notes for Figure 1

Notes: Entered according to Act of Congress, 1861 by Henry S. Graham. Sold for the benefit of the sick and wounded soldiers of the U.S. Army. Map indicates by gray patterns, the percentage of slaves in each county (in which the darker shades correspond to a greater “slave intensity”). "Scale of shade" printed in lower right corner. Includes population table based on Census of 1860.

Source: Library of Congress Geography and Map Division (1861)

## Appendices

### Appendix A: Definitions of Variables

*Sample:*

This sample consists of all free females in the 1860 Census of Population, Schedule 1, IPUMS, 1% sample (current version 2021), who meet the following criteria:

- Age 16 or older
- Not currently incarcerated/an inmate
- Not listed as an "invalid/disabled," "pauper," "idiotic," or "insane" with no occupation reported

*Labor Force Participation Variables:*

- Reported Occupation (HasOcc): This is a dichotomous variable that takes the value of 1 if there is an occupation listed for the individual, excluding those with a reported "non-occupation." That is, this includes all individuals who have an occ1950 (Occupation code using 1950 Census Bureau occupational classification system as coded by IPUMS) less than 980; therefore, it includes all "gainful" occupations. The remaining codes are considered "non-occupations" and include keeping house, imputed keeping house (by the University of Minnesota IPUMS team), helping at home, at school, retired, and other non-occupation (primarily those for whom occupation was left blank or reported as "none").
- Total Work: This is a dichotomous variable that takes the value of 1 if the individual is employed (or presumed to be working) in any capacity. That is, this variable equals one if either Reported Occupation or any of the family worker variables equals one.

- Private Household Worker: This is a dichotomous variable that takes the value of 1 if the female has a recorded occupation as a private household worker, which includes housekeepers, laundresses, and other private household workers.
- Textile Worker: This is a dichotomous variable that takes the value of 1 if the female has a recorded occupation in any of the following textile-related occupations: tailoress, dressmaker, seamstress, milliner, spinner, or weaver.
- Farmer: This is a dichotomous variable that takes the value of 1 if the female has a recorded occupation as farmer (owner or tenant) or farm manager. Does not include farm laborers.

*Explanatory Variables:*

- Age: This is the individual's reported age in years. The sample consists only of those ages 16 and older as the occupation question on the 1860 Census was not asked of anyone age 15 or younger. Age squared is also included in the analysis.
- Married: This is a dichotomous variable that indicates the individual is presumed to be married with their spouse present (in the same household). Marital status was not asked in the 1860 Census. Therefore, this variable is constructed using the IPUMS pointer variable for spouse, which identifies the imputed relationships between household members with an estimated 99 percent accuracy rate (IPUMS-USA, n.d.)
- Number of Children: This indicated the number of own children – of any age or marital status – living with an individual. Step-children and adopted children are included as well as biological children.
- Non-white: This is a dichotomous variable that takes the value of 1 if the individual's race was listed as anything other than "white." In the 1860 Census, Schedule 1, IPUMS, 1% sample, 97.88 percent of the free individuals were listed as white, with the other free people

listed as: Black/African American/Negro (1.76 percent), American Indian (0.15 percent), and Chinese (0.21 percent). It should also be noted that the enumerator was responsible for classifying the individual's race and was not specifically instructed to ask the race of the individual.

- Hispanic: This is a dichotomous variable that takes the value of 1 if the individual is considered Hispanic, based on the Hispanic origin coding scheme of IPUMS. That is, an individual is considered to be Hispanic if: the person, or at least one parent or grandparent was born in a Spanish-speaking country, the person has a direct relative who is coded as Hispanic, or the person has a Spanish surname.
- Student: This is a dichotomous variable that takes the value of 1 if the respondent is reported to be attending school during the specified period of time or has the occ1950 code "at school / student."
- Illiterate: This is a dichotomous variable that takes the value of 1 if the individual is recorded as "cannot read and write." The census enumerators were instructed to record those individuals who could not read and write in any language (English or their native language). However, the degree of literacy was not defined; therefore, it is unknown whether being able to read/write one's own name qualified them as literate or how individuals who could read but not write were classified. Further, this question was only asked of individuals 20 years of age and older. Therefore, for this study, a predicted literacy value was computed for individuals age 16-19 based on their race, Hispanic origin, nativity, student status, rural-farm status, and region. The model for predicting literacy was correct for 93.7 percent of individuals age 20-25.
- Literate Parent: This is a dichotomous variable that takes the value of 1 if at least one of the respondent's parents (if in the same household) can read and/or write in any language.

- Urban: This is a dichotomous variable that takes the value of 1 if the location of the household is considered urban. Urban areas are made up for the most part of households in cities and incorporated places with 2,500 or more inhabitants. Urban also includes households in New Hampshire, Massachusetts, and Rhode Island towns (townships) containing a village or thickly settled area of 2,500 or more inhabitants and comprising, either by itself or when combined with other villages within the same town, more than 50 percent of the total population of the town. Additionally, it includes townships and other political subdivisions (not incorporated municipalities). Urban residence serves as the benchmark for the urban/rural variables.
- Rural Farm: This is a dichotomous variable that takes the value of 1 if the location of the household is not considered urban and is considered a farm (defined as any household in which any individual lists the occupation "Farmer").
- Rural Non-Farm: This is a dichotomous variable that takes the value of 1 if the location of the household is not considered urban and is not considered a farm (that is, none of the household occupants list "Farmer" as their occupation).
- South: This is a dichotomous variable that takes the value of 1 if the household is located in any of the following states: Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Missouri, Tennessee, Oklahoma, Kentucky, or District of Columbia. West Virginia was part of Virginia in 1860. These are also the states/territories that allowed slavery in 1860.
- Northeast: This is a dichotomous variable that takes the value of 1 if the household is located in any of the following states: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, New York, or Pennsylvania. This category is used as the control group in the regression analysis for models which include the whole country.

- Midwest: This is a dichotomous variable that takes the value of 1 if the household is located in any of the following states: Ohio, Michigan, Indiana, Illinois, Wisconsin, Iowa, or Minnesota.
- West: This is a dichotomous variable that takes the value of 1 if the household is located outside of the above designated areas for South, Northeast, or Midwest. The IPUMS assigns current state codes to territories that later became states.
- Foreign Born: This is a dichotomous variable that takes the value of 1 if the respondent was born outside the United States.
- Born in England, Germany, Ireland or Other Country: This is a dichotomous variable that takes the value of 1 if the respondent's reported place of birth was England, Germany, Ireland, or other foreign country, respectively.
- Foreign Born Parent: This is a dichotomous variable that takes the value of 1 if at least one of the respondent's parents (if in the same household) was born outside the United States.
- Real Estate Value: This variable reports the contemporary (1860) dollar value of any real estate owned by the respondent. The full value was to be reported, even if the property was encumbered by a lien, mortgage, or other debt. This variable is also available for the head of household, mother, father, and spouse (if in the same household as the respondent).
- Personal Property Value: This variable reports the contemporary (1860) dollar value of all stocks, bonds, mortgages, notes, livestock, plate, jewels, and furniture owned by the respondent. This variable is also available for the head of household, mother, father, and spouse (if in the same household as the respondent).
- MotherOcc: This is a dichotomous variable that takes the value of 1 if the respondent's mother lives in the same household and has an occupation reported.

- Slave Intensity: The slave intensity is the number of slaves per capita of free people by county. Slaves per capita is calculated at the county level by state for all states in which slavery was legal (coded as South). An estimate of the number of slaves in a given county was calculated from the 1860 Census Schedule 2, Slave Schedule. This was divided by the estimated free population per country from the 1860 Census Schedule 1 (Free Population). The IPUMS slave data is an approximately 1-in-20 sample of the slave population, so the number of slaves in each state was multiplied by 20 to get a total slave population estimate. Similarly, the IPUMS 1860 Census (Free Population) is a 1-in-100 sample, so the population counts were multiplied by 100 to get a total population estimate. See Appendix Table B-1 for data on slave intensity by state.
- Metropolitan Areas: For the 1860 Census, IPUMS defines standard metropolitan areas (SMAs) by applying rules similar to the 1950 rules using historical census statistics. An SMA in 1860 is defined as a county or group of contiguous counties that contained at least one city of 50,000 or more residents. To be part of an SMA, a county either had to contain the central city or had to be metropolitan in character (based on non-agricultural employment) and integrated with the central city (at least 25 percent of the county population resided in the central city of the metropolitan area). The SMAs of New York City, Philadelphia, and Boston are separately analyzed in this paper.

**Table A-1**

Variable Means and Standard Deviations, Free Persons Age 16 and Older, by Gender, 1860

| | Males | Females |
|---|---|---|
| Age | 34.36 | 33.87 |
| | (14.51) | (14.84) |
| Age Squared | 1391.23 | 1367.06 |
| | (1223.3) | (1254.4) |
| Married | 0.54 | 0.58 |
| | (0.498) | (0.493) |
| Has Children | 0.49 | 0.60 |
| | (0.500) | (0.491) |
| Number of Children | 1.56 | 1.81 |
| | (2.126) | (2.142) |
| Non-white | 0.02 | 0.02 |
| | (0.144) | (0.145) |
| Hispanic | 0.01 | 0.01 |
| | (0.0899) | (0.0830) |
| Student | 0.07 | 0.05 |
| | (0.249) | (0.211) |
| Illiterate | 0.06 | 0.09 |
| | (0.237) | (0.285) |
| Urban Household | 0.23 | 0.25 |
| | (0.419) | (0.435) |
| Rural Farm Household | 0.46 | 0.44 |
| | (0.499) | (0.496) |
| Rural Non-farm Household | 0.31 | 0.31 |
| | (0.462) | (0.462) |
| South | 0.27 | 0.27 |
| | (0.445) | (0.446) |
| Northeast | 0.39 | 0.43 |
| | (0.488) | (0.495) |
| Midwest | 0.28 | 0.26 |
| | (0.448) | (0.441) |
| West | 0.06 | 0.03 |
| | (0.235) | (0.173) |
| Slaves Per Capita (South) [a] | 0.51 | 0.50 |
| | (0.783) | (0.736) |
| Foreign Born | 0.24 | 0.22 |
| | (0.429) | (0.413) |
| Born in Ireland | 0.09 | 0.10 |
| | (0.287) | (0.298) |

**Table A-1 (continued)**

| | Males | Females |
|---|---|---|
| Born in Germany | 0.08 | 0.06 |
| | (0.267) | (0.241) |
| Born in England | 0.03 | 0.02 |
| | (0.162) | (0.148) |
| Other Foreign Born | 0.05 | 0.04 |
| | (0.216) | (0.186) |
| Real Estate Value (Respondent) ($) | 1,211.30 | 119.26 |
| | (6,660.2) | (1,882.9) |
| Personal Property Value (Respondent) ($) | 872.58 | 104.09 |
| | (5,569.0) | (1,521.8) |
| Female-Headed Household | 0.05 | 0.12 |
| | (0.216) | (0.321) |
| Real Estate Value (Head) [b, c] ($) | 3,200.23 | 2,713.44 |
| | (11,132.15) | (11,072.35) |
| Real Estate Value (Mother) [b] ($) | 299.08 | 384.20 |
| | (2,915.60) | (4,027.92) |
| Real Estate Value (Father) [b] ($) | 3,225.59 | 3,364.77 |
| | (8,670.82) | (10,409.64) |
| Real Estate Value (Spouse) [b] ($) | 24.76 | 1,851.11 |
| | (959.65) | (7,174.67) |
| Personal Property Value (Head) [b, c] ($) | 2,049.86 | 1,776.75 |
| | (7,989.21) | (8,378.26) |
| Personal Property Value (Mother) [b] ($) | 214.66 | 282.03 |
| | (1,926.45) | (2,637.59) |
| Personal Property Value (Father) [b] ($) | 2,004.90 | 2,224.17 |
| | (8,140.99) | (9,105.05) |
| Personal Property Value (Spouse) [b] ($) | 12.91 | 1,273.11 |
| | (367.41) | (6,339.18) |
| Mother Has Occupation [b] | 0.09 | 0.10 |
| | (0.287) | (0.304) |
| Literate Parent [b] | 0.92 | 0.92 |
| | (0.265) | (0.270) |
| Foreign Born Parent [b] | 0.44 | 0.46 |
| | (0.496) | (0.498) |
| Gainful Occupation | 0.88 | 0.16 |
| | (0.330) | (0.364) |
| Craft Family Worker | 0.00 | 0.01 |
| | (0.0268) | (0.0908) |
| Merchant Family Worker | 0.00 | 0.03 |
| | (0.0575) | (0.178) |

**Table A-1 (continued)**

| | Males | Females |
|---|---|---|
| Farm Family Worker | 0.05 | 0.36 |
| | (0.221) | (0.480) |
| Boardinghouse Family Worker | 0.00 | 0.01 |
| | (0.0328) | (0.0870) |
| Non-Occupation | 0.01 | 0.05 |
| | (0.0754) | (0.209) |
| Total Working | 0.93 | 0.56 |
| | (0.252) | (0.496) |
| *Sample Size* | 81,810 | 76,746 |

mean coefficients; sd in parentheses

[a] Slaves per capita if located in a slave-holding state or territory (South region); Sample size: 22,309 Males and 21,097 Females

[b] If details for relation (head, mother, father, spouse) are provided. Sample Sizes for relative variables:

| | Males | Females |
|---|---|---|
| Head | 31,795 | 70,409 |
| Mother | 18,023 | 15,806 |
| Father | 15,135 | 13,133 |
| Spouse | 44,552 | 44,544 |

[c] Only includes data on Head of Household if the individual is not the head of their own household. Head of own household: 57.6% of males, 6.5% of females

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

## Appendix B: Additional Tables for the United States

### Table B-1

Comparison of "Slave Intensity" by State, IPUMS Sample and Census Report, 1860 [a]

| States [b] | IPUMS Sample [c] | Census Report |
|---|---|---|
| Alabama | 0.791 | 0.822 |
| Arkansas | 0.306 | 0.343 |
| District of Columbia | 0.042 | 0.044 |
| Delaware | 0.013 | 0.015 |
| Florida | 1.036 | 0.785 |
| Georgia | 0.744 | 0.777 |
| Kentucky | 0.236 | 0.242 |
| Louisiana | 0.904 | 0.882 |
| Maryland | 0.166 | 0.145 |
| Mississippi | 1.154 | 1.231 |
| Missouri | 0.118 | 0.108 |
| North Carolina | 0.469 | 0.500 |
| South Carolina | 1.314 | 1.336 |
| Tennessee | 0.354 | 0.331 |
| Texas | 0.430 | 0.433 |
| Virginia | 0.640 | -- |
| West Virginia | 0.047 | -- |
| Combined Virginias [d] | 0.445 | 0.444 |

[a] Estimated number of slaves per capita of the free population is calculated by dividing the count of slaves by the free population by state for the given sample.

[b] There was a very small number of slaves reported in the 1860 Census Report for other, non-Southern states (Kansas, 2; New Jersey, 18; Nebraska, 15; Utah, 29). However, these numbers were insignificant compared to the free population in those areas at the time. Additionally, none of the slaves in the IPUMS sample were from those states. Therefore, those states were not included as slave-holding states in this analysis. Slavery was legal in the "Indian Territory" and adjacent areas that subsequently became the state of Oklahoma. Most of the population of Oklahoma were not enumerated, because they were "too transient to find," "Census enumerators barely got past military forts," or because most Native Americans were not enumerated. Most slave owners in Oklahoma were Native Americans (e-mail to Barry R. Chiswick from Anne F. Hyde, January 10, 2019). The small number of observations in Oklahoma are not included in the "slave intensity" analysis.

[c] This is the measure (calculated at the state level in this table) that was used in the regression analysis (calculated at the county level).

[d] West Virginia split from Virginia in 1861, so the two are combined in the 1860 Census report.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table B-2**

Logit Analysis of Free Women's Likelihood of Working,

by Type of Work, Limited Model, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Rural Farm HH | -0.0891*** | 0.510*** | -0.0576*** | 0.781*** |
| | (-29.73) | (34.64) | (-29.30) | (147.05) |
| Rural Non-Farm HH | -0.0854*** | -0.178*** | -0.00421*** | -0.158*** |
| | (-26.09) | (-19.80) | (-7.82) | (-31.26) |
| Sample Size | 76,605 | 76,605 | 76,605 | 76,605 |
| Correctly Classified | 84.3% | 91.2% | 95.5% | 82.5% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table B-3**

Logit Analysis of Free Women's Likelihood of Working, by Type of Work, With Real Estate Value, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00255*** | -0.00456*** | 0.0000389 | 0.00202* |
| | (6.83) | (-9.24) | (0.49) | (2.22) |
| Age Squared | -0.0000490*** | 0.0000519*** | -0.000000311 | -0.0000677*** |
| | (-11.05) | (9.29) | (-0.33) | (-6.37) |
| Married | -0.210*** | 0.202*** | 0.00863*** | -0.174*** |
| | (-83.07) | (27.37) | (11.57) | (-30.64) |
| Number of Children | -0.000808 | -0.00125 | 0.00000280 | -0.00138 |
| | (-1.11) | (-1.54) | (0.02) | (-0.93) |
| Non-White | 0.0825*** | -0.106*** | -0.0217*** | 0.0803*** |
| | (15.25) | (-8.58) | (-6.66) | (5.79) |
| Hispanic | -0.0419** | 0.0294 | -0.00455 | -0.107*** |
| | (-3.16) | (1.35) | (-1.45) | (-3.56) |
| Foreign Born | 0.0521*** | -0.0482*** | -0.00889*** | -0.00323 |
| | (20.85) | (-11.40) | (-11.51) | (-0.56) |
| Student | -0.0681*** | 0.0556*** | 0.00670*** | -0.0988*** |
| | (-15.43) | (10.39) | (5.76) | (-7.21) |
| Illiterate | 0.0350*** | -0.0241*** | -0.0128*** | -0.00270 |
| | (10.02) | (-5.01) | (-8.76) | (-0.31) |
| Rural Farm HH | -0.00796** | 0.487*** | -0.0494*** | 0.855*** |
| | (-3.03) | (30.84) | (-25.02) | (131.40) |
| Rural Non-Farm HH | -0.0216*** | -0.208*** | -0.00634*** | -0.130*** |
| | (-8.11) | (-25.93) | (-10.69) | (-22.92) |
| South | -0.0118*** | 0.00784* | 0.00146** | -0.0147* |
| | (-4.81) | (2.46) | (2.88) | (-2.40) |
| West | -0.0489*** | 0.0614*** | 0.00217 | -0.00529 |
| | (-6.88) | (6.69) | (1.80) | (-0.35) |
| Midwest | -0.0276*** | 0.0249*** | 0.00164** | -0.0150* |
| | (-10.63) | (7.40) | (3.27) | (-2.44) |
| Real Estate Value (Head of HH) | 3.44e-07*** | 2.49e-08 | 9.80e-08*** | 3.15e-06*** |
| | (4.78) | (0.19) | (7.85) | (11.62) |
| Sample Size | 75,333 | 75,333 | 75,333 | 75,333 |
| Correctly Classified | 86.1% | 91.4% | 95.7% | 83.6% |

**Table B-3 continued**

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0. Benchmark region is the Northeast.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table B-4**

Logit Analysis of Free Women's Likelihood of Working, by Type of Work, With Personal Property Value, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00256*** | -0.00457*** | 0.0000383 | 0.00197* |
| | (6.86) | (-9.28) | (0.49) | (2.16) |
| Age Squared | -0.0000491*** | 0.0000521*** | -0.000000295 | -0.0000672*** |
| | (-11.08) | (9.32) | (-0.32) | (-6.32) |
| Married | -0.210*** | 0.202*** | 0.00857*** | -0.174*** |
| | (-83.10) | (27.38) | (11.60) | (-30.52) |
| Number of Children | -0.000832 | -0.00123 | -0.00000865 | -0.00143 |
| | (-1.14) | (-1.52) | (-0.07) | (-0.96) |
| Non-White | 0.0826*** | -0.106*** | -0.0212*** | 0.0834*** |
| | (15.27) | (-8.57) | (-6.62) | (6.01) |
| Hispanic | -0.0419** | 0.0293 | -0.00438 | -0.106*** |
| | (-3.16) | (1.35) | (-1.42) | (-3.51) |
| Foreign Born | 0.0521*** | -0.0482*** | -0.00869*** | -0.00216 |
| | (20.84) | (-11.40) | (-11.43) | (-0.38) |
| Student | -0.0681*** | 0.0555*** | 0.00659*** | -0.0996*** |
| | (-15.44) | (10.37) | (5.75) | (-7.27) |
| Illiterate | 0.0352*** | -0.0235*** | -0.0123*** | 0.00170 |
| | (10.08) | (-4.88) | (-8.64) | (0.20) |
| Rural Farm HH | -0.00794** | 0.487*** | -0.0489*** | 0.856*** |
| | (-3.03) | (30.84) | (-24.79) | (131.59) |
| Rural Non-Farm HH | -0.0218*** | -0.208*** | -0.00626*** | -0.130*** |
| | (-8.21) | (-25.91) | (-10.67) | (-22.86) |
| South | -0.0129*** | 0.00695* | 0.00105* | -0.0250*** |
| | (-5.25) | (2.15) | (2.10) | (-4.04) |
| West | -0.0492*** | 0.0613*** | 0.00211 | -0.00792 |
| | (-6.93) | (6.68) | (1.77) | (-0.52) |
| Midwest | -0.0274*** | 0.0249*** | 0.00178*** | -0.0118 |
| | (-10.56) | (7.43) | (3.60) | (-1.92) |
| Personal Property Value (Head of HH) | 4.76e-07*** | 2.61e-07 | 2.13e-07*** | 7.44e-06*** |
| | (4.96) | (1.75) | (9.69) | (16.12) |
| Sample Size | 75,333 | 75,333 | 75,333 | 75,333 |
| Correctly Classified | 86.1% | 91.4% | 95.7% | 83.6% |

**Table B-4 continued**

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0. Benchmark region is the Northeast.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table B-5**

Logit Analysis of Free Women's Likelihood of Working, by Type of Work, With Country of Birth, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00280*** | -0.00443*** | -0.0000242 | 0.00244** |
| | (7.43) | (-9.27) | (-0.22) | (2.70) |
| Age Squared | -0.0000525*** | 0.0000504*** | 0.000000465 | -0.0000736*** |
| | (-11.67) | (9.29) | (0.36) | (-6.97) |
| Married | -0.217*** | 0.196*** | 0.0129*** | -0.189*** |
| | (-84.35) | (28.75) | (15.17) | (-33.38) |
| Number of Children | -0.00122 | -0.00120 | 0.0000596 | -0.00212 |
| | (-1.64) | (-1.52) | (0.37) | (-1.43) |
| Non-White | 0.0820*** | -0.102*** | -0.0341*** | 0.0806*** |
| | (14.96) | (-8.46) | (-6.78) | (5.85) |
| Hispanic | -0.0413** | 0.0266 | -0.00489 | -0.106*** |
| | (-3.11) | (1.26) | (-1.14) | (-3.56) |
| Born in Germany | 0.0296*** | -0.0359*** | -0.00732*** | -0.0307** |
| | (6.60) | (-5.70) | (-7.13) | (-3.25) |
| Born in England | 0.0262*** | -0.0167 | -0.00923*** | -0.0178 |
| | (3.84) | (-1.55) | (-5.24) | (-1.21) |
| Born in Ireland | 0.0722*** | -0.0753*** | -0.0191*** | 0.0336*** |
| | (22.69) | (-11.46) | (-13.43) | (4.61) |
| Other Foreign Born | 0.0469*** | -0.0352*** | -0.00933*** | 0.0112 |
| | (9.10) | (-4.58) | (-6.06) | (0.94) |
| Student | -0.0724*** | 0.0540*** | 0.0101*** | -0.110*** |
| | (-16.13) | (10.39) | (6.74) | (-8.12) |
| Illiterate | 0.0324*** | -0.0262*** | -0.0185*** | -0.0135 |
| | (9.01) | (-5.54) | (-9.65) | (-1.55) |
| Rural Farm HH | -0.0113*** | 0.478*** | -0.0538*** | 0.873*** |
| | (-4.27) | (32.88) | (-37.61) | (133.32) |
| Rural Non-Farm HH | -0.0240*** | -0.189*** | -0.00736*** | -0.125*** |
| | (-9.02) | (-24.26) | (-11.30) | (-22.32) |
| South | -0.0122*** | 0.00750* | 0.00163* | -0.0136* |
| | (-4.91) | (2.39) | (2.36) | (-2.22) |
| West | -0.0476*** | 0.0592*** | 0.00199 | -0.00832 |
| | (-6.70) | (6.66) | (1.20) | (-0.56) |
| Midwest | -0.0248*** | 0.0227*** | 0.00171* | -0.0104 |
| | (-9.39) | (6.94) | (2.53) | (-1.69) |

**Table B-5 continued**

| | | | | |
|---|---|---|---|---|
| Sample Size | 76,605 | 76,605 | 76,605 | 76,605 |
| Correctly Classified | 85.79% | 91.51% | 95.90% | 83.04% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0. Benchmark region is the Northeast.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table B-6**

Logit Analysis of Women's Likelihood of Working, by Type of Work, With Parent Variables, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00525* | 0.000392 | 0.000327 | 0.00771** |
| | (2.34) | (0.14) | (1.22) | (3.04) |
| Age Squared | -0.0000960** | -0.00000883 | -0.00000428 | -0.000134*** |
| | (-2.60) | (-0.21) | (-1.01) | (-3.33) |
| Married | -0.246*** | 0.187*** | 0.00774*** | -0.0551*** |
| | (-13.62) | (9.08) | (4.82) | (-3.83) |
| Number of Children | -0.0170** | 0.00689 | 0.000634 | -0.00392 |
| | (-3.27) | (1.28) | (1.53) | (-0.85) |
| Non-White | 0.0801*** | -0.111** | -0.0300** | -0.0151 |
| | (4.08) | (-2.80) | (-3.04) | (-0.66) |
| Hispanic | -0.127* | 0.0978 | -0.00707 | -0.111* |
| | (-2.40) | (1.36) | (-1.01) | (-2.32) |
| Foreign Born | 0.0769*** | 0.000333 | -0.00661*** | 0.0554*** |
| | (8.26) | (0.02) | (-4.30) | (5.24) |
| Student | -0.0644*** | 0.0464*** | 0.00268* | -0.0341** |
| | (-7.05) | (4.28) | (2.30) | (-2.96) |
| Illiterate | -0.00515 | -0.00578 | -0.00153 | -0.0224 |
| | (-0.29) | (-0.25) | (-0.47) | (-1.03) |
| Rural Farm HH | -0.0339*** | 0.718*** | -0.0477*** | 0.584*** |
| | (-4.29) | (29.27) | (-10.81) | (60.57) |
| Rural Non-Farm HH | -0.0247** | -0.235*** | -0.00828*** | -0.101*** |
| | (-3.00) | (-8.60) | (-6.00) | (-12.03) |
| South | -0.0968*** | 0.0856*** | 0.000809 | -0.0552*** |
| | (-12.87) | (8.56) | (0.87) | (-5.98) |
| West | -0.153*** | 0.136*** | 0.000158 | -0.0771** |
| | (-6.05) | (4.47) | (0.06) | (-2.94) |
| Midwest | -0.0694*** | 0.0532*** | 0.00218* | -0.0406*** |
| | (-9.02) | (5.40) | (2.23) | (-4.21) |
| Foreign Born Parent | 0.0167* | -0.0826*** | -0.00717*** | -0.0829*** |
| | (2.52) | (-9.13) | (-5.71) | (-10.27) |
| Literate Parent | -0.0654*** | 0.0422** | 0.0122*** | -0.0257 |
| | (-5.80) | (2.71) | (3.89) | (-1.78) |
| Sample Size | 17,426 | 17,426 | 17,426 | 17,426 |

**Table B-6 continued**

| | | | | |
|---|---|---|---|---|
| Correctly Classified | 80.0% | 88.4% | 95.1% | 81.6% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0. Benchmark region is the Northeast. Sample restricted to those who are imputed to be living with at least one parent.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table B-7**

Logit Analysis of Women's Likelihood of Working, by Type of Work,

With Mother's Formal Occupation Status, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00378 | 0.000183 | 0.000194 | 0.00546* |
| | (1.60) | (0.06) | (0.62) | (2.01) |
| Age Squared | -0.0000661 | -0.0000214 | -0.00000391 | -0.000112* |
| | (-1.70) | (-0.47) | (-0.77) | (-2.56) |
| Married | -0.247*** | 0.156*** | 0.00796*** | -0.0752*** |
| | (-12.88) | (7.02) | (4.41) | (-4.88) |
| Number of Children | -0.0189** | 0.00533 | 0.000232 | -0.00753 |
| | (-3.16) | (0.86) | (0.47) | (-1.48) |
| Non-White | 0.0428* | -0.0785 | -0.0347** | -0.0612* |
| | (1.99) | (-1.94) | (-3.15) | (-2.50) |
| Hispanic | -0.102 | 0.0453 | -0.00741 | -0.114* |
| | (-1.69) | (0.56) | (-0.95) | (-2.09) |
| Foreign Born | 0.0933*** | -0.0416* | -0.0123*** | 0.0251* |
| | (10.05) | (-2.57) | (-5.49) | (2.38) |
| Student | -0.0682*** | 0.0527*** | 0.00406** | -0.0240* |
| | (-7.23) | (4.78) | (3.00) | (-2.06) |
| Illiterate | 0.0233 | -0.00940 | -0.00541 | 0.00438 |
| | (1.26) | (-0.39) | (-1.46) | (0.20) |
| Rural Farm HH | -0.0413*** | 0.718*** | -0.0504*** | 0.595*** |
| | (-5.04) | (27.12) | (-10.90) | (58.53) |
| Rural Non-Farm HH | -0.0204* | -0.233*** | -0.00873*** | -0.0925*** |
| | (-2.37) | (-8.23) | (-5.75) | (-10.68) |
| South | -0.128*** | 0.115*** | -0.00128 | -0.0793*** |
| | (-15.82) | (10.68) | (-1.16) | (-8.16) |
| West | -0.164*** | 0.140*** | -0.00272 | -0.0968*** |
| | (-6.15) | (4.56) | (-0.80) | (-3.57) |
| Midwest | -0.0716*** | 0.0549*** | 0.00135 | -0.0487*** |
| | (-8.89) | (5.43) | (1.24) | (-4.85) |
| Mother Occ | 0.254*** | -0.210*** | 0.00192 | 0.240*** |
| | (28.93) | (-15.33) | (1.42) | (17.66) |
| Sample Size | 15,806 | 15,806 | 15,806 | 15,806 |
| Correctly Classified | 79.9% | 88.5% | 95.1% | 82.1% |

**Table B-7 continued**

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0. Benchmark region is the Northeast. Sample restricted to those who are imputed to be living with their mother.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table B-8**

Logit Analysis of Free Women's Likelihood of Working, by Type of Work, With Slave Intensity and Measures of Household Wealth, Southern States, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00649*** | -0.0143*** | -0.0000928 | 0.00369** |
| | (7.99) | (-7.76) | (-1.55) | (2.65) |
| Age Squared | -0.0000666*** | 0.000126*** | 0.000000901 | -0.0000563*** |
| | (-7.14) | (6.08) | (1.29) | (-3.43) |
| Married | -0.171*** | 0.377*** | 0.00297*** | -0.0352*** |
| | (-34.04) | (24.21) | (3.63) | (-4.24) |
| Number of Children | 0.00501*** | -0.0169*** | -0.0000204 | -0.00289 |
| | (4.07) | (-6.24) | (-0.26) | (-1.41) |
| Non-White | 0.103*** | -0.175*** | -0.00744** | 0.0852*** |
| | (10.33) | (-3.94) | (-3.00) | (5.73) |
| Hispanic | -0.0889* | 0.0523 | 0.000149 | -0.0756 |
| | (-2.34) | (0.49) | (0.08) | (-1.62) |
| Foreign Born | 0.0166 | -0.0640* | -0.00163** | -0.0281* |
| | (1.78) | (-2.26) | (-2.84) | (-2.42) |
| Student | -0.0482*** | 0.0946*** | 0.00205* | 0.00935 |
| | (-4.01) | (3.84) | (2.26) | (0.43) |
| Illiterate | 0.0343*** | -0.0418** | -0.00405*** | 0.00708 |
| | (5.86) | (-3.09) | (-3.40) | (0.69) |
| Rural Farm HH | 0.00785 | 1.121*** | -0.0201*** | 0.650*** |
| | (1.06) | (33.44) | (-5.43) | (54.35) |
| Rural Non-Farm HH | -0.0300*** | -0.172*** | -0.00270*** | -0.0881*** |
| | (-3.88) | (-4.48) | (-3.58) | (-9.40) |
| Personal Property Value (Head of HH) | 0.000000101 | 0.00000111* | 4.46e-08** | 0.00000289*** |
| | (0.42) | (2.29) | (2.83) | (5.48) |
| Real Estate Value (Head of HH) | -0.000000770* | 0.00000124* | 4.92e-08** | 0.00000168** |
| | (-2.19) | (2.56) | (2.86) | (3.19) |
| Slave Intensity [b] | -0.00787* | 0.0303*** | 0.000107 | 0.00671 |
| | (-2.34) | (4.17) | (0.62) | (1.41) |
| Sample Size | 19,550 | 19,550 | 19,550 | 19,550 |
| Correctly Classified | 86.1% | 90.7% | 96.4% | 88.5% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

**Table B-8 continued**

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0.
[b] Slave Intensity is the number of slaves per capita of the free population in the county of residence.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

## Appendix C: Additional Tables for Urban Residents

### Table C-1

Variable Means and Standard Deviations, Urban Residents, Free Persons Age 16 and Older, by Gender, 1860

| | Males | Females |
|---|---|---|
| Age | 33.62 | 33.06 |
| | (13.00) | (13.83) |
| Age Squared | 1298.90 | 1284.18 |
| | (1063.1) | (1155.0) |
| Married | 0.54 | 0.51 |
| | (0.498) | (0.500) |
| Has Children | 0.47 | 0.54 |
| | (0.499) | (0.499) |
| Number of Children | 1.29 | 1.41 |
| | (1.794) | (1.782) |
| Non-white | 0.03 | 0.03 |
| | (0.158) | (0.181) |
| Hispanic | 0.01 | 0.00 |
| | (0.0732) | (0.0696) |
| Student | 0.02 | 0.02 |
| | (0.140) | (0.134) |
| Illiterate | 0.04 | 0.07 |
| | (0.206) | (0.261) |
| Farm Household | 0.03 | 0.03 |
| | (0.178) | (0.162) |
| South | 0.19 | 0.17 |
| | (0.390) | (0.374) |
| Northeast | 0.62 | 0.66 |
| | (0.486) | (0.473) |
| Midwest | 0.17 | 0.15 |
| | (0.373) | (0.361) |
| West | 0.03 | 0.02 |
| | (0.168) | (0.126) |
| Slaves Per Capita (South) [a] | 0.26 | 0.25 |
| | (0.426) | (0.443) |
| Foreign Born | 0.49 | 0.47 |
| | (0.500) | (0.499) |
| Born in Ireland | 0.21 | 0.25 |
| | (0.411) | (0.433) |

**Table C-1 continued**

| | Males | Females |
|---|---|---|
| Born in Germany | 0.16 | 0.13 |
| | (0.368) | (0.334) |
| Born in England | 0.05 | 0.04 |
| | (0.210) | (0.192) |
| Other Foreign Born | 0.07 | 0.05 |
| | (0.255) | (0.223) |
| Real Estate Value (Respondent) ($) | 1,139.36 | 167.38 |
| | (9,515.1) | (3,214.9) |
| Personal Property Value (Respondent) ($) | 764.44 | 85.50 |
| | (6,372.0) | (1,539.8) |
| Female-Headed Household | 0.07 | 0.15 |
| | (0.251) | (0.361) |
| Real Estate Value (Head) [b, c] ($) | 3,118.12 | 3,308.86 |
| | (17,649.6) | (17,833.28) |
| Real Estate Value (Mother) [b] ($) | 491.10 | 662.37 |
| | (5,969.91) | (7,766.29) |
| Real Estate Value (Father) [b] ($) | 3,038.38 | 4,066.23 |
| | (11,980.88) | (18,104.04) |
| Real Estate Value (Spouse) [b] ($) | 59.79 | 1,687.38 |
| | (1,860.64) | (10,451.20) |
| Personal Property Value (Head) [b, c] ($) | 1,761.25 | 1,931.94 |
| | (8,619.53) | (9530.05) |
| Personal Property Value (Mother) [b] ($) | 192.40 | 300.69 |
| | (2,207.09) | (3,353.74) |
| Personal Property Value (Father) [b] ($) | 1,628.98 | 2,486.56 |
| | (7,158.37) | (11,156.01) |
| Personal Property Value (Spouse) [b] ($) | 23.12 | 1,110.39 |
| | (611.29) | (7,565,81) |
| Mother Has Occupation [b] | 0.07 | 0.10 |
| | (0.260) | (0.302) |
| Literate Parent [b] | 0.93 | 0.94 |
| | (0.252) | (0.238) |
| Foreign Born Parent [b] | 0.67 | 0.67 |
| | (0.471) | (0.469) |
| Formal Occupation | 0.91 | 0.23 |
| | (0.288) | (0.421) |
| Craft Family Worker | 0.00 | 0.01 |
| | (0.0381) | (0.116) |
| Merchant Family Worker | 0.01 | 0.06 |
| | (0.0815) | (0.246) |

**Table C-1 continued**

| | Males | Females |
|---|---|---|
| Farm Family Worker | 0.00 | 0.02 |
| | (0.0475) | (0.141) |
| Boardinghouse Family Worker | 0.00 | 0.02 |
| | (0.0498) | (0.134) |
| Non-Occupation | 0.00 | 0.02 |
| | (0.0691) | (0.131) |
| Total Working | 0.92 | 0.34 |
| | (0.270) | (0.475) |
| *Sample Size* | 18,539 | 19,511 |

mean coefficients; sd in parentheses

[a] Slaves per capita if located in a slave-holding state or territory (South region); Sample size: 3,477 Males and 3,276 Females

[b] If details for relation (head, mother, father, spouse) are provided. Sample Sizes for relative variables:

| | Males | Females |
|---|---|---|
| Head | 6,657 | 16,996 |
| Mother | 3,290 | 3,546 |
| Father | 2,485 | 2,556 |
| Spouse | 10,008 | 10,016 |

[c] Only includes data on Head of Household if the individual is not the head of their own household. Head of own household: 55.3% of males, 8.2% of females

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table C-2**

Reported and Unreported Family Work Occupations by Metropolitan Area, Urban Areas, Free Females, Age 16 and Older, 1860, Percents

| | New York, NY | Philadelphia, PA | Boston, MA | Other Metro Area | Total Urban |
|---|---|---|---|---|---|
| Private Household Workers [a] | 12.98 | 10.58 | 11.29 | 10.51 | 11.08 |
| Textile Operatives [b] | 5.43 | 8.38 | 4.19 | 5.60 | 5.75 |
| Operative and Kindred Workers (n.e.c.) | 1.36 | 2.64 | 7.23 | 2.36 | 2.55 |
| Teachers | 0.40 | 1.25 | 1.28 | 1.03 | 0.83 |
| Other Reported Occupation | 3.37 | 3.53 | 2.36 | 2.33 | 2.78 |
| Unreported Family Worker - Merchant | 5.43 | 6.83 | 5.54 | 6.37 | 6.16 |
| Unreported Family Worker – Boardinghouse | 1.96 | 0.80 | 2.16 | 1.29 | 1.45 |
| Unreported Family Worker - Other | 1.14 | 2.05 | 3.51 | 4.83 | 3.68 |
| Total Reported and Unreported Occupations | 32.08 | 36.06 | 37.57 | 34.31 | 34.28 |
| Percent of Urban Women | 20.7 | 10.3 | 7.6 | 61.4 | 100.0 |
| Sample Size | 4,031 | 2,005 | 1,480 | 11,995 | 19,511 |

[a] Private Household Workers includes individuals categorized as housekeepers (distinct from "keeping house"), laundresses (private household), and other private household workers using the 1950 Occupational Classification System.

[b] Textile Operatives includes individuals categorized as dressmakers, seamstresses, tailoresses, milliners, and other textile workers using the 1950 Occupational Classification System.

Note: 78 percent of Operative and Kindred Workers (n.e.c.) in Boston (7.23 percent of the women) were primarily "mill hands."

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table C-3**
Logit Analysis of Free Women's Likelihood of Working, Urban Residents, by Type of Work, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.00705*** | 0.0000463 | -0.000711 | 0.00612*** |
| | (7.80) | (0.21) | (-1.06) | (4.34) |
| Age Squared | -0.000127*** | 0.00000305 | 0.0000135 | -0.000118*** |
| | (-11.05) | (1.29) | (1.75) | (-7.01) |
| Married | -0.316*** | 0.0128*** | 0.0488*** | -0.330*** |
| | (-47.80) | (8.13) | (11.63) | (-38.99) |
| Number of Children | -0.0245*** | 0.000170 | 0.00275* | -0.0163*** |
| | (-11.44) | (0.46) | (2.49) | (-5.95) |
| Non-White | 0.139*** | -0.0200** | -0.187*** | 0.0727*** |
| | (12.53) | (-2.95) | (-6.49) | (3.75) |
| Hispanic | -0.108** | 0.000767 | -0.0301 | -0.167** |
| | (-2.93) | (0.10) | (-0.94) | (-2.84) |
| Foreign Born | 0.0930*** | -0.0198*** | -0.0685*** | 0.000113 |
| | (19.59) | (-13.14) | (-18.25) | (0.02) |
| Student | -0.188*** | 0.0176*** | 0.0634*** | -0.184*** |
| | (-10.01) | (5.25) | (6.24) | (-7.21) |
| Illiterate | 0.0402*** | -0.00394 | -0.0779*** | -0.0194 |
| | (4.73) | (-1.08) | (-6.35) | (-1.35) |
| South | -0.0218*** | -0.00179 | 0.0226*** | -0.00757 |
| | (-3.68) | (-0.98) | (5.04) | (-0.77) |
| West | -0.0182 | 0.0150*** | 0.00736 | 0.0387 |
| | (-0.97) | (4.87) | (0.54) | (1.36) |
| Midwest | -0.0281*** | 0.00182 | 0.00638 | -0.0300** |
| | (-4.32) | (1.10) | (1.33) | (-2.91) |
| Sample Size | 19,511 | 19,511 | 19,511 | 19,511 |
| Correctly Classified | 83.0% | 98.0% | 90.8% | 72.1% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0. Benchmark region is Northeast

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table C-4**

Logit Analysis of Free Women's Likelihood of Working, Urban Residents, by Type of Work, With Slave Intensity, Southern States, 1860 [a]

| | Occupation Reported | Farm Family Worker | Non-Farm Family Worker | All Workers |
|---|---|---|---|---|
| Age | 0.0143*** | -0.000237 | -0.00123 | 0.0129*** |
| | (5.21) | (-0.73) | (-0.74) | (3.57) |
| Age Squared | -0.000213*** | 0.00000341 | 0.0000197 | -0.000191*** |
| | (-6.04) | (0.91) | (1.01) | (-4.28) |
| Married | -0.331*** | 0.00636** | 0.0634*** | -0.277*** |
| | (-21.06) | (2.67) | (5.99) | (-13.53) |
| Number of Children | -0.00950 | 0.000706 | 0.00185 | 0.000954 |
| | (-1.82) | (1.45) | (0.70) | (0.16) |
| Non-White | 0.201*** | -0.00468 | -0.181*** | 0.158*** |
| | (9.89) | (-1.03) | (-4.91) | (5.28) |
| Hispanic | -0.174* | 0 | 0.00487 | -0.163 |
| | (-2.19) | (.) | (0.11) | (-1.63) |
| Foreign Born | 0.128*** | -0.0110*** | -0.0547*** | 0.0470* |
| | (9.11) | (-4.16) | (-5.67) | (2.47) |
| Student | 0 | 0.00290 | 0.119*** | -0.0434 |
| | (.) | (0.59) | (4.93) | (-0.65) |
| Illiterate | 0.0567** | -0.00275 | -0.111*** | -0.0215 |
| | (2.78) | (-0.61) | (-3.82) | (-0.71) |
| Slave Intensity [b] | 0.00513 | 0.00870*** | 0.00203 | 0.0745*** |
| | (0.34) | (4.06) | (0.23) | (3.87) |
| Sample Size | 3223 | 3241 | 3276 | 3276 |
| Correctly Classified | 81.2% | 98.4% | 89.0% | 67.2% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively. 0/(.) designates no observations.

[a] Dependent variable equals 1 if the individual has the indicated occupational status, otherwise equals 0.

[b] Slave Intensity is the number of slaves per capita of the free population in the county of residence.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

**Table C-5**

Logit Analysis of Free Women's Likelihood of Working in a Given Occupation among Those who Reported an Occupation, With Slave Intensity, Urban Residents, Southern States, 1860

| | Private Household Worker [a] | Textile Worker [b] |
|---|---|---|
| Age | -0.0155<br>(-1.59) | 0.00470<br>(0.63) |
| Age Squared | 0.000144<br>(1.14) | -0.0000650<br>(-0.66) |
| Married | -0.122<br>(-1.82) | 0.103*<br>(2.12) |
| Number of Children | -0.0223<br>(-1.11) | -0.00638<br>(-0.48) |
| Non-White | 0.539***<br>(8.73) | -0.364***<br>(-7.33) |
| Hispanic | -0.344<br>(-1.34) | 0.199<br>(0.95) |
| Foreign Born | 0.428***<br>(8.40) | -0.259***<br>(-7.17) |
| Student | 0<br>(.) | 0<br>(.) |
| Illiterate | 0.215**<br>(3.28) | -0.0675<br>(-1.26) |
| Slave Intensity [c] | -0.222***<br>(-3.47) | 0.0729<br>(1.88) |
| Sample Size | 738 | 738 |
| Correctly Classified | 71.7% | 74.9% |

Note: Logit regression model; coefficients are marginal effects at the mean (MEM); t-statistics in parentheses. ***, **, and * represent statistical significance at the 0.1 percent, 1 percent, and 5 percent levels, respectively. 0/(.) designates no observations.

[a] Dependent Variable: Private Household Worker; Equal to 1 if the individual has a reported occupation as a private household worker (including housekeepers, laundresses, other), 0 otherwise.

[b] Dependent Variable: Textile Worker; Equal to 1 if the individual has a reported occupation in textiles (Tailoresses, Dressmakers, Seamstresses, Milliners, Spinners, and Weavers), 0 otherwise.

[c] Slave Intensity is the number of slaves per capita of the free population in the county of residence.

Source: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2021.

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