

Chiswick, Barry R.; Robinson, RaeAnn Halenda

**Working Paper**

## Women at Work in the United States Since 1860: An Analysis of Unreported Family Workers

GLO Discussion Paper, No. 587 [rev.]

**Provided in Cooperation with:**  
Global Labor Organization (GLO)

*Suggested Citation:* Chiswick, Barry R.; Robinson, RaeAnn Halenda (2021) : Women at Work in the United States Since 1860: An Analysis of Unreported Family Workers, GLO Discussion Paper, No. 587 [rev.], Global Labor Organization (GLO), Essen

This Version is available at:  
<http://hdl.handle.net/10419/235152>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

## Women at Work in the United States Since 1860: An Analysis of Unreported Family Workers

Barry R. Chiswick \*  
RaeAnn Halenda Robinson \*

### **Abstract**

Estimated labor force participation rates among free women in the pre-Civil War period were exceedingly low. This is due, in part, to cultural or societal expectations of the role of women and the lack of thorough enumeration by Census takers. This paper develops an augmented labor force participation rate for free women in 1860 and compares it with the augmented rate for 1920 and today. Our methodology identifies women who are likely providing informal and unenumerated labor for market production in support of a family business, that is, unreported family workers. These individuals are not coded in the original data as formally working, but are likely to be engaged in the labor force on the basis of the self-employment of other relatives in their household. Unreported family workers are classified into four categories: farm, merchant, craft, and boardinghouse keepers. Using microdata, the inclusion of these workers more than triples the free female labor force participation rate in the 1860 Census from 16 percent to 57 percent, more than doubles the participation rate in the 1920 Census from 24 percent to 50 percent, and has a trivial effect on the currently measured rate of 56 percent (2015-2019 American Community Survey). This suggests that rather than a steep rise from a very low level in the female labor force participation rate since 1860, it has in fact always been high and fairly stable over time. In contrast, the effect of including unreported family workers in the male augmented labor force participation rate is relatively small.

**Keywords:** Women, Labor Force Participation, Unreported Family Workers, Occupational Status, Unpaid Workers, Self-Employment, 1860 Census, 1920 Census, American Community Survey

**JEL Codes:** N31, J16, J21, J82

The authors would like to thank Michelle Pratt and Jeff Bloem of the University of Minnesota IPUMS Team for their assistance in understanding the 1860 Census IPUMS data. We also appreciate the comments on an earlier draft of this paper received from Carmel U. Chiswick and Evelyn Lehrer. The comments and suggestions of our two anonymous reviewers and Marianne Wanamaker, the co-editor, at *Explorations in Economic History* are much appreciated, as are those received when the paper was presented at the 2021 virtual annual meeting of the Society of Economics of the Household. Financial support for this project was provided by George Washington University. We have submitted to Open-ICPSR a note that has links to our IPUMS data sources and our Data Appendix. Declarations of interest: none

\* Department of Economics, George Washington University

Corresponding Author:  
RaeAnn Halenda Robinson  
Department of Economics, George Washington University  
Email: rhalenda@gwmail.gwu.edu

Women at Work in the United States Since 1860:  
An Analysis of Unreported Family Workers

*“We pray your honorable body... to make provision for the more careful and just enumeration of women as laborers and producers...”*

*--Letter from the officers of the Association for the Advancement of Women to the U.S. Congress, June 15, 1878<sup>1</sup>*

## **I. Introduction**

This paper is concerned with the measurement of the female labor force participation rate in the United States since 1860. Using microdata and conventional measures, the participation rate increased from 16 percent for adult free women in 1860, to 24 percent in 1920, to 56 percent recently. This paper demonstrates that for various reasons the labor contributions by women to family-operated businesses have been discounted, especially in the past. By using microdata and linking the responses of each person to those of self-employed relatives in their household, we can infer who are likely to be unreported workers in the family business and, thus, create a more accurate description of women’s true labor force participation.

In contrast to the commonly-accepted remarkable rise in women’s attachment to the labor force throughout the twentieth century, this paper illustrates that the dramatic change over time has actually been the large shift of females from engaging in unreported work in family businesses to reported work in the paid labor market. Moreover, the augmented female labor force participation rate shows relatively little change from 1860 (57 percent), to 1920 (50 percent), to 2015-2019 (58 percent). When comparable adjustments are made for males, the augmented labor force participation rate differs by little from the conventionally measured rate.

---

<sup>1</sup> U.S. Congress, Senate (1878).

This study will expand the current knowledge about free women's labor force participation in pre-Civil War America. Further, it will analyze how female labor force participation fared through the United States' metamorphosis of emancipation, urbanization, industrialization, and participation in the first World War – that is, the lead up to the end of the Progressive Era. Over the past century, from 1920 to today, the economy and social attitudes toward working women, especially married women, have undergone further changes. In terms of employment, the agricultural sector has continued to decline, manufacturing has reached a peak and then declined, and the service sector has become dominant. This analysis will facilitate a re-examination of the commonly reported long-run trajectory of increased female involvement in the labor market over the past 160 years. Has women's participation in the labor market truly changed so drastically since the mid-nineteenth century, or – as is shown here – has it simply become more visible?

This analysis builds on previous labor force revisions for women in the U.S. in three ways: (1) by expanding the time period under analysis, with a particular emphasis on the earliest available national labor force estimates that included occupational data for free women (i.e., 1860), to the end of the Progressive era (i.e., 1920), to recent years; (2) by modifying the groups identified as unreported family workers to include those engaged in agriculture, craft, merchant, and boardinghouse work; and, (3) by questioning the quantified trajectory of female labor force participation over the last 160 years.<sup>2</sup>

---

<sup>2</sup> The 1850 Census was the first census to include a question on occupation, but only of free males. The 1860 Census asked for the occupation of free males and free females. The 1850 and 1860 Censuses did not ask the occupation or work activities of enslaved people. Census officials had long recognized the undercounting of female work in the census data; ironically, their attempt to fully account for unpaid family workers in the 1910 Census of Population, particularly in the agricultural sector, led to a wholesale rejection of the female employment figures (Goldin, 1990).

Section II presents an overview of the estimates in the literature of female labor force participation in the mid-1800s, summarizes several of the challenges in computing these estimates, and introduces our new approach. A brief description of the relevant transformation of the American economy from 1860 to 1920 is presented in Section III. Section IV is a synopsis of the 1860 and 1920 Censuses of Population, as they are the primary data used in this study. The methodology for identifying unreported family workers in four types of employment (farm, merchant, craft, and boardinghouse) and the implementation of this methodology is presented in Section V for the 1860 and 1920 Census data. The analysis is brought up to the present in Section VI with the study of unreported family workers in the American Community Survey, 2015-2019. The summary and conclusions are presented in Section VII.

## **II. Literature Review and a New Methodology**

Our current understanding of labor market activities of women in the nineteenth century United States is speculative, at best. We must rely on data that is subject to numerous errors and biases, as well as limited by the level of technology and social constructs of the time. In fact, many researchers of early U.S. labor market patterns focus on the period from 1890 forward, as the Census data before 1890 “are generally ignored today on the ground that they are grossly inaccurate” (Smuts, 1960, p. 75).<sup>3</sup>

### **A. Census Treatments**

The question as to how – if at all – to address women’s market and non-market contributions to the economy appears to have plagued Census officials during the latter half of the

---

<sup>3</sup> Unfortunately, due to a fire the microdata files cannot be created for a national sample from the 1890 Census (see Blake, 1996). Microdata files have been created for all of the other Censuses since 1850.

nineteenth century. Occupation was not recorded for free women in any Census prior to 1860, and even then it was done with many caveats, such as the necessity of “regularly” engaging in such work or the requirement that distinct wages or salaries be earned (conditions which were not imposed on male labor).<sup>4</sup>

Additionally, the concept of an occupation at the time was more strongly linked to social identity than actual economic activity. For example, working – particularly for pay – was thought to lower a woman’s social status. Given the negative social connotations for working women, there was rampant underreporting of occupation by women themselves or by the respondent representing the household (Smuts, 1960; Folbre and Abel, 1989). This is, in part, because a woman’s primary social identity was to be 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 that the Census Office issued a statement with the 1870 Census of Population Report addressing the underenumeration of women (U.S. Census (1873), p. 375):

“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,

---

<sup>4</sup> See Folbre and Abel (1989) for a discussion of the Census Bureau’s collection of women’s employment data.

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.”

This indicates 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.<sup>5</sup> 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 of free female labor force participation in the nineteenth century are so low, about 11 percent.

#### B. Estimates Using Aggregate Data

While the 1860 Census did purportedly collect information on occupations of both males and females, the 1860 Census Report did not include a discussion of occupation or labor force participation by gender. The report summarized the numbers of individuals in the various occupations by state, but did not provide a count of the number of males and females in each occupation or, indeed, even a count of the number of men and women who held any occupation. It was not until the census microdata files were released through the Integrated Public Use Microdata Sample (IPUMS) by the Minnesota Population Center at the University of Minnesota that researchers were able to provide a male and female labor force participation rate. In fact, it

---

<sup>5</sup> 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 of female jobs (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 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 (Department of Commerce, U.S. Bureau of the Census, 1921).

was not until September 2019 that a preliminary full count microdata file of the 1860 Census was released.<sup>6</sup> Therefore, the female labor force participation rate in 1860 has historically been calculated through approximations based on the available aggregate data.

There have been a number of attempts by economic historians to compute approximations of labor force participation – for both males and females – from the nineteenth century. Although each of these estimates is useful in attempting to provide a more accurate picture of labor force participation despite the lack of thorough and reliable data, each also relies heavily on assumptions and extrapolation. The primary methodology used was to assume that the labor force participation rate would be equivalent to some number based primarily on estimates of free male labor force participation from other censuses, and apply that to the estimated size of the population.

Lebergott (1964, 1966) provided one of the earliest estimates of labor force participation dating back to the beginning of the nineteenth century. However, he largely ignored female labor by claiming that women’s primary status was probably that of a housewife. He did consider three employment categories – employment in domestic service, textiles, and the clothing trades – and based on aggregate data estimated a free female labor force participation rate of about 11 percent in 1860. Weiss (1986, 1992) provided revised estimates but also came up with a labor force participation rate for free females of 11 percent. None of these estimates, however, address the gross undercounting of female labor, particularly in the agricultural sector, as they rely primarily on recorded aggregate occupational information in the published census reports.

---

<sup>6</sup> The 100 percent microdata sample, unfortunately, does not include the string data for occupation. The analysis in this paper uses the 1/100 sample (originally released in 1998), which does include the occupational string data that is essential for this analysis, as will be discussed in Section III.



Folbre and Wagman (1993) provided a revised estimate by including housework and other non-market work. Yet, housework is not what we think of when we discuss labor force participation. We have in mind productive activities that enhance a family's economic well-being, either directly or indirectly, related to a household's economic activities beyond producing in the household for the household's own use.<sup>7</sup>

Goldin (1990, Appendix to Chapter 2) also undertook a correction of the labor force statistics aiming to include the paid and unpaid labor of women – particularly married women – excluded from official census estimates, focusing on the years 1890-1910. Goldin's methodology utilized a combination of data from the 1890-1910 Censuses (although not the microdata files as they were not available at the time of her research), in addition to various time-use surveys, to ascertain the amount of time spent on market work, whether in or out of the home. Her analysis results in a female participation rate in 1890 that is roughly equal to that in 1940 (approximately 26 percent). Goldin's approach largely focuses on estimating the omission of married women providing unpaid labor, which she classifies into three main categories: boardinghouse keepers, unpaid family farm workers, and manufacturing workers in homes and in factories.

### C. A New Approach

The analysis developed in this paper takes a different approach by identifying those individuals who were most likely not properly enumerated in the data. This is done using a different set of assumptions than previous researchers: It is assumed that those who do not report having an occupation provide labor in a business operated by a related self-employed member of

---

<sup>7</sup> Folbre and Wagman (1993) estimate a 72 percent non-market participation rate for women in 1885 and a total (market and non-market) rate of 83 percent, the difference again being 11 percentage points.

the household. Further, this paper defines labor force participation as engagement in either formal or informal market work, as distinct from home production. We do not discount the extraordinary amount of labor required to run a home in the nineteenth or early twentieth century (from cooking and cleaning for all household members without the modern conveniences to managing domestic servants employed in the household); however, in order to be more consistent with later definitions of the concept of unpaid family workers, we aim to identify only those that were likely to be engaged in production for the market versus for their personal/family consumption.<sup>8</sup> Our revised estimates are computed using the microdata files from the 1860 and 1920 Censuses of Population and the 2015 to 2019 American Community Survey.

### **III. Changes in the Economy: 1860 to 1920**

The methodology developed in this article to include in labor force statistics the unreported market-oriented productive activities of adult women is applied to the Census data for 1860 and 1920. These two years are bookended by major U.S. wars, the Civil War and participation in World War I. And between 1860 and 1920, the United States was transformed from a largely rural agrarian society into an urban industrialized economy (Table 1).<sup>9</sup> In 1860 just 20 percent of the

---

<sup>8</sup> The Current Population Survey in use today defines unpaid family workers as persons age 16 and over who are not working for pay or profit, but who “during the reference week... worked 15 hours or more as unpaid workers in an enterprise operated by a family member.” Unpaid family workers were disproportionately female, in part due to the fact that in family owned and operated businesses the husband was counted as self-employed while the wife was reported as an unpaid family worker. Their numbers declined over time (Daly, 1982). In January 2020, before the COVID-19 pandemic, of the 75 thousand estimated unpaid family workers, 25 thousand were in agriculture and 50 thousand were in non-agricultural sectors (Bureau of Labor Statistics, 2021, Table A-8). That is, all of the reported “unpaid family workers” in the U.S. could fit into one major university football stadium.

<sup>9</sup> See, for example, “The United States...” (1963), Hill (1929), Bruchey (1975, Chapters 2 and 3), Chamberlain (1963, Chapters 7 to 10), Carter and Sutch (1997), Sutch (n.d.).

U.S. population lived in urban areas, but 51 percent lived there by 1920.<sup>10</sup> These developments had implications for the reported and unreported employment of women (Hill, 1929).

The different technologies used in the bookended wars exemplified the state of technology in the U.S.. Bruchey (1975, p. 77) writes that: “By twentieth-century standards, the Civil War was premodern. It was unmechanized and fought by men on foot or horseback armed with rifles, bayonets, and sabers. The consumption of iron attributed to small-arms production amounted merely to 1 percent of the total output of iron between 1861 and 1865. While artillery was used, it too was a minor consumer of iron and steel.” By contrast, by the end of World War I, the military was mechanized, using trucks and tanks. Airplanes had replaced hot air balloons, and oceangoing warships were made of steel and powered by coal, rather than made of wood and powered by wind. The machine gun and barbed wire made the cavalry charge obsolete.

In the intervening years, the railroad network expanded to the entire country (from nearly 31,000 miles of track in 1860 to 260,000 miles in 1920, see Table 1), connecting not only east and west, but all the areas in-between. Mechanical agricultural equipment was developed, but so too was the means for powering it (Bruchey, 1975). Animal power was replaced by steam, and then by gasoline in the internal combustion engine. This freed up land (as the demand for animal feed declined) and labor. Employment in agriculture increased from 6.2 million to 11.1 million

---

<sup>10</sup> In 1920, for the first time, the majority of the U.S. population (51.3 percent) lived in urban areas. Notably, however, the sex distribution between urban and rural areas varied. That is, urban areas were 49.9 percent female, whereas rural areas were only 48.1 percent female. The 1920 Census Report notes this distinction, stating that the difference in sex distribution between urban and rural communities exists despite the fact that foreign-born individuals, who were predominantly male, were more likely to live in urban than rural areas. The Census Report postulates the relative predominance of females in urban areas is “doubtless due primarily to the fact that the cities afford many more opportunities for the gainful employment of women than do the rural districts” (U.S. Bureau of the Census, 1921, Volume II, pp. 105).

workers, but as a share of reported employment declined from 58.5 percent to 26.7 percent. The new farm technology increased the acreage a farmer could cover in a day, and thereby increased farm sizes.

Industrial production also had a change in its sources of power, from water power (which limited location choices), to steam power (during the Civil War), and then to electric power by 1920 (Bruchey, 1975). Indeed, the high demand for uniforms during the Civil War encouraged the factory manufacturing of clothing and shoes, which led to the standardization of sizes, which in turn facilitated the growth of factory clothing and shoe manufacturing. Pig iron production increased from less than one million net tons in 1860 to over 41 million tons by 1920 (Table 1).

Home production also experienced significant technological change. By the 1920s, laborsaving household devices such as the vacuum cleaner, steam iron, refrigerator, and dishwasher had been invented and produced. Further, by 1879, almost two-thirds of U.S. households had a sewing machine – a remarkably fast diffusion after its initial patent by Singer in the 1850s (Godley, 2006). The impact on women of these technological advances was substantial, in some cases freeing up their time for engagement in other labor and in other cases (such as the sewing machine) enabling them to produce their goods for market sale much more efficiently.

The adoption of new forms of business organizations, including corporations and “trusts,” and the development of modern financial institutions facilitated the growth and coordination of large enterprises in many industries. These included railroads, iron and steel, oil, and toward the end of this period automobiles and trucks (Chamberlain, 1963, Chapters 7 to 11).

Moreover, during this period there was a massive immigration to the United States, particularly from Southern and Eastern Europe. With the closing of the frontier and the expansion

of urban industrial activity, these new immigrants went predominantly to the emerging urban industrial centers in the Northeast and Midwest (Carpenter, 1927, Chapter 3).

These transformations of the American economy from 1860 to 1920, including the changing technology and industrial structure, had profound implications for female employment. Increasing farm size led to a relative reduction in self-employed farm families. The increase in firm size in the non-farm sectors also accompanied a relative decline in self-employment in merchant and craft activities. These developments reduced the opportunities for women to be unreported workers in family enterprises. The growth of the manufacturing and service sectors increased paid employment opportunities for women outside the home in white collar (clerical, secretarial, bookkeeping, retail trade, nursing, and teaching) jobs, as well as blue collar (operative, assembly line) jobs.

#### **IV. The United States in the 1860 and 1920 Censuses**

This section presents an overview of the 1860 and 1920 Censuses, one-in-a-hundred microdata files used in this study. The variables used in this study are discussed in more detail in Appendix A.<sup>11</sup>

##### **A. An Overview of 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 of 1860, although some enumeration occurred through February

---

<sup>11</sup> A detailed description of the data used in this study, including the codebooks, Data Appendix, and information on how to access the data from IPUMS-USA is available through Open-ICPSR (see Chiswick and Robinson, 2021).

of 1861. The Census was completely enumerated before the start of the U.S. 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” (US Census, 1860, p.15).<sup>12</sup> Although clearly instructed to list the occupation of females (including “no occupation”), almost 78 percent of the entries for occupation for females ages 16 and older were left blank, versus only about 11 percent of those for males. This omission is likely due, in part, to the issues related to underreporting and enumerator bias, as discussed in Section II.

The 1860 Census takers were asked to list the household head as the first person on the household record, to be followed by the head’s spouse, children, and other relatives, and then non-relatives, by age in chronological order for each category (US Census, 1860). When the manuscript data were converted into a machine-readable format, the coders were instructed to impute the relationship status to the head of the household on the basis of the person’s surname, gender, and age, taking account of the order in which the names are listed.<sup>13</sup>

---

<sup>12</sup> There is no information in the Census records on the respondents’ current employment status 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 market.

<sup>13</sup> The procedure used for the construction of these imputed variables is discussed in the IPUMS User Guide on “Family Interrelationships” (IPUMS-USA, n.d.). The IPUMS team ran tests of their procedure for imputing relationships in 1860 on 1880 census data (which did include a question on household relationships) and report over 95 percent accuracy between the imputed relationship and the listed relationship (IPUMS-USA, n.d.).

The total population of the United States, both free and enslaved, according to the 1860 Census report was 31.4 million. The total free population numbered 27.5 million. There were 8.5 million free males, ages 15 and older, and 8.0 million free females of that age group. Of the free population, 97.9 of both males and females were White, 1.7 percent were free Blacks or “Mulatto,” 0.2 percent were “Civilized Indians,” and 0.2 percent Chinese (nearly all males).<sup>14</sup> Just over 15 percent of the free population was foreign born (53 percent of who were male). There were 8.3 million individuals with a recorded occupation – approximately half of the working age population.<sup>15</sup>

This paper uses the data from the one-percent 1860 Census of Population Integrated Public Use Microdata Sample (IPUMS) by the Minnesota Population Center at the University of Minnesota, originally released in 1998 and substantially updated since then. This file contains the data recorded for each individual as reported, as well as constructs a number of other variables such as marital status, number of children, ages of children, and household relationships. 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. This allows us to perform an analysis not only based on the responses provided for a given individual, but also based on the responses provided for certain other members of their household. For example, we are able to filter the data by identifying women with no listed occupation who lived

---

<sup>14</sup> “Civilized Indians” was the term used in the 1860 Census Report to define Native Americans who were taxed by the U.S. government and “have renounced tribal rule, and who under state or territory laws exercised the rights of citizens” (US Census, 1860, p. 14). Only a small portion (approximately 13 percent) of the Native American population was included in this count.

<sup>15</sup> These figures are taken from the 1860 Census Report, Recapitulation of the Tables of Population, Nativity and Occupation (1864).

in a household with a relative whose occupation fits into a given category; this is a key component of our ability to identify unreported family workers.<sup>16</sup>

This study takes advantage of the wealth of microdata provided in the 1/100 IPUMS file. The file includes data by individual exactly as it was recorded by the census enumerator in 1860 (called the “string data”) for certain variables, such as occupation. This provides greater detail into each respondent’s perception of their own occupation, and often includes abbreviations or shorthand by the enumerators. The string data for occupation is an essential component of our methodology due to the specific format and notation that enumerators used to differentiate between occupations of similar categories, specifically the self-employed versus employees.

The second occupation variable used extensively in this study is the harmonized occupation variable. That is, IPUMS retains the original occupation as recorded by census enumerators in the occupation string variable; however, it also provides a harmonized variable for occupation that standardizes the entries and provides consistency across censuses to allow for long-term analysis. This paper makes use of the Census data file’s 1950 occupation classification system variable as the harmonized variable for analysis of occupation across the population. This variable classifies occupations as either “gainful” or “non-occupation.” A “gainful” occupation is any which falls into the 1950 occupation categories other than “non-occupation.” Non-occupations included

---

<sup>16</sup> While the data are organized by household, a household may contain more than one “family.” A family is any group of persons living in the household who are related by blood, adoption, or marriage. A family may consist of a single unrelated person living in a household (e.g., a servant) or a large multi-generational extended family. In 1860, 71 percent of the free people lived in a single-family household, 16 percent lived in a two-family household, 6 percent in a three-family household, and 7 percent lived in a household with four or more families.



housekeeping at home / housewives, imputed keeping house, helping at home, current students, and retired.<sup>17</sup>

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

#### B. An Overview of the 1920 Census of Population

The 1920 Census of Population was the Fourteenth Census of the United States. By this time, a permanent agency, the U.S. Bureau of the Census, had been established to conduct and process the decennial censuses. Census Day for the 1920 Census was January 1, 1920 – an anomaly in the decennial censuses, which had previously been conducted primarily over the

---

<sup>17</sup> Students – that is, those individuals who reported attending school in the previous year or who listed an occupation of “student” – were not excluded from this study, nor were they exempt from being categorized as unreported family workers if they met the criteria. The data shows that attending school did not preclude an individual from having an occupation. In the 1860 sample, about 40 percent of individuals age 16 and over who reported attending school also reported a gainful occupation, mostly commonly farm laborers, farmers, and private household workers. Similarly, in the 1920 sample, 25 percent of individuals age 16 and over who reported attending school also reported an occupation – the most common being unpaid family workers on farms, followed by farm laborers, operatives and kindred workers, and salesmen and sales clerks.

summer months and have since been conducted beginning in the spring.<sup>18</sup> The Census was almost completely enumerated by the end of March (over 98 percent), and completed by the end of the calendar year.

The total population of the United States according to the 1920 Census report was 105.7 million.<sup>19</sup> About 90 percent of the population was listed as white, with the remainder being listed as “Negro”<sup>20</sup> (9.9 percent), Native Americans<sup>21</sup> (termed “Indians” in the 1920 Census, 0.2 percent), Chinese (0.1 percent), Japanese (0.1 percent), and all others (less than one-tenth of a percent). About 87 percent of the population was considered native born, while 13 percent was foreign born. Of the total population, 49 percent were female.

---

<sup>18</sup> The Department of Agriculture had requested the date change for the 1920 Census, positing that harvests would have been completed at that time but relevant characteristics would remain fresh in the minds of the populace, hopefully leading to more accurate data. As it turns out, the 1920 Census reported a marked decrease in the proportion of the population gainfully employed as compared to the 1910 Census, which is attributed primarily to the change in the census date. The 1920 Census Report on Occupations states that “the change in census date... undoubtedly resulted in the return by census enumerators of a smaller number of workers in agricultural pursuits, in building trades, and in all general construction work than would have been returned had the census been taken as of April 15, as it was in 1910” (US Bureau of the Census, 1921, Vol. IV, p. 22). This decrease was attributed to the seasonality of those occupations, as well as the census enumerators mistakenly returning as having no occupation some individuals who were temporarily unemployed.

<sup>19</sup> These figures are taken from the 1920 Census Report, Volume II, General Report and Analytical Tables, and Volume IV, Occupations (US Bureau of the Census, 1921).

<sup>20</sup> This racial category according to the language of the 1920 Census included individuals who were Black and “Mulatto.”

<sup>21</sup> Beginning in 1890, Native Americans living on reservations were enumerated.

The 1920 Census Report recorded 41.6 million individuals as engaged in a gainful occupation, approximately half of the working age population.<sup>22</sup> Further, 8.5 million of those with a recorded gainful occupation are female, which is one-fifth of all individuals engaged in gainful occupations.<sup>23</sup>

This paper makes use of the one-percent 1920 Census of Population IPUMS file.<sup>24</sup> Similar to the data file for 1860, the 1920 Census microdata file contains the data recorded for each individual as reported, in addition to several imputed variables. However, the Census questionnaire for 1920 was substantially expanded in comparison to the earlier 1860 Census, containing 29 questions. The 1920 Census included many questions related to the individual's nativity, ancestry, and mother tongue. It also included more detailed questions related to employment – specifically, recording industry as well as the occupation for each person enumerated.

Notably, the instructions for enumerators specifically stated that an entry should be recorded in the column for trade or profession for *every* person enumerated, regardless of age. The

---

<sup>22</sup> In the 1920 Census Report, the working age population was considered persons 10 years of age and older, which differs from the earlier 1860 Census Report in which the working age population was those over 15 years of age. The Current Population Survey (in use since 1947) now defines the working age population as those age 16 and over.

<sup>23</sup> As with the 1860 data, the 1920 data are organized by household, which may contain more than one “family.” In the intervening 6 decades, household composition shifted to some degree, with more households composed of just one nuclear family unit. For 1920, 82 percent of the people lived in a single-family household, 10 percent lived in a two-family household, 3 percent in a three-family household, and 5 percent lived in a household with four or more families.

<sup>24</sup> These data are available through the Integrated Public Use Microdata Series (IPUMS USA) sponsored by the Minnesota Population Center, University of Minnesota (<https://usa.ipums.org/usa/>).

enumerators were further instructed to record “(1) the occupation pursued – that is, the word or words which most accurately indicate the particular kind of work done by which the person enumerated earns money or a money equivalent... or (2) none (that is, no occupation). The entry none should be made in the case of all persons who follow no gainful occupation.” (US Bureau of the Census, 1919). Despite the clear instructions, the entry for trade/profession was left wholly blank for 2 percent of women, whereas it was left blank for only 0.6 percent of men – a substantial improvement over the 1860 Census. Almost 73 percent of women had “none” recorded in the occupation entry, while the same is true for less than 9 percent of men.

Detailed instructions provided to enumerators gave examples specific to women’s employment. For example, a woman performing housework in her own home with no other remunerative employment should not have an occupation recorded; however, a woman who takes in work, such as washing for others, to be done in her home in addition to her own housework, should be recorded with an occupation describing that type of work. As in the 1860 Census data, the string data for both occupation and industry from 1920 are preserved, in addition to the creation by IPUMS of a harmonized occupation variable for greater consistency over time. The use of the harmonized variable for occupation, using the 1950 classification system, simplifies comparisons between the Census samples.

Another important question included in the 1920 Census and utilized extensively in this study is that of “class of worker.” Specifically, each person with an occupation recorded was also to be listed as either an employer, salary or wage worker, or working on own account. This variable allows for the easy identification of individuals who run their own business, i.e., the self-employed. Further, the 1920 Census questionnaire included a question on relationship to the head of the family, which provides greater and more accurate detail than the imputed relationship

variable available for 1860. In particular, this variable allows for the differentiation between roomers/boarders/lodgers and live-in domestic servants, which was not always possible in the earlier data.

The 1920 sample used for this study mirrors that used for the 1860 Census to facilitate comparison and consistency in the analysis. That is, it is restricted to individuals age 16 and older and excludes those who were likely unable to engage in a trade or profession (i.e., those who were recorded as “deaf, dumb, blind, idiotic, a pauper, or convict”).

## **V. How to Identify Unreported Family Workers**

As the primary aim of this study is to construct an augmented labor force participation rate that includes individuals who provided unreported labor for a family operated business, the question arises as to how to recognize those individuals, primarily women, in the data. This section provides the methodology used to identify those individuals, including the assumptions made regarding who qualified as a family worker in various contexts. It focuses on unreported family workers who fell into four primary categories: agriculture (farm family workers); retail or shop keeping (merchant family workers); supporting the business of a self-employed craftsman or tradesperson (craft family workers); and, supporting a boarding or lodging house owned and/or operated by a family member (boardinghouse family workers).

It should be noted that this set of occupations is an approximation of individuals who were likely providing unenumerated labor in support of the occupation of other self-employed members of their households. This is by no means exhaustive and is subject to several caveats, which cannot be avoided when using data that is up to 16 decades old and incomplete. Our procedure may overestimate female labor supply. It is likely that some individuals who were not actually providing labor (e.g., some of the aged) will be included in these calculations, based on their status

within their household and lack of other listed occupations. This is mitigated by removing from the sample those individuals who were unlikely to be able to provide any labor (that is, the disabled, infirm, and incarcerated). Moreover, to the extent that women did only household chores, and did not participate in a meaningful way in the farm, store, craft, or boardinghouse owned by a self-employed family member, the estimated female labor force participation rates herein could be overstated.

On the other hand, our calculation certainly overlooks many females who did provide labor. This paper does not propose a methodology for identifying women who provided unenumerated labor when there were no self-employed members of her household in the four categories identified. Accounts from the nineteenth century suggest that many women provided labor in many capacities along with their roles of homemakers, including cooking, doing laundry, making textiles and clothing (“homework”), and any other number of miscellaneous unreported tasks for other households in addition to their own (Jaffe, 1956; Smuts, 1960; Folbre and Abel, 1989; Folbre and Wagman, 1993). Much of that labor could potentially be considered home production – in support of their own household – but would not be reported in the census as an occupation and not be accounted for in the methodology developed in this study. However, to the extent that goods from family operated gardens were sold, textile work was piecework for pay, laundry was done for pay for other households, etc., this labor should be counted as market work. These considerations imply that our estimates understate the true female labor force participation rate.<sup>25</sup>

---

<sup>25</sup> Goldin’s (1990) revision of the 1890-1910 labor force participation estimates for married women provides more detail on upper and lower bounds. Her analysis does this by making use of time and budget surveys, which are beyond the scope of this study.

The primary methodology used to identify these unreported family workers is to code them as such based on the occupations of self-employed members of their family in their household, given that they did not report an occupation themselves. In essence, individuals – both male and female – age 16 and over who live in a household with a farmer (owner, tenant, or manager), merchant, self-employed craftsman, or boardinghouse keeper but do not have an occupation reported and are imputed to be related to the head of household (as opposed to a live-in servant or a roomer/boarder/lodger) are presumed to support, in some capacity, the self-employed occupation of that household member. The specific coding of the relevant variables differs slightly across the data sets used in this study due to changes in availability of data, but the overall methodology is consistent.

The augmented labor force participation rates, including the imputation of unreported family workers, are summarized in Table 2 for 1860 and 1920.<sup>26</sup> For 1920, these data are provided for the total population as well as separately for the White and Black population. This is done for two main reasons. First, the 1860 U.S. free population was almost entirely white. To the extent that occupational choice and/or availability differed by race, presenting the data in this way allows for easier comparison between the more homogenous groups in the two years (i.e., the free population in 1860 and the White population in 1920). Secondly, there is evidence that census responses, particularly for the question on occupation, differed by race. That is, White families underreported unpaid family labor far more than did Black families, suggesting a difference in norms between the two racial communities in regards to the labor of married women (Goldin, 1990).

---

<sup>26</sup> The data on unreported family workers for the 2015-2019 American Community Survey are reported in Appendix B, also by race (Black/White).

The definitions of the types of unreported family workers are presented in Appendix A.

#### A. Farm Family Workers

The most straightforward category of unreported labor is that of the family worker in agriculture. The productive role of adult women, children, and teens on family owned or operated farms has been well documented. Through her study of oral history in the U.S. Midwest, Adams describes the “significant amount of income [farm women] earned and the vitally important role they played in the farm economy” (Adams, 1999/2000, pp. 330). Through her interviews and analysis of historical farm documents, Adams found that farm women were unequivocally agricultural producers. They engaged in tasks such as raising chickens, milking cows, growing herbs, berries, and flowers for sale, among others. These activities generated income that was integral to the family budget. Further, most farms operated with the help of laborers, who often lived as boarders on the farm; therefore, farm women also often had the responsibilities of cooking, cleaning, and washing for the hired male laborers.

The value of adult women in producing farm output was also analyzed by Craig (1991), in which he finds that the contribution of an adult female farm household member is roughly equivalent to that of a male hired hand from planting through harvest.<sup>27</sup> While the role of farm women varied depending on the region, it was particularly important in the Northeast and the

---

<sup>27</sup> Craig (1991) uses data from the 1860 Censuses of Agriculture and Population to estimate the economic contribution (full income of the farm household) of children and women to northern agriculture. He finds that “before adulthood, females focused mainly on household production, but afterward, their labor was directed more at market activity” (Craig, 1991, p. 79).

C. Chiswick (1983) was able to address a similar question using microdata for Thailand in 1974-76. She developed a methodology that revealed the implicit contribution from “unpaid family workers” to the productivity and earnings of self-employed households in rural and urban areas.



frontier due, in part, to their role in dairy farms in the former and the relative lack of available male labor for hire in the latter.

In order to construct the measure of farm family workers, any individual age 16 and over whose head of household, spouse, mother, or father, has an occupation coded as a farm owner, farm tenant, or farm manager (hereafter referred to as a farmer) was coded in these data as a family worker on a farm, as long as they did not have another occupation recorded and were related to the head of household (i.e., not classified as a roomer, boarder, lodger, or institutional inmate).<sup>28</sup> This should capture the farm wives, daughters, and sons age 16 and over whose occupations were not enumerated in the data.

#### 1. 1860 Farm Family Workers

Farming was by far the most common occupation in the United States in 1860 – the official Census report designates 2.4 million free individuals as Farmers and an additional 0.8 million as Farm Laborers, which is almost 40 percent of all free individuals who reported an occupation (US Census 1860). However, there was little or no accounting of free female labor in agriculture. In fact, over 96 percent of the reported farmers (not including farm laborers) were male. That is, almost one-third of adult males reported having an occupation as a farmer, while only just over 1

---

<sup>28</sup> Farm managers were a relatively small group. In 1860, they were only 0.42 percent of all farmers in the slave states and 0.06 percent in the free states. In 1920, farm managers made up 1.5 percent of all farmers. The relative paucity in the data of adult farm managers is not surprising. On family owned and operated farms and on small Southern plantations the owner or tenant would provide the managerial functions. In 1860 on larger plantations, many of the overseers were themselves slaves. Fogel and Engerman (1974, pp. 210-215) write: “As drivers or gang foremen they (slaves) were ubiquitous on medium and large plantations... Slaves also operated at the higher level of plantation supervision... as overseers or general managers... Only 30 percent of plantations with one hundred or more slaves employed white overseers. On smaller plantations the proportion was even lower... On a majority of the large plantations, the top nonownership management was black.”

percent of females did so. This is despite that fact that “contemporary accounts of farm life leave no doubt that most farm women worked long and hard” (Smuts, 1960, p. 76). Identifying and accounting for unreported farm family workers provides a more accurate picture of how much of the population provided agricultural labor, particularly for women. As can be seen in Table 2, for 1860 our procedure estimates 35.8 percent of adult females and 5.1 percent of adult males as unreported family workers on farms.<sup>29</sup>

Over 90 percent of these female farm family workers were the wives (59 percent) or daughters (32 percent) of the head of household in which at least one member was a farmer. This results in approximately 87 percent of adult females in farm households imputed as providing farm labor, which seems a reasonable estimate when compared to male labor.

Further, of the females with no reported occupation, most of the entries for occupation were blank in the occupational string variable data (indicating those individuals were most likely not asked for an occupation as entries such as “none” or “no occ” were recorded to indicate the response was “no occupation”). The majority of the remainder had “occupations” recorded in the occupational string data field based on their marital status – such as “wife,” “widow,” or “spinster.” Nonetheless, as contemporary accounts suggest that the wife or widow of a farmer often also provided farm labor, it seems a reasonable assumption to code these women as unreported farm family workers.

Two-thirds of the males in farm household are farmers themselves and an additional one-sixth are farm laborers; that is, 84 percent of males in farm households are also recorded as farm

---

<sup>29</sup> For comparison, Folbre and Wagman (1993) estimate the farm non-market female work force to be 36.3 percent of the adult female population.

workers in some capacity. Of those who report no occupation at all, 90 percent are related to the head of household and become imputed farm family workers. This brings the approximation of farm labor to 94 percent of males in farm households. The most common occupations among the remaining 6 percent of males in farm households are: private household workers, students, teachers, carpenters, foremen, and salesmen. Just over 1.3 percent of males in farm households were unrelated to the head of household and had no formal occupation listed. It is likely that they also provided labor on the farm, but are not considered unreported family workers in this study due to their not being coded as related to the household head.

## 2. 1920 Farm Family Workers

Although the six decades since 1860 saw a substantial decline in agriculture relative to other industries, particularly manufacturing and services, in addition to labor-saving technological changes in agriculture, farming remained an important employment sector. In 1920, about 11 million individuals were recorded as engaging in an occupation related to agriculture, fishing, forestry and animal husbandry, which amounts to a quarter of individuals with a recorded occupation (U.S. Bureau of the Census, 1921). Further, it was the second most common category of occupations, after manufacturing, for both males and females in 1920, according to the official report. Although the farming sector declined from 1860 to 1920, it does not follow that the role of the remaining farm wives, daughters, sons, and other relatives changed. Based on surveys of

farm women in the 1920s, on average housewives on farms spent 9 to 10 hours per week engaged in unpaid family agricultural labor (Goldin, 1990).<sup>30</sup>

The inclusion of unreported farm family workers contributes a sizeable increase of nearly 20 percentage points to the 1920 augmented labor force participation rate for adult females, while it increases that of adult males by only 2.3 percentage points (Table 2). Women working as unreported farm family workers are the single largest contributor to the female labor force, making up about 40 percent of all women reported with or imputed to have an occupation.

In the 1920 Census, nearly one-quarter of individuals were living in a farm household – just under half of whom are female. Less than ten percent of adult women living in a farm household had a recorded occupation related to farming. And, in fact, over half of those women with a recorded gainful occupation related to farming are actually coded by IPUMS as unpaid family workers using the Census Bureau’s standardized occupation classification system.<sup>31</sup> This means that only approximately 5 percent of adult women in farm households were recorded as providing labor to the farm for which they may have been earning money. The most common reported occupations for the remainder of the women are teachers and private household workers.

---

<sup>30</sup> While this does not meet the criteria for unpaid family labor by today’s definition (i.e., a minimum of 15 hours per week), no such constraint was placed on occupational reporting in 1860 or 1920. That is, the question on occupation in both censuses related to the general trade or profession an individual engaged in, not their degree of attachment to the labor force.

<sup>31</sup> In the 1950 occupational classification system, one category is “farm laborers, unpaid family workers.” It appears that this category was assigned to individuals in the 1920 data who reported an occupation as a farmer, farm laborer, or farm worker and reported the industry as “home farm” or some variation of “home farm,” such as “own farm” or “father’s farm,” the implication being that they were not paid wages.

The 1950 occupation code for unpaid family workers was not used in the 1860 data, likely due to the lack of reporting of industry in that census.

The overwhelming majority of women living in farm households (over 85 percent) have no recorded gainful occupation. Nearly all of these women are related to the head of household and become imputed family workers. Further, although the majority had the word “none” recorded in the occupational string data, many had rather ambiguous terms such as “house duties” and “working at home” that leave their true activities open to question. Using our methodology, therefore, 93 percent of adult women living in farm household were likely providing some form of labor (either reported or unreported) on the farm.

In this sample, farming is primarily a male sector. Among those who are listed as farmers (owners, tenants, and managers), 96 percent are male. Further, 82 percent of the reported farm laborers are male. This disproportionate sex ratio of farm workers becomes even more stark when looking only at White farm workers, as White families were more likely to underreport unpaid family labor – particularly of women – than were Black families (Goldin, 1990).

Over 85 percent of the males living in farm households had a recorded occupation in farming, including those coded as unpaid family workers using the Census Bureau’s standardized occupational classification system. Less than ten percent of adult men in farm households had no gainful occupation recorded; the vast majority of those are related to the head of the household and become unreported farm family workers by our definition. This brings the total to over 95 percent of adult males living in farm households as providing (either reported or unreported) labor on the farm.

Table 2 also reported the analysis of unreported family workers by race – separately for Blacks and Whites. While the reported gainful occupations for men were similar by race (93 percent for Blacks and 90 percent for Whites), Black women were twice as likely to report an occupation (44 percent for Blacks and 22 percent for Whites). There were relatively few

unreported farm family workers among men (about 2.4 percent for both races); however, there was a higher rate, but little difference by race, among women. Unreported farm family workers constituted 23 percent of Black women, and 20 percent among White women.

## B. Merchant Family Workers

Another category of occupations in which family members were likely to provide considerable labor was merchants. It is expected that wives, daughters, and sons of shopkeepers supported the family business, in part because it was common in both time periods for the store and house to be adjoined, particularly in the nineteenth century (Goldin, 1990). For this study, effort was made to differentiate between individuals who worked in a shop and those who were proprietors of a shop. This category – merchant family workers – includes anyone whose head of household, father, mother, or spouse had an occupation (in the occupational string data for 1860 or reported self-employment for 1920) that indicated ownership of a retail store, given that the individual did not have a listed occupation and was related to the head of household.

The specific search terms for 1860 were chosen by cross-referencing the occupational string data with the occupation 1950 code indicating the individual was a manager or proprietor. Analysis of the data suggests that individuals who worked in a shop as a paid employee were listed with occupations such as “clerk” or simply the name/type of store. The same list of search terms developed for 1860 was used for the 1920 analysis to identify self-employed merchants, but it was also supplemented with the self-employed in a broader set of retail occupations since self-employment was explicitly identifiable in 1920.

### 1. 1860 Merchant Family Workers

Self-employed merchants in the 1860 data were identified through the occupational string variable. As seen in Table 2, unreported merchant family workers added a small number to the count of male workers (only 0.3 percentage points), but included 3.0 percentage points of adult women.

Approximately 4.5 percent of free adults lived in a household in which a key relative was reported as a merchant. Although the male/female division of individuals living in these merchant households was almost exactly even, two-thirds of the males in these households were recorded as merchants themselves, while only 1.6 percent of the females were. Three-quarters of the women in merchant households had no recorded occupation and less than one-percent had an occupation recorded that could be construed as supporting a merchant business. The most common listed occupation for women in merchant households was, again, private household worker. This was, again, followed by housekeeping. Roughly 71 percent of related females in merchant households were imputed here as supporting the family business.<sup>32</sup>

Almost half of the non-merchant males in the merchant households were listed with occupations that indicated they were likely partially or fully working in the business, such as “salesmen and sales clerks,” “bookkeepers,” “managers,” and “laborers,” and less than ten percent had no occupation listed. This results in roughly 83 percent of males in merchant households who were not listed as merchants, but were imputed as providing labor to the household business.

## 2. 1920 Merchant Family Workers

---

<sup>32</sup> An additional 7.5 percent of females in merchant households had no reported occupation and were unrelated to the head of household. They were likely also informal or unenumerated workers, including being servants, though not necessarily family workers.

For this category of family workers, we are able to make use of the extended 1920 census questionnaire, specifically the question relating to type of employment. Using the class of worker variable, we can confidently identify those individuals who are self-employed as distinct from employees. Among self-employed merchant households, we can identify family members who were likely providing unrecorded labor to the family business.

Although the separation of home and store had occurred to some extent by 1920, it does not follow that women were necessarily providing less unreported labor to the family business. In fact, the role of women as unpaid family workers has continued well beyond the 1860s and, indeed, the 1920s. This is evidenced in more recent accounts of unpaid family labor (see, for example, Daly, 1982). Moreover, the “mom and pop” store lasted well into the twentieth century.

The inclusion of merchant family workers adds only 0.4 percentage points to the augmented male labor force participation rate, but a much more significant 3.6 percentage points to the augmented female labor force participation rate, as seen in Table 2. These numbers are consistent with the proportion of merchant family workers in 1860.

In 1920, approximately 5.2 percent of the total adult population lived in the household of a self-employed merchant. Similar to 1860 results, the ratio of males to females in merchant households was close to one, but the occupations recorded varied greatly by gender. Again, two-thirds of the males in merchant households were themselves recorded as self-employed merchants, whereas less than five percent of females were. Approximately one-quarter of the non-self-employed males living in merchant households had an occupation recorded that indicated they were likely engaged in the family business, such as bookkeepers, sales clerk, cashiers, and laborers. The same is true for only about four percent of the non-self-employed females living in merchant households.



Overall Black men are less likely to be merchants than are White men in 1920, and this is reflected in the smaller proportion of Blacks identified as merchant family workers (Table 2). Among men, the proportions are 0.1 percentage points among Blacks and 0.4 percentage points among Whites. The differences are greater among women – 0.4 percentage points of Black women and 4.0 percentage points of White women are identified as unreported merchant family workers.

### C. Craft Family Workers

While it seems logical to assume that family members – even women – regularly provided farm labor and worked as shopkeepers in their daily lives, it is perhaps more difficult to imagine women engaged in these more industrial crafts. However, Goldin’s (1990) analysis of a set of documents on business directories from Philadelphia from 1791-1860 suggests that women did, in fact, participate in these crafts. This is construed by her analysis of occupations of female-headed households – primarily widows and unmarried adult women – that are linked to the occupations of recently deceased husbands or other family members, suggesting a high degree of hidden market work undertaken by these women (when their male family members were living) and a high probability of widows assuming their deceased husbands’ craft and business positions. Some of the occupations of women from this Philadelphia sample are tanner, shoemaker, pewterer, cooper, glass engraver, and ironmonger. Goldin also notes that other researchers have found evidence of “silent partnerships” between husbands and wives (in which an occupation was not recorded for the wife) during the first half of the nineteenth century (Goldin, 1990, p 49).

Further, in the 1860 Census data, gainful occupations recorded for females include blacksmiths, brick or stonemasons, carpenters, apprentices in building trades, and craftsmen and kindred workers. In the 1920 Census data, gainful occupations recorded for females included all of the above as well as electricians, machinists, and plumbers, among others.

Additional evidence of women's involvement in this sector can be seen in the list of patents issued to women between 1865 and 1900, over 5.5 thousand of which were in fields as diverse as mining, manufacturing, transportation, and construction despite the social, legal, and administrative obstacles that inhibited women seeking patents (Merritt, 1991). While women's property laws and rights were changing by the late nineteenth century, the remnants of the common law system meant that women – in particular, married women – had a lack of authority over their own property and contracts (Chused, 1983; Law Library of Congress, n.d.). Further, in some states, a married woman was forbidden from carrying on a business or trade unless it was necessary to support herself or her dependents (Merritt, 1991).

Therefore, despite the perceived unconventionality and obstacles faced by women engaging in craft occupations, it is likely that many more were doing so directly or indirectly in support of their male family members. Even if a craftsman's wife or daughter is not skilled in his craft, she may support his business by providing various auxiliary services, including recordkeeping, cleaning the workplace, acting as an assistant, and interacting with clients and suppliers.

There is an important distinction between the self-employed or proprietors and the individuals who were craftspeople or artisans employed by others (Table 3). The methodology for identifying self-employed craftspersons differed between 1860 and 1920 as the questionnaire and instructions to enumerators differed between those years. For this study, it was presumed that individuals without a reported occupation who were related to a self-employed craftsperson or artisan living in their household were likely unreported family workers.

#### 1. 1860 Craft Family Workers

In order to isolate self-employed craft individuals in the 1860 data, this study took advantage of the occupational string data in the IPUMS file. For the 1860 Census, the enumerator was instructed to distinguish an individual who employs others under him from the one employed. Specifically, the enumerators were instructed to include “master” to distinguish the employer from the employee (US Census, 1860, p. 15). Therefore, individuals whose reported occupation included “master” were considered as self-employed craftsmen or artisans, although this undoubtedly underenumerated the self-employed, as “master” may not have been recorded for many of the self-employed.<sup>33</sup> Occupations in which the word “master” was clearly part of the occupational title, rather than an indication of self-employment, were not included in this category (for example, postmasters and shipmasters).

This category of unreported craft family worker resulted in a small increase in the augmented labor force participation rate overall – only 0.76 percentage points for females and 0.06 percentage points for males (see Table 2). It should be noted, however, that this implies that the incidence of females presumably supplying labor to a relative who was a self-employed artisan or craftsman was over twelve times that of males. This is likely because males within the family tended to be listed as an apprentice in the given occupation or simply as an employee in the same occupation, whereas the occupation for females in the family tended to be left blank. In the 1/100 sample, of the females in the same household as a master craftsman, only one is herself listed as a master (a master tailor) and one is listed as an apprentice (a milliner apprentice). In contrast, over half of males are themselves “masters,” about 9 percent are listed as apprentices to the trade, and an additional 11 percent are themselves listed as craftsmen. After the inclusion of individuals

---

<sup>33</sup> In the 1/100 sample of the 12,360 men in craft occupations, only 560 were designated as “master,” that is, self-employed. This suggests a significant under-reporting of “master” status.

meeting the criteria for unreported family workers, 81.6 percent of males and 72.8 percent of females living in the same household as a self-employed craftsperson are also considered as having a craft occupation, whether formally recorded or as an imputed (unreported) family worker.

## 2. 1920 Craft Family Workers

The inclusion of the “class of worker” variable makes identifying self-employed craftspersons even more straightforward in the 1920 data. That is, self-employed craftspersons are considered any individuals who were listed as self-employed and whose occupations were within the Craft sector, using the 1950 occupational classification system. Family workers in this category are, therefore, any individuals who do not have a gainful occupation listed for themselves and are living in the same household as relative who is a self-employed craftsperson. Approximately 1.5 percentage points for females and 0.1 percentage points for males fall into this category – for both genders, this is double the incidence of craft family workers in 1860 (Table 2). Reflecting the racial difference in male self-employed craftspersons, the increase in female labor market participation by the addition of unreported craft family workers is much smaller among Blacks than among Whites.

Lending credence to the dearth of women who were officially recorded as craftsperson, less than one percent of adult females in craft households (that is, those in which a key relative was a self-employed craftsperson) were themselves self-employed craftswomen. In contrast, two-thirds of males in craft households were themselves listed as self-employed craftsmen. Further, an additional quarter of the male residents in craft households who were not self-employed craftsmen were recorded as engaged in a craft occupation, although working for wages or salary. The same is only true for less than one percent of females in craft households, who – if an

occupation were reported – were more likely to have an occupation of secretary, sales clerk, teacher, or private household worker.

The overwhelming majority of women in craft households, however, had no recorded occupation and become imputed family workers if they are listed as a relative of the household head. This results in nearly 80 percent of adult women living in the same household as a self-employed craftsperson considered to also have an occupation in that sector – either formally recorded or, more frequently, as an imputed family worker, whether it was a craft occupation or one that is supportive of the family craft business. In comparison, 82 percent of adult men in a craft household are imputed to be engaged in a related occupation; however, in this case, they are overwhelmingly formally recorded as such.

#### D. Boarding House Keepers

Another activity in 1860 and 1920 that today might be considered gainful employment but might not have been reported as a woman's occupation at the time is that of operating a boarding house. Many historical accounts report taking in boarders or running small boarding houses as a common informal activity for women (Jaffe, 1956; Smuts, 1960; Folbre and Abel, 1989; Folbre and Wagman, 1993). According to one historian, boarding was ubiquitous – between one-third and one-half of U.S. urban residents were either boarders themselves or housed boarders in the nineteenth century (Gamber, 2007). “Boarders” included apprentices, farm laborers, middle-class

clerks and merchants, peddlers, and new migrants to the area, among others (Gamber, 2017).<sup>34</sup> More generally, individuals living in a household who are not related to the household head or the head's spouse by blood or marriage are likely to be roomers (roommates), boarders, or lodgers (R/B/Ls).

The reported occupation categories include “boarding house keeper.” But we may also infer that an adult woman (such as a household head, spouse, or daughter) who does not otherwise report a formal occupation, living in a household with a boarding house keeper that has a sufficient number of R/B/Ls is providing the services for the operation of a boarding house (which include cooking, cleaning, shopping, and caring for sick boarders (Gamber, 2007)). A question arises as to how many R/B/Ls would be a sufficient number to consider classifying the woman without a recorded occupation as an informal boarding house keeper? For the purposes of this study, we use five or more R/B/Ls as the threshold (see Table 4 for the frequency distribution of R/B/Ls in private households).

#### 1. 1860 Boardinghouse Family Workers

For the 1860 Census, those free people in the household for whom a relationship to the household head could not be imputed were put into a single category, “roomers, boarders, lodgers”

---

<sup>34</sup> In commentary on the greater proportion of men than of women in the foreign-born population, Chamberlain (1977, p. 209) writes: “Many immigrants are forced to live in congregate boardinghouses, to the detriment of their own and public health. Others enter families of other immigrants as lodgers, thereby increasing congestion and endangering family life.” It was not only immigrants, but also native-born male and female migrants from the rural to urban areas who were likely to be boarders before marriage and the establishment of their own households.

In her study of Jewish peddlers, Diner (2015) recounts how they frequently spent the night in their customer's home, and often stayed with the same families on a regular schedule on their rounds. She writes that “if they slept over and ate at their tables, as so many did, they came to be temporary members of the household” (Diner, 2015, p. 85).

(R/B/Ls).<sup>35</sup> Recording and coding errors may have inadvertently resulted in two types of errors of uncertain magnitudes: Over-recording as R/B/L individuals who were in fact family members but who were not identified as such in the imputation, and underreporting as an R/B/L someone who is imputed as a family member but in fact is not. Moreover, the household head may be taking in a family member (relative) who is de facto, but unknown to us, really an R/B/L. Furthermore, some individuals living in the household as an R/B/L or servant may not have been recorded as a household resident.

Among adult free women in 1860 who are listed as the head of the household or imputed to be related to the head, a little over one-tenth of one percent reported their formal occupation as boarding house keeper, or one percent of women reporting a formal occupation (Table 4). A total of three-tenths of one percent of adult women were themselves or were living in a household with a formal boarding house keeper, or about three percent of women reporting an occupation. Among women living in a household in which at least one person was reported as a boarding house keeper, nearly one-fifth lived in a household with no recorded R/B/Ls and another 23 percent had only one or two R/B/Ls in their household.

Of the women in households with a boarding house keeper, 39 percent recorded a formal occupation as a boarding house keeper, 46 percent reported no formal occupation, and the remainder (15 percent) reported a variety of occupations. Most lived in urban areas (72 percent), in the Northeast (57 percent), and many were heads of the households with no imputed spouse in the household (31 percent).

---

<sup>35</sup> Note that live-in domestic servants not related to the household head by blood or marriage would therefore be categorized as R/B/Ls.

In addition to those who reported they were boardinghouse keepers, we can use the threshold of five or more R/B/Ls in the household as indicating an occupation as maintaining a boarding house, given that they are related to the head of household (or they are the household head) and have no other listed occupation. This would be the reported or unreported occupation of approximately 1.3 percent adult women.<sup>36</sup> The majority of these (92 percent) are imputed family workers in a boarding house. Boardinghouse family workers contribute 0.8 percentage points to the augmented female labor force participation rate in 1860 (Table 2).<sup>37</sup>

It would seem that being a boardinghouse keeper was an important occupation for a very small proportion of women in 1860. This includes both those who reported an occupation as a boardinghouse keeper and those female family members who supported the boardinghouse activities of their household. However, if the definition were to be expanded – that is, include any individual living in a household with at least one R/B/L – it would become a much more significant informal occupation for women in 1860.

## 2. 1920 Boardinghouse Family Workers

The 1920 Census included a question on the individual's relationship to the head of household; therefore, a more accurate number of R/B/Ls per household can be calculated, as

---

<sup>36</sup> This threshold should be considered a conservative estimate of boardinghouse family workers. If, instead, all adult women who are related to the head of the household and live in a household with at least one R/B/L were considered boardinghouse family workers, the augmented female labor force participation rate would grow by almost 15 percentage points – a substantial increase, which could be considered an upper bound.

<sup>37</sup> The majority of individuals who qualified as multi-job family workers were boardinghouse family workers, in addition to qualifying as either farm, merchant, or craft family workers. This illustrates the pervasiveness of private households catering to R/B/Ls.



opposed to the estimation based on the imputed relationship in 1860.<sup>38</sup> Moreover, urbanization and immigration contributed to the increase of R/B/Ls. In 1920, over half of the U.S. population lived in urban areas. Only 7.5 percent of rural households had at least one R/B/L in residence, whereas over 20 percent of urban households did. Further, 7.1 percent of individuals in 1920 were themselves R/B/Ls. Among the foreign born, 10.8 percent were R/B/Ls (versus 6.2 percent among the native born), and among the foreign born in urban areas it was 12.0 percent (9.7 percent of the native born in urban areas).

It is clear that the number of R/B/Ls far exceeded the availability of formal boardinghouses, unless each boardinghouse had 40 individuals on average. Over two-thirds of R/B/Ls lived in households with three or fewer total R/B/Ls (including themselves); less than 1.5 percent lived in households with more than twenty R/B/Ls. It follows that the majority of R/B/Ls were living in private residences, as opposed to formal boardinghouses. If there were a significant number of R/B/Ls in a single private residence and members of the household were responsible for providing services for the R/B/Ls, such as cooking, cleaning, shopping, light medical care, etc., those individuals could be considered informal boardinghouse keepers.

Only 0.2 percent of the adult population in 1920 were recorded as having the occupation of boardinghouse keeper. Of those, 87 percent were female. However, 0.3 percent of the total adult population are imputed boardinghouse family workers – they did not have a gainful

---

<sup>38</sup> While this provides an arguably more accurate picture of the frequency distribution of R/B/Ls within households in 1920 as compared to 1860, it also likely results in a lower estimate of imputed family workers due to the stricter definition of R/B/Ls versus that in the 1860 analysis. In 1860, 12.2 percent of individuals are imputed to be R/B/Ls, a number which likely included many live-in domestic servants. In contrast, in 1920, 7.1 percent of individuals are recorded as R/B/Ls. However, an additional 2 percentage points are other non-relatives of the head of household (mainly servants and other domestic employees) that would have been coded as R/B/Ls using the 1860 criterion.

occupation listed but they lived in a household with a boardinghouse keeper relative and/or in a household that included at least 5 R/B/Ls (see Table 4). Again, 87 percent of those imputed family workers were female.<sup>39</sup>

As shown in Table 2, including unreported boardinghouse keepers (using five or more R/B/Ls as the criterion as well as those living with a reported boardinghouse keeper) increases the labor force participation rate by 0.1 percentage points for men and by 0.5 percentage points for women, and these effects are the same for Whites and Blacks.

## **VI. Currently: American Community Survey – 2015 to 2019**

Over the century, from 1920 to 2019 (just prior to the COVID-19 pandemic) the American economy experienced substantial change. Employment, including self-employment, in the agricultural sector continued its long-term relative (and absolute) decline. Manufacturing employment for a time increased its share of the labor force, but then it, too, declined. The service sector, including government employment, expanded sharply over the century. Paid employment in the service sector was particularly attractive for women.

Self-employment also changed. It became less concentrated in the family farm, in the small family-operated (“mom and pop”) retail establishments, and in the small craft workshops. Self-employment among professionals increased as a share of the labor force – doctors, lawyers, accountants, and consultants, among other professionals. As a result, the scope for family members working in the family-owned and operated business declined.

---

<sup>39</sup> As with the 1860 analysis, this estimate should be considered a lower bound. If, instead, a threshold is not placed on the minimum number of R/B/Ls that qualify a private residence as an imputed boardinghouse, the number of adult female boardinghouse family workers would increase tenfold, adding substantially to the augmented female labor force participation rate.

There were other changes as well. Social insurance programs, such as Social Security and Medicare, increased the incentive to report those working in the family business as paid employees. Fertility went down meaning that fewer women were caring for young children at home. Moreover, the prices of consumer durables (e.g., microwave ovens) and non-durables (e.g., frozen foods) declined, resulting in less time spent in home production activities. And there has been a decline in the social stigma against married women working, especially if they have young children.

As a result of these and other developments, the reported labor force participation rates of women increased to about 56 percent by 2019. Repeating the exercises done for 1860 and 1920 for contemporary data, we can estimate the effects on the extent of unreported family workers and compare the augmented labor force participation rates of women in three time periods over the last 160 years.

The five-year American Community Survey (ACS) microdata file, 2015-2019, reports an estimated labor force participation rate for females ages 16 and over of 55.6 percent (of whom 0.5 percentage points were recorded unpaid family workers), compared to a rate of 64.5 for males.<sup>40</sup> It is possible to augment this with an estimated number of unreported workers in family businesses, as was done for the 1860 and 1920 Censuses. Individuals age 16 and over can be identified in the ACS who do not report being active in the labor force, but have a self-employed family member (related head of household, mother, father, or spouse) in their household. They constitute only 3.2 percent of the total adult sample, of whom about two-thirds are females (primarily wives and

---

<sup>40</sup> These data are available through the Integrated Public Use Microdata Series (IPUMS USA) sponsored by the Minnesota Population Center, University of Minnesota (<https://usa.ipums.org/usa/>).

daughters of self-employed workers). The occupations of the self-employed family members vary greatly, with the most frequent being managers (20.6 percent), farmers (5.2 percent), laborers (3.6 percent), carpenters (3.5 percent), and physicians and surgeons (2.0 percent).

If the category of potential unreported family workers is limited to those used previously – farmer, merchant, craft, and boardinghouse businesses – they constitute about 1.6 percent of the total labor force, of whom two-thirds are female (Tables in Appendix B). Potential unreported family workers in these four occupational categories constitute 1.9 percentage points of the total adult female population and is an even smaller percentage among adult males (1.2 percentage points).

By sector, female merchant family workers are now the largest category (1.2 percentage points), with agriculture next (0.5 percentage points) (Appendix Table B-1). By race, the estimated unreported family workers are more common among White women (2.1 percentage points) than among Black women (0.5 percentage points).

Thus, the upper bound estimate of the increase in the female labor force participation rate in the 2015-2019 ACS by including unreported family workers in family-owned businesses, on the same basis as done earlier, would be less than two percentage points, raising the augmented female labor force participation rate from 55.6 percent to about 57.5 percent. Yet, this would undoubtedly be an over-estimate as many of these women age 16 and over who are not active in the labor market would be full-time students, aged, disabled, or are otherwise unlikely to be involved in the family business.<sup>41</sup>

---

<sup>41</sup> About 15 percent of the females age 16 and over who could qualify as unreported family workers are attending school. A further 4 percent are age 80 or older. 16 percent (not exclusive to the above categories) report some long-term physical or mental health condition, such as cognitive or ambulatory difficulties, which may impact their ability to provide labor to the family business.

## VII. Summary and Conclusions

Previous estimates, based on aggregate data, placed the free female labor force participation rate in the antebellum period at about 11 percent. This very low rate seems inconsistent with contemporaneous reports of free women engaging in work activities on the family farm (the primary employment of adult men and women) over and above the narrowly defined household chores for the immediate consumption or benefit of family members. To what extent did the social role of women at the time result in underreporting by family members and census officials of the work provided by women that supported the family's economic well-being?

This question led to the development in this paper of a methodology for imputing work activities for women (and men) for whom no occupation or employment activity is reported, but who reside with a relative who owns and operates a business. The assumption is that even if they did not report an occupation or employment for themselves, they worked in the family business. Four types of family-operated (self-employed) businesses are considered: farm (as owner, tenant, or manager), merchant, craft, and boardinghouse. That is, women (and men) age 16 and over who are not listed as having a gainful occupation but who live in a household with a relative who is self-employed in one of these four businesses is imputed to be an "unreported family worker." Including these unreported family workers enables the computation of an augmented labor force participation rate, which more accurately reflects women's activities in the labor market.

This methodology is applied to three microdata sets (IPUMS data) that span 160 years. The first is the 1860 Census of Population, taken just prior to the U.S. Civil War and the first census to record whether (free) women have an occupation. At this time, the U.S. population was largely rural and the economy based on agriculture. The second is the 1920 Census of Population, taken shortly after World War I by which time the urban population had grown to be a bare

majority and the economy had become intensely industrialized. The third set of data is the American Community Survey (2015-2019), when the economy has become “post-industrial,” and relies heavily on the service sectors.

Using the 1860 Census microdata, the labor force participation rate of free women, based on their having reported a gainful occupation, was 15.7 percent. But the augmented rate when unreported family workers are included increased to 56.6 percent. This 41-percentage point increase is primarily due to the inclusion of the wives and daughters of farm owners and tenants (35.8 percentage points), and to a lesser extent to unreported merchant family workers (3.0 percentage points), craft family workers (0.8 percentage points), and boardinghouse family workers (0.8 percentage points).

With the relative decline in agriculture, especially the family farm, and the increase in urban living and industrial employment, the observed and augmented labor force participation rates for women changed by 1920. Among White women, the observed labor force participation rate increased to 21.9 percent, but the augmented rate declined to 47.9 percent. This is largely due to the decline in unreported White female family workers in agriculture (down to 19.6 percentage points). On the other hand, there were small increases in the unreported White female participation rates in the other self-employed sectors, to 4.0 percentage points for merchant family workers and 1.6 percentage points for craft family workers, while the rate of unreported female boardinghouse family workers declined slightly to 0.5 percentage points.

Unreported family work was much less common among men. Among free males in 1860, nearly all of whom were White, the labor force participation rate of 87.6 percent increases to an augmented rate of 93.2 percent when the unreported family workers are included (5.6 percentage points). Again, agriculture is the primary contributor (5.1 percentage points), with merchant (0.3

percentage points), craft (0.1 percentage points), and boardinghouse (0.1 percentage points) male family workers making smaller contributions. Among White men in 1920, the observed participation rate of 89.6 percent increases by only 2.9 percentage points to 92.5 percent with the inclusion of unreported male family workers. This is primarily due to the 2.3 percentage point unreported male family workers in agriculture.

In 1920, unreported family workers were less common among Blacks than among Whites. Blacks had higher observed labor force participation rates than Whites among both women (43.8 percent compared to 21.9 percent) and men (93.0 percent compared to 89.6 percent). As among Whites, there was a much larger rate of unreported family workers among Black women than among Black men (24.0 percent and 2.7 percent, respectively), almost all of whom were in agriculture as there was a much lower proportion of self-employed Black men in the other sectors. While the total proportion of unreported family workers in all sectors is lower for Blacks than for Whites for both males and females, the augmented labor force participation rates of 67.8 percent for Black women and 95.7 percent for Black men were higher than among Whites.

Over the century since 1920, there has been a continued relative decline in opportunities for working within a family-owned and operated business, especially in agriculture, as well as continued changes in attitudes toward the reporting of women working. The analysis of the labor market data in the American Community Survey, 2015-2019, documents a sharp increase in paid employment opportunities outside of the family for women, raising the reported labor force participation rate to 55.6 percent. There is also a sharp decline in women as unreported workers in a business owned by a family member. By 2015-2019, the extent of female unreported family workers had declined to about two percentage points. This results in an augmented female labor force participation rate of 57.5 percent. Among men, the labor force participation rate of 64.5

percent is increased to an augmented rate of 65.7 percent by the addition of only 1.2 percentage points from unreported family workers.

As a result of changes in the economy and changes in social attitudes regarding women working, especially married women, the conventionally measured labor force participation rate of women shows a steep long-term increase from 1860 to today. But this is misleading as women's work tended to be discounted in the past. Employment in a family-owned and operated business, whether on or off the farm, tended to be attributed solely to the male head of the household. The labor force participation rate data can be augmented by the inclusion of family members of the self-employed person's household who do not otherwise report an occupation or employment. When this is done, the augmented labor force participation rate for men shows a small increase over the reported rate, with only a slight decline over time in the augmented rate. For women, however, the pattern is quite different – this change adds considerably to the female participation rates in 1860 (41 percentage points), a lesser but still considerable amount in 1920 (26 percentage points), and a trivial proportion today (2 percentage points). The result is a nearly equivalent augmented female labor force participation rate in 1860 and today, about 57 percent.

The dramatic change for women has been the shift from unreported workers in family-owned and operated businesses to employment in the paid labor market outside the home. Rather than the steep increase, the augmented female labor force participation rate shows a fairly constant rate from 1860 to 2015-2019, with a small dip in 1920. There is a decline with the move off the farm and then an increase as employment opportunities expanded for women in the industrial and service sectors. This analysis shows not only the degree to which female labor market activity was undercounted in the mid-nineteenth and early twentieth centuries, but also the relative stability of female labor force attachment over time in comparison to conventionally-calculated estimates.



Finally, this new interpretation of female work since 1860 reshapes our views of changes in aggregate labor supply over the last 160 years, and therefore our measures of productivity. This has implications for the analysis of American economic history, including the growth and development of the economy.

**Table 1**  
**Economic Statistics, 1860 and 1920**

	<u>1860</u>	<u>1920</u>
<u>Population</u> (Continental US) (millions)		
Total	31.4	105.7
Urban	6.2	54.2
Rural	25.2	51.5
Percent Urban	19.8 %	51.3 %
 <u>Employment</u>		
Total – numbers (millions)	10.6	41.6
Agriculture	6.2	11.1
Manufacturing (Production and Related Workers)	1.3	6.5
Other Sectors <sup>1</sup>	3.1	17.6
Percents (%)		
Agriculture	58.5 %	26.7 %
Manufacturing	12.3 %	15.6 %
Other Sectors <sup>1</sup>	29.2 %	57.7 %
 <u>Railroad</u> (thousands of miles of track)	30.6	260.0
 <u>Metals</u>		
Pig Iron (net tons, millions)	0.9	41.4
Copper (smelter production, thousands of short tons)	8.0	604.5

<sup>1</sup> Other sectors include Services, Transportation, and Government.

Source: Historical Statistics of the United States, 1789 to 1957, U.S. Bureau of the Census, 1949.

**Table 2**

Augmented Labor Force Participation Rates (%), Free Males and Free Females, by Gender and Race,  
Age 16 and Older, 1860 and 1920

Formal or Informal Occupation	1860 – All		1920 – All		1920 – Whites		1920 - Blacks	
	Males	Females	Males	Females	Males	Females	Males	Females
Gainful Occupation	87.6	15.7	89.9	24.0	89.6	21.9	93.0	43.8
All Family Workers	5.6	40.9	2.9	25.8	2.9	26.0	2.7	24.0
Farm Family Workers	5.1	35.8	2.3	19.9	2.3	19.6	2.5	22.6
Merchant Family Workers	0.3	3.0	0.4	3.6	0.4	4.0	0.1	0.4
Craft Family Workers	0.1	0.8	0.1	1.5	0.1	1.6	0.0	0.4
Boardinghouse Family Workers	0.1	0.8	0.1	0.5	0.1	0.5	0.1	0.5
Multi-Job Family Workers	0.1	0.5	0.0	0.3	0.0	0.3	0.0	0.1
Total Augmented	93.2	56.6	92.8	49.8	92.5	47.9	95.7	67.8
Total Not Working	6.8	43.4	7.2	50.2	7.5	52.1	4.3	32.2
Total Adult Population	100. 0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sample Size	81,657	76,605	357,236	339,181	321,890	304,905	32,562	32,773

Detail may not add to total due to rounding. If an individual met the criteria for inclusion in multiple groups, they were coded as a “multi-job family worker.”

Sources: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2018.

1920 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2020.

**Table 3**

Occupation Distribution (%) of Craftspersons by Self-Employment,  
Free Males and Free Females, 1860 and 1920

(A) Males	1860		1920	
	All Craftsmen	“Master” (Self-Employed)	All Craftsmen	Self-Employed
Occupation (1950 Basis)				
Carpenters	22.0	29.8	14.4	16.3
Shoemakers and repairers, except factory	12.4	5.5	1.1	8.7
Blacksmiths	9.0	8.9	3.4	11.9
Craftsmen and kindred workers (n.e.c.)	6.3	4.5	1.3	1.6
Brickmasons, stonemasons, tile setters	5.4	7.3	2.1	3.0
Tailors	5.2	2.0	3.0	10.1
Painters, construction, and maintenance	3.9	2.1	4.6	11.8
Machinists	3.1	0.9	14.0	3.1
Other	32.7	39.0	56.1	33.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Sample Size	12,360	560	58,025	5,888
(B) Females	1860		1920	
Occupation (1950 Basis)	All Craftswomen	“Master” (Self-Employed)	All Craftswomen	Self-Employed
Tailoresses	83.0	100.0	25.5	38.0
Apprentices, other specified trades	1.9	0	1.0	2.2
Shoemakers and repairers, except factory	1.7	0	2.2	6.5
Carpenters	1.7	0	1.9	3.3
Craftsmen and kindred workers (n.e.c.)	1.3	0	0.4	0
Blacksmiths	1.1	0	0.5	1.1
Foremen (n.e.c.)	0.4	0	27.1	2.2
Bookbinders	0.4	0	7.8	1.1
Bakers	0.9	0	3.1	14.3
Other	7.6	0	30.5	31.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Sample Size	464	1	1,441	92

Note: Detail may not add to total due to rounding. n.e.c. is “not elsewhere classified.”

Sources: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2018.

1920 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2018.

**Table 4**

Frequency Distribution (%) of Roomers, Boarders, and Lodgers (R/B/Ls) in the Household of Adult Females, 1860 and 1920

(A) 1860				
Number of R/B/Ls in Household	All Females	Females with any Formal Occupation	Formal Occupation Boardinghouse Keeper	
			Female	Any Household Member
0	81.4	81.4	21.2	19.4
1	11.8	11.3	18.8	18.0
2	3.9	3.5	7.1	5.5
3	1.4	1.6	8.2	8.3
4	0.6	0.6	5.9	3.7
5	0.3	0.4	7.1	9.2
More than 5	0.6	1.2	31.7	35.9
Total	100.0	100.0	100.0	100.0
Sample Size	69,410	8,044	85	217
(B) 1920				
Number of R/B/Ls in Household	All Females	Females with any Formal Occupation	Formal Occupation Boardinghouse Keeper	
			Female	Any Household Member
0	91.7	88.7	28.1	32.1
1	5.1	6.3	10.3	11.1
2	1.8	2.3	12.2	13.4
3	0.6	1.0	10.7	11.1
4	0.3	0.5	9.7	9.7
5	0.2	0.3	6.4	6.5
More than 5	0.3	0.9	22.6	16.1
Total	100.0	100.0	100.0	100.0
Sample Size	316,119	65,066	1,090	1,185

Note: Detail may not add to total due to rounding. Only females who are heads of their own household or who are related to the head of household are included in the samples. Boarding house keepers need not live in the same household as their boarding house. The definition of an R/B/L differs in 1860 and 1920, see Appendix A.

Sources: 1860 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2018.

1920 Census of Population, one-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2018.

## Appendix A: Data Appendix

### *1860 Sample:*

This sample consists of all free individuals in the 1860 Census of Population (Schedule 1), IPUMS, 1% sample, 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 - 1860:*

- **Formal Occupation:** Refers to individuals for whom 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”). This variable is defined the same in both samples (1860 and 1920).
- **Farm family worker:** Respondent is expected to be a family worker on a farm. This category includes anyone whose head of household, father, mother, or spouse had an occupation listed as “Farmers (owners and tenants)” or “Farm Managers,” given that the individual did not

have a listed occupation and was related to the head of household. This variable is defined the same in both samples (1860 and 1920).

- Merchant family worker: Respondent is expected to be a family worker of a self-employed merchant or other shopkeeper. This category includes anyone whose head of household, father, mother, or spouse had an occupation that included the terms “Merchant” (or the shorthand “mrch”), “Seller,” “Keeper,” “Trader,” “Dealer,” “Business,” “Confectioner,” “Clothier,” “Tobacconist,” or “Grocer” given that the respondent did not have a listed occupation and was related to the head of household. Cases in which “Keeper” referred to boardinghouse keepers were not included as merchants. The list of terms used to identify self-employed merchants was created based on analyzing the occupational string data for individuals who were coded as “Managers, Proprietors, and Other Officials” by the IPUMS team. This resulted in a list of terms that were most common among individuals whose occupation indicated being a merchant and who appeared to be the owner or proprietor of their establishment.
- Craft family worker: Respondent is expected to be a family worker of a self-employed trade worker or craft worker. In the question on occupation, the Census enumerator was instructed to list individuals who employed others (rather than were employed by someone else) as distinct by including the word “Master” in their occupation title. Therefore, this category includes anyone whose head of household, father, mother, or spouse was listed as a “Master” in their occupation, given that the respondent did not have a listed occupation and was related to the head of household. Cases in which the word “master” was clearly part of the occupation title, rather than an indication of self-employment, were not counted as family workers (for example, Post Master, Baggage Master, Shipmaster).

- Boardinghouse family worker: Respondent is expected to be a family worker in a boarding house. This category includes anyone whose head of household, father, mother, or spouse had an occupation listed as a boarding and lodging house keeper, given that the individual did not have a listed occupation and was related to the head of household. It also includes individuals without a reported occupation who were related to the head of household and lived in a private home that housed 5 or more individuals who were purported to be roomers/boarders/lodgers. This variable is defined the same in both samples (1860 and 1920). An R/B/L (roomer, boarder, or lodger) is any resident of the household who is not related by blood or marriage to the household head, as per the IPUMS imputation of household relationships.
- Multiple-job family worker: The respondents can be classified as a family worker in more than one of the four categories – farm, merchant, craft, or boardinghouse.

*1920 Sample:*

This sample consists of all individuals in the 1920 Census of Population, IPUMS, 1% sample, who meet the following criteria:

- Age 16 or older
- Not currently incarcerated/an inmate
- Not listed as an “deaf and dumb,” blind, “pauper,” or “idiotic,” with no occupation reported

*Labor Force Participation Variables - 1920:*

- Formal Occupation: Refers to individuals for whom there is an occupation listed for the individual, excluding those with a reported “non-occupation.” This variable is defined the same as for the 1860 sample.



- Farm family worker: Respondent is expected to be a family worker on a farm. This variable is defined the same as for the 1860 and 1920 samples.
- Merchant family worker: Respondent is expected to be a family worker of a self-employed merchant or other shopkeeper. This category includes anyone whose head of household, father, mother, or spouse was listed as self-employed and had an occupation within the Sales category, given that the respondent did not have a listed occupation and was related to the head of household. Self-employed merchants were also identified using the self-employed variable in combination with the occupational string variable containing a list of descriptors that were chosen by cross-checking the occupational code for “Managers, Proprietors, and Other Officials” with the occupational string data. These include the terms used for 1860 merchant family workers, as well as others such as “Jeweler,” “Florist,” and “Furrier.”
- Craft family worker: Respondent is expected to be a family worker of a self-employed trade worker or craft worker. This category includes anyone whose head of household, father, mother, or spouse was listed as self-employed in an occupation categorized as a Craft occupation, given that the respondent did not have a listed occupation and was related to the head of household.
- Boardinghouse family worker: Respondent is expected to be a family worker in a boarding house. This variable is defined the same as in the 1860 sample. However, it should be noted that the relationship to the head of household was asked in the 1920 Census, so the number of R/B/Ls per household is more accurate than in the 1860 sample. R/B/Ls (roomers, boarders, or lodgers) in the household are directly identified through the question on the person’s relationship to the household head).

- Multiple-job family worker: The respondents can be classified as a family worker in more than one of the four categories – farm, merchant, craft, or boardinghouse.

*2015-2019 ACS Sample:*

This sample consists of all individuals in the 2015-2019 5-year American Community Survey, IPUMS, 5% combined sample, who meet the following criteria:

- Age 16 or older
- Not currently incarcerated/an inmate

*Labor Force Participation Variables – 2015-2019 ACS:*

- Active in Labor Market: Refers to individuals who were part of the labor force – either working or seeking work – and those reported as unpaid family workers. Individuals who reported an occupation, but were not working, seeking work, or unpaid family workers were not included as active members of the labor market.
- Farm family worker: Respondent is expected to be a family worker on a farm. This category includes anyone whose related head of household, father, mother, or spouse had an occupation listed as “Farmers (owners and tenants)” or “Farm Managers,” given that the individual did was not an active member of the labor force.
- Merchant family worker: Respondent is expected to be a family worker of a self-employed merchant or other shopkeeper. This category includes anyone whose related head of household, father, mother, or spouse was listed as self-employed and had an occupation within the Sales or Management category of occupations, given that the respondent was not an active member of the labor market.

- Craft family worker: Respondent is expected to be a family worker of a self-employed trade worker or craft worker. This category includes anyone whose related head of household, father, mother, or spouse was listed as self-employed in an occupation categorized as a Craft occupation, given that the respondent was not an active member of the labor market.
- Boardinghouse family worker: Respondent is expected to be a family worker in an informal boarding house. There were no individuals with the occupation boardinghouse keeper in this sample. Therefore, boardinghouse family workers are only those individuals who were non-active in the labor market, related to the head of household, and lived in a private home that housed 5 or more individuals who were purported to be roomers/boarders/lodgers (R/B/Ls). R/B/Ls in the household are identified through the question on the person's relationship to the household head; that is, all individuals coded by IPUMS as "other non-relatives," which indicated an unrelated person residing in the household who was paying or working for accommodation, were categorized as R/B/Ls in this sample.
- Multiple-job family worker: The respondents can be classified as a family worker in more than one of the four categories – farm, merchant, craft, or boardinghouse.

Sources:

1860 Census of Population, one-in-a-hundred, IPUMS, Minnesota Population Center, University of Minnesota. By Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek. IPUMS USA: Version 8.0, 1860 Census of Population 1 Percent Sample. Minneapolis, MN: IPUMS, 2018.

<https://doi.org/10.18128/D010.V8.0>

1920 Census of Population, one-in-a-hundred, IPUMS, Minnesota Population Center, University of Minnesota. By Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek. IPUMS USA: Version 10.0, 1920 Census of Population 1 Percent Sample. Minneapolis, MN: IPUMS, 2020.

<https://doi.org/10.18128/D010.V10.0>

2015-2019 American Community Survey, IPUMS, Minnesota Population Center, University of Minnesota. By Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek. IPUMS USA: Version 10.0, 2015-2019 ACS 5-year, 5 percent sample. Minneapolis, MN: IPUMS, 2020.  
<https://doi.org/10.18128/D010.V10.0>.

## Appendix B: Analysis of American Community Survey Data

### Table B-1

Augmented Labor Force Participation Rates (%), Males and Females, by Gender and Race, Age 16 and Older,  
American Community Survey, 2015-2019

Formal or Informal Labor Force Participation	2015-2019 – All		2015-2019 – Whites		2015-2019 - Blacks	
	Males	Females	Males	Females	Males	Females
Active in Labor Market	64.5	55.6	65.0	54.8	54.1	57.8
All Family Workers	1.2	1.9	1.3	2.1	0.4	0.5
Farm Family Workers	0.3	0.5	0.3	0.5	0.1	0.1
Merchant Family Workers	0.8	1.2	0.9	1.4	0.3	0.3
Craft Family Workers	0.1	0.2	0.1	0.2	0.0	0.1
Boardinghouse Family Workers	0.0	0.0	0.0	0.0	0.0	0.0
Multi-Job Family Workers	0.0	0.0	0.0	0.0	0.0	0.0
Total Augmented	65.7	57.5	66.3	56.9	54.5	58.3
Total Not Working	34.3	42.5	33.7	43.1	45.5	41.7
Total Adult Population	100.0	100.0	100.0	100.0	100.0	100.0
Sample Size	6,341,032	6,747,422	4,959,667	5,235,731	608,160	681,133

Detail may not add to total due to rounding. Active in Labor Market is defined as individuals who are either employed, unemployed, or unpaid family workers. Individuals who have reported an occupation but are not currently working or searching for work (i.e., not active participants in the labor force) are not included as Active in Labor Market. If an individual met the criteria for inclusion in multiple groups, they were coded as a “multi-job family worker.” See Appendix A for more details.

Source: 2015-2019 American Community Survey, five-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2020.

**Table B-2**

Occupation Distribution (%) of Craftspersons by Self-Employment, Males and Females,  
American Community Survey, 2015-2019

Males		
Occupation (1950 Basis)	All Craftsmen	Self-Employed Craftsmen
Mechanics and Repairmen (n.e.c.)	17.1	12.1
Foremen (n.e.c.)	11.3	6.4
Automobile Mechanics and Repairmen	10.8	13.3
Carpenters	9.6	25.2
Electricians	7.3	5.9
Plumbers and Pipefitters	4.7	5.2
Painters, Construction and Maintenance	3.9	10.4
Other	35.3	21.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>
<b>Sample Size</b>	<b>582,800</b>	<b>78,792</b>
Females		
Occupation (1950 Basis)	All Craftswomen	Self-Employed Craftswomen
Foremen (n.e.c.)	26.3	15.3
Bakers	13.3	14.9
Mechanics and Repairmen (n.e.c.)	6.6	7.7
Opticians and Lens Grinders and Polishers	4.7	1.6
Painters, Construction and Maintenance	4.1	18.3
Pressmen and Plate Printers	3.6	2.4
Carpenters	2.5	7.9
Jewelers, Watchmakers, Goldsmiths, Silversmiths	2.4	10.1
Other	36.5	21.8
<b>Total</b>	<b>100.0</b>	<b>100.0</b>
<b>Sample Size</b>	<b>50,166</b>	<b>4,643</b>

Note: Detail may not add to total due to rounding. n.e.c. is "not elsewhere classified."

Source: 2015-2019 American Community Survey, five-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2020.

**Table B-3**

Frequency Distribution (%) of Roomers, Boarders, and Lodgers (R/B/Ls) in the Household of Adult Females, American Community Survey, 2015-2019

2015-2019 American Community Survey				
Number of R/B/Ls in Household	All Females	Females with any Formal Occupation	Formal Occupation Boardinghouse Keeper	
			Female	Any Household Member
0	97.8	97.7	--	--
1	1.9	2.0	--	--
2	0.3	0.3	--	--
3	0.1	0.1	--	--
4	0.0	0.0	--	--
5	0.0	0.0	--	--
More than 5	0.0	0.0	--	--
Total	100.0	100.0	--	--
Sample Size	6,267,173	4,285,542	0	0

Note: Detail may not add to total due to rounding. Only females who are heads of their own household or who are related to the head of household are included in the samples. There were no individuals with the occupation "Boardinghouse Keeper" in this sample. The definition of an R/B/L in the ACS sample is defined in Appendix A.

Source: 2015-2019 American Community Survey, five-in-a-hundred sample, IPUMS, Minnesota Population Center, University of Minnesota, microdata initially released in 1998, current version 2020.

## References

- 1860 Census of Population, one-in-a-hundred, IPUMS, Minnesota Population Center, University of Minnesota. By Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek. IPUMS USA: Version 8.0, 1860 Census of Population 1 Percent Sample. Minneapolis, MN: IPUMS, 2018.  
<https://doi.org/10.18128/D010.V8.0>
- 1920 Census of Population, one-in-a-hundred, IPUMS, Minnesota Population Center, University of Minnesota. By Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek. IPUMS USA: Version 10.0, 1920 Census of Population 1 Percent Sample. Minneapolis, MN: IPUMS, 2020.  
<https://doi.org/10.18128/D010.V10.0>
- 2015-2019 American Community Survey, IPUMS, Minnesota Population Center, University of Minnesota. By Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek. IPUMS USA: Version 10.0, 2015-2019 ACS 5-year, 5 percent sample. Minneapolis, MN: IPUMS, 2020.  
<https://doi.org/10.18128/D010.V10.0>
- Adams, J. (1999/2000). “Farm Women, Class, and the Limits of Nostalgia,” *Journal of the Illinois State Historical Society* (1998-), 92(4), Winter, pp. 325-338.
- Blake, K. (1996). “First in the Path of the Fireman: The Fate of the 1890 Population Census,” *Prologue*, Spring, pp. 64-81.
- Bruchey, S. (1975). *Growth of the Modern American Economy*, New York: Irwin Unger
- Bureau of Labor Statistics (2021). “News Release: The Employment Situation, January 2021,” U.S. Department of Labor, February 5.
- Carpenter, N. (1927). *Immigrants and Their Children, 1920, (Census Monographs VII)* Washington: U.S. Bureau of the Census.
- Carter, S. B., and Sutch, R. (1997). “Historical Perspectives on the Economic Consequences of Immigration into the United States,” NBER Working Paper Series on Historical Factors in Long Run Growth, NBER Historical Paper No. 106, National Bureau of Economic Research.
- Chamberlain, J. (1963). *The Enterprising Americans: A Business History of the United States*. New York: HarperCollins Books.
- Chiswick, B. R., and Robinson, R. H. (2021). Data Deposit for “Women at Work in the United States Since 1860: An Analysis of Unreported Family Workers,” Ann Arbor, MI: Inter-university Consortium for Political and Social Research (Open-ICPSR) [distributor], 2021-05-21. <https://doi.org/10.3886/E140641V1>



- Chiswick, C. U. (1983). "Analysis of Earnings from Household Enterprises: Methodology and Application to Thailand," *Review of Economics and Statistics*, LXV, pp. 658-662.
- Chused, R. H. (1983). "Married Women's Property Law: 1800-1850," *Georgetown Law Journals*, 71(5), pp. 1359-1425.
- Conk, M. (1980). *The United States Census and Labor Force Change: A History of Occupation Statistics, 1870-1940*. Ann Arbor, MI: UMI Research Press.
- Craig, L. A. (1991). "The Value of Household Labor in Antebellum Northern Agriculture," *The Journal of Economic History*, 51(1), March, pp. 67-81.
- Daly, P. A. (1982). "Unpaid Family Workers: Long-Term Decline Continues," *Monthly Labor Review*, October, pp. 3-5.
- Diner, H. R. (2015). *Roads Taken: The Great Jewish Migrations to the New World and the Peddlers Who Forged the Way*, New Haven: Yale University Press.
- Department of Commerce, Bureau of the Census (1921). "Occupations," *Fourteenth Census of the United States, 1920*, Volume IV, Washington: Government Printing Office.
- Fogel, R. W., and Engerman, S. L. (1974). *Time on the Cross: The Economics of American Negro Slavery*. New edition. Little, Brown and Company.
- Folbre, N., and Abel, M. (1989). "Women's Work and Women's Households: Gender Bias in the U.S. Census," *Social Research*, 56(3), pp. 545-569.
- Folbre, N., and Wagman, B. (1993). "Counting Housework: New Estimates of Real Product in the United States, 1800-1860," *The Journal of Economic History*, 53(2), pp. 275-288.
- Gamber, W. (2007). *The Boardinghouse in Nineteenth-Century America*. Baltimore: Johns Hopkins University Press.
- Gamber, W. (2017). "Boarding and Lodging Houses," *The Encyclopedia of Greater Philadelphia*. <https://philadelphiaencyclopedia.org/archive/boarding-and-lodging-houses/>
- Godley, A. (2006). "Selling the Sewing Machine around the World: Singer's International Marketing Strategies, 1850-1920," *Enterprise and Society*, 7(2), pp. 266-314.
- Goldin, C. (1990). *Understanding the Gender Gap: An Economic History of American Women*. Robert W. Fogel and Clayne L. Pope, eds., New York: Oxford University Press.
- Hill, J. A. (1929). *Women in Gainful Occupations, 1870 to 1920*, Census Monograph IX, Washington: U.S. Bureau of the Census.
- IPUMS-USA (n.d.). "Family Interrelationships," IPUMS User Guide, Minnesota Population Center, University of Minnesota. <https://usa.ipums.org/usa/chapter5/chapter5.shtml>
- IPUMS-USA (n.d.). "Frequently Asked Questions," IPUMS User Guide, Minnesota Population Center, University of Minnesota. <https://usa.ipums.org/usa-action/faq>

- Jaffe, A. J. (1956). "Trends in the Participation of Women in the Working Force," *Monthly Labor Review*, 79(5), pp. 559-565.
- Law Library of Congress (n.d.) "Married Women's Property Laws," American Women: Online Research Guide, The Library of Congress. Accessed at: [https://memory.loc.gov/ammem/awhhtml/awlaw3/property\\_law.html](https://memory.loc.gov/ammem/awhhtml/awlaw3/property_law.html).
- Lebergott, S. (1966). "Labor Force and Employment, 1800-1960," in *Output, Employment, and Productivity in the United States after 1800*, Dorothy S. Brady, ed., National Bureau of Economic Research, pp. 117-204.
- Merritt, D. J. (1991). "Hypatia in the Patent Office: Women Inventors and the Law, 1865-1990," *Journal of Legal History*, 35(3), pp. 235-306.
- Senate Document No. 84 (1878). "Memorial of Mary F. Eastman, Henrietta L.T. Woolcott, and Others, Officers of The Association for the Advancement of Women, Praying That the Tenth Census may contain a just enumeration of women as laborers and producers," 45<sup>th</sup> Congress, 2<sup>nd</sup> Sess. United States Congressional Serial Set, Series 1786.
- Smuts, R. W. (1960). "The Female Labor Force: A Case Study in the Interpretation of Historical Statistics," *Journal of the American Statistical Association*, 55(289), pp. 71-79.
- Sutch, R. (n.d.). "National Income and Product," in Susan B. Carter, et. al., Historical Statistics of the United States: Millennial Edition Online.
- The United States on the Eve of the Civil War: As Described in the 1860 Census* (1963), Washington: U.S. Civil War Centennial Commission.
- U.S. Bureau of the Census (1919). "Instructions to Enumerators," *Fourteenth Census of the United States, 1920*, Washington, Department of Commerce: Government Printing Office.
- U.S. Bureau of the Census (1921). "General Report and Analytical Tables," *Fourteenth Census of the United States, 1920*, Volume II, Washington, Department of Commerce: Government Printing Office.
- U.S. Office of the Census (1860). "Instructions to U.S. Marshalls," *Eighth Census of Population, 1860*, Washington: Government Printing Office.
- U.S. Office of the Census. (1864). *Eighth Census of Population, 1860*, Washington: Government Printing Office.
- U.S. Office of the Census. (1873). *Ninth Census of Population, 1870*, Washington: Government Printing Office.
- U.S. Congress, Senate (1878). *Memorial of Mary F. Eastman, Henrietta L. T. Woolcott, and Others, Officers of the Association for the Advancement of Women, Praying That the Tenth Census May Contain a Just Enumeration of Women as Laborers and Producers*, 45th Cong., 2nd sess. Senate Doc. 84, Vol. 2, Serial 1786.

- Weiss, T.J. (1986). "Revised Estimates of the United States Workforce, 1800-1860," in *Long-Term Factors in American Economic Growth*, Stanley L. Engerman and Robert E. Gallman, eds., Chicago: University of Chicago Press, pp. 641-676.
- Weiss, T. J. (1992). "U.S. Labor Force Estimates and Economic Growth, 1800-1860" in *American Economic Growth and Standards of Living before the Civil War*, Robert E. Gallman and John Joseph Wallis, eds., Chicago: University of Chicago Press, pp. 19-78.
- Wiebe, R. H. (1968). *The Search for Order, 1877-1920*, New York: Hill and Wang.