The History of Women and the History of Statistics

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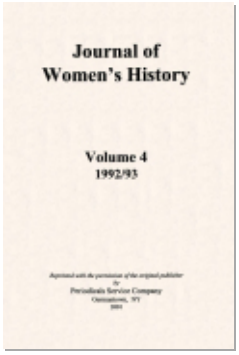

Journal of Women's History, Volume 4, Number 1, Spring 1992, pp. 14-36 (Article)

Published by Johns Hopkins University Press
DOI: *https://doi.org/10.1353/jowh.2010.0052*

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Like other fields of social history, women's history needs statistics—both in the sense of statistical data and in the sense of a methodology to arrange and analyze that data. Women's history as a field needs statistics because statistics can answer crucial questions about the character and scope of changes in women's lives over time and across place. Statistics provide information about aggregates, distributions, rates, and correlates that are absolutely essential to the corpus of women's history knowledge and, from my reading, that can be discovered no other way. Even historians who write case studies, traditional historical narrative, and biography implicitly raise questions of context and representativeness that can only be answered quantitatively. Statistical knowledge, in other words, makes up a necessary though not a sufficient form of women's history knowledge. And despite a somewhat weightier tradition of qualitative analysis within women's history, quantitative, social scientific, or statistical treatments of the situation of women in the past have proliferated as the field has grown.[1]

Yet the "marriage," so to speak, between quantitative or social science history and women's history—my apologies to Heidi Hartmann here—has not always been a particularly happy one. Women's historians sensed that "statistics" as a field posed problems for women's history, and they were quick to discover the biases, omissions, and misrepresentations in historical data and in classification schemes and constructs that form the canon of statistical method.[2]

Several themes recur in these critiques. Existing historical statistical series tend to contain less information on women than that available for men. Sometimes, fewer data were collected on women in the first place; other times, they were simply not reported. Second, data on women can suffer from undercounts. In surveys, interviewers sometimes did a worse job of collecting data from women. Third, classification schemes for recording and reporting information on women contain biases. Agency statisticians processing data sometimes excluded women from certain reporting categories—for example occupational listings—even if women listed the information on the data collection form. Overall, age cohort or occupational data might be reported in less detail than were similar data for men. Finally, conceptions of appropriate household organization and respectable family life limited the possible range of household and family situations that would be recorded and reported about women. Much of this

© 1992 Journal of Women's History, Vol. 4 No. 1 (Spring)

literature is hortatory, offering warnings about problems with the data which must be fixed before one can go further, or reestimations of existing series.

But a second question also arises: Why, we may ask, are the statistics so inadequate? And why have such obviously flawed data and methods been routinely published and reprinted in the major organs of statistical data—from the census, to the standard collections of historical statistics, to texts? One answer is that historians are more sensitive to the problems of sources and the historicity of categories, since we routinely deal with these issues in all our sources. But feminist critics from other social science disciplines make similar critiques of official statistics and, as we shall see, have for a very long time.[3]

In fact, the issue of why the statistics are problematic deserves attention in its own right if feminist scholars are going to make full use of statistical data and methods. One way to address it is to locate the origins of statistics as a form of knowledge, trace the history of statistics on women and gender, and hence capture the debates about statistics and the situation of women that frame the data and methods we inherit. Hakim and Deacon have provided a model and have examined the history of British and Australian census data on women. This paper will add the American context and examine the treatment of women's situation as housewife and worker in the American population census in the nineteenth century.[4]

The History of Statistics

Today, statistics pervade our lives. Yet it is important to recognize that statistics is a relatively recent form of knowledge. The earliest efforts to compile and analyze quantitative information for statistical purposes date from the seventeenth century. The great burst of development of censuses and surveys dates from the nineteenth century. Statistical associations were founded in the 1830s. Government statistical agencies were also founded in the nineteenth century. The "science" of statistics, that is, the development of the mathematics of probability, began in the late seventeenth and early eighteenth centuries and came to fruition in the late nineteenth and early twentieth centuries.[5]

As many scholars have shown, what made statistical knowledge increasingly useful, persuasive, and hence powerful was precisely its capacity to capture both the aggregate and the typical, the relationship between the part and the whole, and, when data were available, their trajectory over time. Statistical knowledge claims to "represent" society as a whole and in its myriad pieces. As such it was particularly appropriate to describe the new arrays of social groups in rapidly growing, industrial-

izing societies, the character and trajectory of social processes in far-flung empires, the behavior and characteristics of newly mobilized political actors in the age of democratic revolutions.

Statistical knowledge is not "better" or "more objective" in any absolute sense. Yet it did seem to be a very useful supplement to older ways of knowing, for example, the report of the informed observer or the description of the typical case. "Statists" and then statisticians prided themselves on their ability to define their subject matter comprehensively, precisely, and accurately. They built into the emerging discipline rules for specifying the limits of one's knowledge, for defining exactly what was being measured. Nevertheless, the phenomena being measured, classified, counted, and categorized were still phenomena understandable in terms of the discourse of the era. The participants in that discourse created the data, and the data were therefore rooted in the particular concerns and prejudices of the statisticians. As all users of old data know, one has to "translate" or "deconstruct" any particular data series or classification system to understand its logic and its omissions (silences), biases, conceptual confusions, and technical capacities before using it. For our purposes, such a stance also leads one to ask what kind of data were collected on women and gender, by whom, why, and how—if there is a particular women's statistical "voice."

Broadly speaking, the science of statistics and the new data collection efforts of the nineteenth century were the creation of elite men in Western industrializing societies. The methods and procedures they invented created a dominant, "official," though not necessarily monolithic, tradition that reflected their concerns and the existing legal, political, and economic arrangements in society. Finding the origins of statistics in the concerns of such men is not surprising. Women, for example, had no political rights during the period. Most women were legally *femes covertes* ("dead-in-law"), with little access to higher education or to the agencies of the state that created official statistics. In the United States they were only beginning to agitate for property rights through the proposals for Married Women's Property Acts and later the earnings laws.[6]

What is notable, though, is that, in the United States at least, by the second half of the nineteenth century, as part of broader programs for political and economic rights, nonelite and dispossessed social groups began to criticize the dominant statistical tradition and press their own case to have a "statistical room of one's own," if you will, to compete with more established traditions and agencies. One of the earliest (and successful) demands of the infant American labor movement was for the creation of bureaus of labor statistics to document the condition and trajectory of the American working class. Labor leaders and their allies contended in the

intellectual as well as the political arena with the advocates of the political economy of the time. The first bureau was created in Massachusetts in 1869; by the mid-1880s, 16 states had such bureaus. By 1902, there were 29. The federal bureau was created by 1884. In later years, similar special-purpose statistical agencies developed to serve the needs of other groups in society—for example, the Women's Bureau, the Children's Bureau, or the Bureau of Negro Economics. By the twentieth century, then, both a dominant and the beginnings of an alternative tradition of statistical research existed in the United States.

The Census: Dominant American Statistical Instrument

The core statistical instrument in the United States that produces demographic and economic statistics is the decennial population census. For almost all questions of historical population statistics, one must examine how the census treated the subject. On the surface, the census seems to be nothing but a population headcount. The 1787 Constitution mandated a count of the population every ten years to apportion Congress. The first census was taken in 1790, and it has been repeated decennially since. By the early nineteenth century, officials had discovered its larger potential. The census became a general-purpose survey with a wide variety of questions on population, economics, and social relations. The census came to define in very profound ways what was worth knowing about the American population. Its methods shaped official statistics in state and local government agencies and later in university or private-sector research. And it periodically became embroiled in larger political controversies about slavery, immigration, population growth, or political power (as well as a prize to be won and used in those controversies).[7]

For conceptualizing the social, economic, and political situation of women, the census is truly a remarkable source. The census counted the entire population every ten years, and it reveals, not only aggregates and distributions, but the contemporary conceptualizations of the relationships between the subgroups of the population—for example between men and women, free and slave, young and old, master and dependent. And as these relationships necessarily shifted and changed over time, the statistics invited challenges to reconcile new realities with old methods.

The Constitution mandated a population count, but it was silent on exactly how the census was to be taken. Congress confronted the logistics of census taking in 1789 and decided on a household enumeration. The method was used through 1840. The name of the head of the household was listed on a form, and the number of members in various age, race, sex, civil status (slave/free), and other categories were listed horizontally

across the form. Unless absent, the household head was presumed to be male. Such a procedure defined women, children, boarders, servants, and slaves as the "attributes"—we would say "variables" today—of the household, and hence the household head, rather than individuals deserving description in their own right. In 1790 some 3.9 million people lived in 558,000 families, for an average size of seven persons per household. The level of detail for recording information also differed by race and gender. In 1790, for example, free white males were divided into those 16 and over and those under 16; free white females, "other free persons," and slaves were not broken into age cohorts. From 1800 through 1840, the age cohorts of free whites were the same for both sexes; but different and fewer cohorts were used for free black and slave males and females.[8]

The structure of the questionnaire reflected the late eighteenth and early nineteenth centuries' hierarchical ordering of society. Lesser members of the household and the larger society deserved less-detailed reporting. The household—rather than the individual—was the elemental political and economic unit of society. In 1820 and 1840, for example, when the census asked its first occupational questions, it inquired of the "number of persons in each family employed in" a series of economic activities, including "mining; agriculture; commerce; manufactures and trades; navigation of the ocean; navigation of canals, lakes, and rivers"; and "learned professions and engineers." Men, women, children, servants, employees, or slaves could be listed, and the questions generated confusion over who should be included. Still, the conceptualization implied that the household was the appropriate unit of economic analysis.[9]

Relatedly, states at the time legally conferred suffrage rights on the basis of owning a certain amount of property. One did not necessarily have to be the household head as well. In practice, however, households tended to contain one voter who was also the male head. For example, in his report of the Boston city census of 1845, Lemuel Shattuck observed that 45 percent of the men over the age of 21 were legal voters in 1840; 63 percent were in 1845. In 1845 adult men in Boston had to pass a residency test and pay tax to qualify to vote. There were 19,175 households and 20,351 legal voters out of a total population of 114,366. Voters composed 18 percent of the total population and 31 percent of the adult population.[10]

To put the issue in terms of some of the debates within women's history, the census reflected an ordering of society that looks quite different from the emerging notion of individual rights and "separate spheres." Everyone "worked" in the domestic sphere, so to speak. Economic activity was an attribute of a household, not an individual. We do not see individuals working in a market economy, or a "home" presided over by a woman in her domain, but rather a "household" identified, controlled, and repre-

sented by its male head. Households were then aggregated into larger and larger geographic units to make up the national polity.

In the mid-nineteenth century, of course, such a world was already beginning to change. States extended the franchise to all adult white male resident citizens, sometimes even to aliens. The antislavery movement and the woman's rights movement challenged the servile role of slaves and women in the name of individual rights. "Freedom" meant emancipation of the individual from the master's control, the husband's tyranny.

In 1850, Congress responded to these larger issues when it reformed the census machinery. The 1840 census had been plagued with problems, and when Congress and a small group of "statists" looked to legislative changes, they replaced the household count with an individual-level census. Henceforth every person in the country would have a separate line on a census form. Congress required the same basic level of detail for the entire free population and a separate individual-level schedule for slaves. More information would be available on everyone, and presumably social statuses and characteristics would adhere to individuals, not to households and their heads. New questions were added about nativity and occupation, and officials set up the first major census office in Washington to tabulate the data.

But the older hierarchical ordering of society also remained embedded in the new system. The occupation question was only asked of free men. The work that slaves and women did was sufficiently defined by their civil status. People were still to be counted by household. On the free schedule, the household members were listed in order, "beginning with the father and mother," followed by the children in order of age, "then the other inmates, lodgers and boarders, laborers, domestics, and servants." On the slave schedule, slaves were individually identified by number, not name; the slaveowner's name, not the slave's, went on the top of the slave schedule. And, during the debates over the 1850 census reforms, Congress defeated a series of proposals to list the slave's name and define slave family relationships by identifying mother and child as well as master and slave.[11]

The 1850 census method is still the fundamental method of taking the census. Its genius was its "doubled vision": it simultaneously embodied two different conceptions of the fundamental organizational unit of society. On the one hand, it listed Americans as individuals, one to a line, whether free or slave, male or female, young or old. It was possible to aggregate, categorize, and cross-tabulate those individuals according to a variety of characteristics. On the other, the listing organized the population into families or households, with an implicit internal hierarchy, which also could be categorized, aggregated, and cross-tabulated. The census permit-

ted the study of social relations within and between households. The conception was also flexible. As civil statuses changed, questions could be adjusted to the new realities. For example, the census takers asked the occupation question of the entire free population in 1860 and of the ex-slaves after abolition. Even if the old ways were very slow in changing, it was not because of technical difficulties with doing so. In 1980, for example, when feminists objected to the census bureau's practice of routinely designating a male as head of household, it was quite simple to change the practice.[12]

The individual-level population count by household captured the hierarchical organization of households and the equality of individuals before the Constitution—and it masked the contradictions between the two conceptions. It also left unresolved just how the data should be reported. Which were the most important relationships and how should they be ordered: the characteristics of the individual, characteristics of the household, or the characteristics of the individual derived from the individual's status within the household? A 40-year-old white women in 1850, a wife and mother, was also a *feme covert* in her husband's household. The farm the family lived on provided their economic livelihood. Practically speaking, the census takers had to decide which of these characteristics were pertinent to tabulate and report in the published census volumes.

Census statisticians have always tabulated and reported different amounts and types of data by race, nativity, and gender and have thereby embedded their notions of social status in the seemingly bare tables of numbers. Reporting statistics on women, for example, implies disaggregating women as members of their households—i.e., as wives, mothers, sisters, daughters or widows—and reaggregating them in new breakdowns as women—for example, young women, old women, working women, disabled women. To create such a table the census takers had to believe that sex, race, or age were salient characteristics and be able to see the women, African Americans, or youth as members of a group, independent of or in addition to their statuses within households. One may look to particular census tabulations, therefore, to see when the statisticians counted women as individuals, rather than as wives, mothers, sisters, daughters, or widows, and thereby see how the census takers conceived of women's place in society.

Race classifications were the only ones built into the original constitutional mandate for a census. Until abolition, the three-fifths compromise required that basic population totals be broken down into slave and free categories. "Indians not taxed" were not to be counted at all. From the outset of the republic, government officials usually went further and separated whites from other races for other categories. The classifications

continued after abolition. Generally speaking, over time the census expanded the amount of data reported on all groups of the population. The American polity increasingly could be seen as aggregations of individuals—of certain ages and nativity groups and with certain levels of education, and so on. During the household count phase, 1790-1840, aggregations of various age cohorts by sex resulted naturally from the assistant marshals' reports of the data from their local areas. Age cohort data by sex became finer at each census, expanding from the two categories for free white males in 1790 to 13 each for free white males and females and six for each sex for the free blacks and slaves in 1840. After 1850, the individual-level census expanded the tabulation possibilities astronomically. The technical limitations of hand tabulation, however, set narrow practical limits as to what could actually be tabulated and reported. For the 1850 and 1860 censuses, the bureau broke down data on total population, nativity, disability, literacy, and school attendance by race and sex (and sometimes age). In 1860, though the census form contained information on occupations for both sexes, the occupational data were not broken down by sex. Nor did the mid-nineteenth-century census office have the capacity to tabulate, analyze, and report data on household structure and relationships. "Family" data were limited to simple counts for geographic areas.

Women and Work

After the Civil War, there was interest in expanding the volume of data published from the census. Many commentators recognized that census data could shed light on pressing social issues of the day—from Reconstruction to industrialization—and Congress again debated reforming the census machinery. Though the legislation failed for the 1870 census, Superintendent Francis Amasa Walker had a mandate to publish more census data. He tabulated information from a wide range of variables to produce tables that made finer distinctions on race, nativity, age, and sex, for finer geographical breakdowns. Among the new tables were occupational data broken down by age, sex, and nativity for states and large cities for the first time. These occupational statistics were designed to evaluate the changes wrought by industrial capitalism. Walker intended to provide a thorough listing of the economically active population, male and female, young and old, native and foreign.[13]

Given the conventional wisdom of the day, Walker was primarily interested in describing the adult-male workforce. As Richmond Mayo-Smith noted in his contemporary textbook, *Statistics and Economics*, "[f]or the purpose of studying the direction in which the labour-force of the community is exerted, the statistics of males are sufficient." Walker was

proud of the new occupational data and felt the need to stress their significance, despite his disclaimer that as a government official, he would "leave" "to others to show their bearing on the social or sanitary condition of the people." He also recognized that the data would invite scrutiny, since he himself had published a scathing attack on his predecessor's 1860 occupational data. So he was concerned to provide what he called an "explanation or vindication of the tables themselves," and it is in this commentary that Walker revealed his assumptions about the relationships among households, gender, and the economy.[14]

Walker was particularly concerned with explaining why he listed only 12.5 million of the 28.2 million people in the population over age 10 in the occupation tables. Today, we would define this ratio as the gainful employment rate. It came to 44 percent in 1870. Walker noted that he was reporting "gainful and reputable occupations only." These two tests eliminated most of the other 56 percent of the population over age 10. Walker systematically analyzed the proportion of each age/sex group eliminated. He reported that 91 percent of the men from ages 16 to 59 were in the workforce, as were 64 percent of the men age 60 and over. The remainder not working included students over 16, men with disabilities, the "criminal and pauper classes," and finally those with "inherited wealth" and those who had "retired from business" because of "an acquired competence," "support from grown children," or "advanced age." The low participation rate for boys under age 16 represented school attendance.

The situation for women was quite different. Walker reported that only 16 percent of women between the ages of 16 and 59 and 5 percent of those age 60 and over were "gainfully occupied." He then proceeded to explain what he believed the remaining women were doing. He estimated .5 million women age 16 to 59 were in school; 8.15 million women between the ages of 16 and 59 were left "to be accounted for." Walker then added in the women age 60 and above who were not gainfully occupied and came to a total of 9.1 million "to be accounted for." Of those 9.1 million he estimated that about 7.6 million women were "housekeepers." "[A] clear deduction should be made," Walker explained, "of one person on account of each family returned in the census." That is, Walker estimated that 68 percent of American women over the age of 16 were keeping house. He then considered how many women were both gainfully occupied and keeping house and suggested that only 179,363 (1.6 percent of women 16 and over) could be so considered. Finally Walker estimated that 150,000 women were gainfully occupied but did not report an occupation in the census. He concluded that 1.55 million American women age age 16 and over (14 percent) were left. These included "grown daughters living at home, widowed mothers supported by their children, ladies living upon

the income of accumulated property, as well as women of the pauper, vagrant, and criminal classes."[15]

Walker estimated that at least 89 percent of American men age 16 and over worked. Eighty-three percent of American women did as well—though the locus of the majority of women's work was quite different. Over two-thirds of American women were housewives in families. The interesting thing is that Walker did not attempt a formal tabulation of housewives. He simply assumed each family had to have a female "keeping house" and apparently did not cross-check his assumption to see if there was one woman age 16 or over in each family reported in the census.

What Walker had done, though, was provide an exhaustive list, of fundamentally mutually exclusive categories, to describe all the possible social and economic statuses for the population. And those categories were profoundly different for men and women. Men were workers, students, vagrants, paupers, criminals, disabled, retired, or of "an acquired competence" or "inherited wealth." Women were also workers, students, paupers, vagrants, or criminals. Interestingly, women were not disabled, nor did they retire. And the overwhelming majority (over four-fifths) were defined through a family relationship and hence assumed the unstated presence of a male household head. Most American women were "housekeepers," "grown daughters living at home," "widowed mothers supported by their children," or "ladies living upon the income of accumulated property." Despite the outward appearance of balance in the tabular presentation of the occupational data, Walker embedded the fundamentally different situation of men and women in the statistics. He estimated the aggregate number of women keeping house but did not seek to integrate a listing into the statistical tables themselves—even though the enumerators listed women who were "keeping house" on the census forms. Women retained their older economic status as the dependents of the household head. Even farmers' wives, who worked on the farm along with their husbands, were not considered "gainfully occupied." Women's domestic labor was "not gainful" because it produced no wage or product; women's labor within a family enterprise produced "gain" only for the husband. It was a legacy that would be hard to change.

A Challenge

But it was not a legacy that went unnoticed. By the late 1870s, Americans had had time to scrutinize the 1870 census statistics and prepare for the 1880 count. There was widespread recognition that Congress would probably pass a new census bill to improve census methodology and that Walker would return to oversee the count. Among the memorials that were

submitted to Congress in the spring of 1878 as the first bills were introduced was one from the Association for the Advancement of Women "Praying That the Tenth Census may contain a just enumeration of women as laborers and producers." Mary Eastman, Henrietta Woolcott, and 27 other officers from around the country charged that the 1870 census report had "overlooked" "twelve millions of American women . . . as laborers or producers" who were "left out, in common with those pursuing disreputable employments." Omitting consideration of "the home and woman as a home-keeper" implied that women had no effect on "the causes of increase or decrease of population or wealth." The memorial criticized the quality and accuracy of the vital and social statistics in the census and suggested that "intelligent women" would do a better job of collecting statistics "concerning women and children." They concluded with a list of proposals: (1) "for the more careful and just enumeration of women as laborers and producers"; (2) "for a record of the wages of men and women in all occupations"; (3) for better social statistics; (4) "for the enumeration of all men and women engaged in disreputable occupations"; (5) for "full statistics concerning all reformatory institutions"; and (6) for the "employment of a fair ratio of suitable women as collectors of the centennial census."[16]

The AAW memorial sounded themes that would echo through women's criticism of official statistics for years to come. An accounting had to be made of the home economy, of the illegal economy, and of wages for both sexes. Eastman and Woolcott called for improved vital statistics and statistics on social problems—"pauperism, vagrancy, vice and crime, insanity, idioctcy [*sic*], blindness, deformity, and disease"—and statistics on society's institutional responses to these problems. And they "prayed" to participate in the process as "collectors" of the data. These women's concerns were indeed different from Walker's and represent the beginning of a "women's statistical voice."

It was also something of an ambiguous voice, theoretically and methodologically. Francis Walker had defined the relationship between women and the economy according to the conventional categories of political economy and the laws of marriage and property. He embedded these categories in census methodology. Women resided (worked) primarily in the domestic sphere; men participated in the production, distribution, exchange, and consumption of wealth. The AAW memorial critiqued the fact that the census "left out" women as "home-keepers" but did not necessarily challenge the legitimacy of women's "place" in the home. Instead the AAW conceptualization implied an expanded notion of political economy that included the "home and woman" as contributors to "the causes of increase or decrease of population or wealth." Eastman and

Woolcott implicitly endorsed the notion of separate spheres for men and women by noting that men faced "natural barriers . . . as collectors of social and vital statistics." And the memorial was silent on the question about whether a woman could have a dual social status and participate in the "gainful" economy while serving as a wife. Finally, the AAW memorial did not specify exactly how to "make provision for the more careful and just enumeration of women as laborers and producers." They did not demand a separate accounting of women working in family-owned enterprises. They did not thoroughly critique Walker's assumption that the measurement of "gainful" work encompassed the entire "productive" economy. As outsiders to the census process and legally excluded from the public sphere, these women had no means as yet of changing Walker's methods. Before their critique could be effective, women would have to figure out how to gain access to the field as well as develop concrete suggestions for change in the statistical conceptions and measurement methods.

In the meantime, Walker's methods remained in place. In later years, the census bureau continued to publish occupational data on women each decade, and they continued to define housewives' work as not "gainful." Walker's conceptualization of the "gainfully occupied" who worked in the market economy and supported dependent wives and children at home had the virtue of capturing the emerging conception of American household patterns. It became the conventional method of defining the labor force. Over the course of the nineteenth century, older patterns of work and household status had disappeared. These included unfree statuses of indentured servitude and slavery, as well as the formal live-in apprenticeship. Market-based arrangements had replaced them and had to be measured in the statistics. Only women had retained their older status as dependent housewives. If Walker's conceptualization neglected to account for women's work in the home economy, it nevertheless did identify the contemporary consensus of the appropriate place for women's work: as wife and mother in the home.[17]

Francis Walker's Legacy

In Walker's formulation, the nation's labor force could best be considered an aggregation of independent individuals who worked for "gain." At the time (1870) the model was somewhat strained since about half the American population lived on farms and the majority of the workforce probably still worked in household or family enterprises. In such an economy, the household head "owned" the enterprise and managed the family labor force, not as independent wage earners, but through the contractual obligations of marriage and parenthood. A seamless web

united the work that accrued to the enterprise and the work that accrued to the "consumption" of the household. But there was a line of continuity between Walker's aggregations of individuals and the older conception of a household economy. Walker assumed the household head held authority over and was responsible for the enterprise—and the wife and children in the household. He alone therefore was a "gainful" worker in the family enterprise.[18]

Walker was willing to force the population working in family enterprises into his newer, individualistic definition, because he knew more rapid change was taking place outside the farm economy. In the emerging urban industrial economy individuals worked outside the household for a wage or salary. In the nonfarm economy the market economy and the household were easier to separate. Ideally, men worked outside the home while their women were supposed to maintain the domestic world within. Implicitly, therefore, if women were found working outside the domestic sphere, they were "out of place" in a double sense. They were unsupported by their husbands, fathers, brothers, or sons and subject to the authority and perhaps the abuses of an employer. In other words, if large numbers of women worked in the market economy, it was an indicator of an emerging social problem. The 1870 census listed 1.8 million "gainfully occupied" women. Contemporary anecdotal evidence indicated that many might be married. Walker's conception of the labor force had effectively made "gainful work" a deviant social status for women. Again the tools of statistics could be brought to bear on the issue, and a new generation of statisticians—including the first women researchers—turned to this question.[19]

Women Statisticians and Women's Work

The late nineteenth century saw the expansion of new types of statistical inquiry and the emergence of the first generation of women statisticians. By the 1880s, census takers realized that the decennial census, a general-purpose statistical instrument, was also a crude tool to examine any particular sector of the population in detail. The national census could only do so much. Innovations in census procedures for data collection, tabulation and publication, or questionnaire design were always expensive and had to serve a broad public purpose for Congress to take an interest in them. So officials adopted a two-pronged strategy. One involved lobbying for improvements in the census; the other finding new arenas in which to conduct statistical investigations that could serve as pilot projects or critiques for larger national efforts. From the 1870s through the 1890s, a

state's bureau of labor statistics served as the locus for this new, specialized statistical work.

Carroll Wright, chief of the Massachusetts Bureau of Statistics of Labor, first commissioner of the U.S. Bureau and then Department of Labor, and acting superintendent of the census in the 1880s and 1890s, oversaw both kinds of efforts. He also served to open the field of statistics to women investigators. He was uniquely situated to influence a wide range of innovations in American statistics in the late nineteenth century. Though it would be wrong to identify him solely or even chiefly with improvements in statistics on women and gender, his work played a major role in the development of these data. He held positions of authority at both the state and the national level, and he was sympathetic to and supportive of women statisticians and their investigations. Women as a class were still barred from voting, holding public office, formulating social policy, or formally influencing public opinion. But with the help of men like Wright, individual women statisticians began to undertake their own investigations and enter policy debates. These new investigations spoke to what was called at the time the question of "the emancipation of woman"—including the issues of higher education, the "family wage," the "moral condition" of working women, and labor displacement.[20]

One thread of scholarship was the investigation of the situation of wage-earning women. From the 1870s on, the state labor bureaus investigated both the trades in which women worked and the home situation of women workers. These studies documented what the census also showed—that a substantial proportion of American women worked outside the home. The smaller studies also showed that women were paid poorly. In 1893, Helen Campbell summarized this work in *Women Wage-Earners*, the first major statistical monograph on the situation of American women working for wages. Campbell was awarded a prize for the core of the work in an American Economic Association monograph competition in 1891, which she expanded for publication in Richard T. Ely's series on contemporary economic issues. Campbell explored the history of women's work before the rise of the factory system, the impact of the factory system, the situation in Europe, and the situation in the United States. She was concerned with explaining why industrial capitalism was creating an increasing number of underpaid wage workers and why men received "a greater wage than women." She emphasized that it was important for women to investigate questions of political economy because "[a]s women we are bound, by every law of justice, to aid all other women in their struggle." And she located the major sources of information that she was using in a discussion of the origin of the bureaus of labor. In the 1860s, Campbell noted that, "[t]he difficulties encountered by the enumerators of

the United States Census, and the growing conviction that much more minute and organized effort must be given if the real status of women workers was to be obtained" was one of the forces that prompted lobbying for the creation of "a formal bureau of labor, whose business should be to fill in all the blanks that in the general work [of the census] were passed over."[21]

The Massachusetts bureau was founded in 1869, Campbell continued, and she discussed the first ten years of reports and the information they produced on working women. In these reports she traced the growing recognition of "the need of some work given exclusively to women workers." That recognition led to the study Carroll Wright published as *The Working Girls of Boston* in 1884. It became an "authoritative" model and led, as Campbell showed, to related studies in other states. Wright also sponsored a national study of working women in 22 cities, published by the U.S. Department of Labor in 1888. This tradition of investigation in turn allowed Campbell to document the growth in the number of working women in the market economy, to trace the existence of the "evils and abuses in factory life," and to propose "remedies and suggestions"—including the proposals of the newly founded Consumers' League and the New York factory inspection law.[22]

Wright fostered other studies by women that focused on the impact of education on women, household labor patterns, housing conditions, and their impact on the family. In the early 1880s, for example, he supported Annie Howes's study of the health of women college graduates by both tabulating the data and publishing the results as a Massachusetts Bureau of the Statistics of Labor report. Lucy Maynard Salmon's pioneering survey of domestic service was tabulated at the Massachusetts bureau "by the courtesy of the chief of the bureau." Salmon presented the results of her research to a meeting of the American Statistical Association in 1892 and became the first woman to publish in the *Journal of the American Statistical Association* (volume 3). Her full monograph, *Domestic Service,* was published in 1897. And in the 1890s when Congress authorized investigations into slum conditions in large American cities, Wright turned to the women of Hull House to conduct the fieldwork in Chicago. These data, in turn, were used both in Wright's *The Slums of Baltimore, Chicago, New York, and Philadelphia* and by the Hull House residents in their separate publication, *Hull House Maps and Papers.* He helped the first generation of women statisticians and data analysts to come of age. All this work demonstrated a dramatic expansion of women's activities outside the traditional domestic sphere.[23]

Finally, in 1890 the census expanded its data on the female labor force. In that year, the census introduced the new Hollerith system of punch card

tabulation. It dramatically expanded the amount of data that could be tabulated and published from the raw schedules. As part of the expanded data, the bureau began to cross-tabulate and report occupational data by marital status. Carroll Wright explained, as he introduced a large number of new tables: "Statistics regarding the conjugal condition of the people of the United States are presented in this report for the first time." He then noted that "In the Ninth and Tenth censuses the material for preparing similar statistics was obtained by the enumerators, but means were not at hand for its compilation." Now the officials could provide data on the marital status of the female labor force. "The statistics of occupations with respect to conjugal condition," Wright commented, "have their chief value relative to married females engaged in remunerative work."[24]

Embedded in this terse comment was the explosive issue of the "family wage." Emerging labor leaders appropriated the reigning theories of the relationship between home and market economies and challenged American employers to pay a "living wage" so that a husband could support his family adequately. In this view, a married woman should not work outside the home as she had full-time obligations to provide services to her husband and family. The existence of working wives and mothers provided an index of the failure of capitalism to deliver a decent standard of living to ordinary Americans. As Martha May has shown, labor leaders found the family-wage argument particularly powerful. Wright recognized that the 1890 census cross-tabulations on marital status and conjugal status could speak to the debate.[25]

Wright reported that about 14 percent of the female labor force was married—though these women only composed 4.6 percent of all married women. Thirty-two percent of the laundresses were married, as were 27 percent of the female agricultural laborers, 23 percent of the female boarding and lodging-house keepers, and 17 percent of the "female operatives in tobacco and cigar factories." The bureau also reported that 18 percent of the female labor force was widowed or divorced, and that 30 percent of the widowed or divorced women were gainfully employed.

Overall, these statistics provided a new way to measure the number of women who were both gainfully employed and providing household services. More than a half-million women were married and working; 665,000 were widowed or divorced and working. Walker had estimated that 179,000 or 1.6 percent of American women both worked for "gain" and ran a household in 1870. The new data indicated that by 1890, the numbers of working women who also kept house had grown fivefold. Over a million American women probably were both gainfully occupied and keeping house. The numbers would bear watching in the future.

By the late 1890s, the data from the census, the state labor bureaus, and private studies all demonstrated that women were entering the gainful economy rapidly. Much more statistical data on the economic situation of women was available than had existed thirty years before. Women statisticians had begun to conduct investigations and enter the policy debates. Clearly the "economic function of woman" was undergoing major change. All investigators agreed, as Richmond Mayo-Smith put it, that it was "a matter of considerable social interest to know in what branches women are employed, whether the number is increasing or decreasing, and whether they are single or married—that is, seeking to support themselves, or to supplement the wages of the husband." Yet, he continued, the investigators proceeded from "two currents of opinion" in framing their research questions. "The one desires that the woman, especially the married woman, shall be withdrawn from the factory," Mayo-Smith asserted, "while the second seeks enlarged opportunities for women to earn their own living, especially if they are not married." These "different standpoints" were not identified with men and women, or with male and female statisticians. Rather, they turned on the question of whether women could live independently—outside the control of a male household head.[26]

Ironically, by the turn of the century scholars found the question much harder to address statistically, because of the way the census had defined women's occupational status. Women had always worked—as housewives in the home, as workers in family enterprises, and for themselves or for "employers" outside of it. And like men's work, their "work" was shifting into the market. In the late nineteenth century, Walker, Wright, and other statisticians had promoted a huge proliferation of studies on market work—studies on wages, the working day, conditions of work, skill. Frederick Winslow Taylor had begun to frame the question of productivity. But "keeping house" was not an official occupation, not "work." There was no parallel tradition of analysis of "homemaking" to define just what women did do or were supposed to do. As information about the gainful labor force accumulated, it became harder to make the gainful economy commensurate with the home economy, because statisticians had not conceptualized the relationship between the two spheres.

It is not surprising then that the appropriate economic situation of women was a contested issue in the statistical reports of the period, and little consensus—much less clarity—existed within any of the communities debating the issue. Instead, the statisticians expressed a generalized anxiety about the contemporary situation, a plea for social reform, and a defense of statistical research for informed social action. In response to the charge that "shop girls are an immoral class," for example, Carroll Wright emphatically answered that his study showed that "[t]he working girls of

Boston, as a class, are honest, industrious and virtuous, and are making an heroic struggle against many obstacles, and in the face of peculiar temptations, to maintain reputable lives." In commenting on the census reports of women working in "Manufacturing and Mechanical Industries," Richmond Mayo-Smith assured the reader that most women were milliners and seamstresses, that is, in "employments not demanding great physical strength and which do not unfit women for household duties in case of marriage." Lucy Maynard Salmon was concerned to "remove . . . the social stigma" from domestic service and "bring a still further readjustment of the work of both men and women." And Richard T. Ely introduced Helen Campbell's study and noted that "[o]ur age may properly be called the Era of Woman, because everything which affects her receives consideration quite unknown in past centuries."[27]

All these statements reflected concern that the changes the statisticians were describing did not imply "the dissolution of the family" or the "ruin" of women. But platitudes about women's proper roles were no substitute for empirical analysis. The census conceptualization provided no clear description of the workaday world that women experienced over the course of their lives or the contributions they made to the overall economy. By the turn of the century, statisticians had forgotten what the women from AAW recognized: that "gainful" work, as defined in the census, did not encompass all "productive" work. The statisticians overlooked the issue because they assumed that a woman's life was framed by her household status as a dependent daughter, wife (and mother), or widow. They assumed that women would continue to perform the function of providing household services to their husbands and families. Contemporary opinion was as yet divided about whether a woman might appropriately go "out to work" as an unmarried daughter. It was almost unanimous in disapproving of a married woman working outside the home. A "reputable" woman was one who was not "unfit" for "household duties." A dependent wife who provided household services to her husband and family was not a "worker" but a "dependent" and hence not included in the gainful labor force.

Today, women are no longer considered the legal dependents of their male relatives. Women's labor force participation rates are starting to approximate those of men. Yet labor force statistics are conceptualized in the same way they were at the turn of the century. This is not to minimize the profound transformations and improvements in survey methodology and the measurement of work since 1900. Yet it must be remembered that the statistical conception of women's household and labor force status is grounded in the nineteenth-century census tradition. Thus, while the distinction between market and nonmarket labor is still worth making,

statisticians no longer defend it on the grounds of "dependency" as did the censustakers who coined it. Further, in order to compare market and nonmarket labor, statisticians need adequate measurement methods for both sectors.[28]

In short, women's historians need an understanding of the history of statistics so they may use data and concepts appropriately. Statisticians concerned with the situation of women need an understanding of women's history to place some of the current measurement dilemmas in context and to begin to reevaluate the data. Perhaps, then, the marriage of women's history and statistics ought to be salvaged after all.

NOTES

This paper was originally prepared for the Berkshire Conference on the History of Women in June 1990. I would like to thank Nancy Folbre, Heidi Hartmann, Ed Pryor, Carole Shammas, Dan Scott Smith, Louise Tilly, and anonymous reviewers for comments on earlier versions.

[1] For a recent statement of these issues, see Barbara Hanawalt's presidential address to the 1990 Social Science History Association meeting, "The Voices and Audiences of Social History Records," *Social Science History* 15, no. 2 (1991): 159-175.

[2] Compare Heidi Hartmann, "The Unhappy Marriage of Marxism and Feminism," in *Women and Revolution*, ed. Lydia Sargent (Boston: South End Press, 1981), 1-41. For feminist critiques of the problems with existing statistics, see, for example, Christine Bose, "Devaluing Women's Work: The Undercount of Women's Employment in 1900 and 1980," in *Hidden Aspects of Women's Work*. ed. Christine Bose, et al. (New York: Praeger, 1987), 95-115; Penelope Ciancanelli, "Women's Transition to Wage Labor: A Critique of Labor Force Statistics and Reestimation of the Labor Force Participation of Married Women from 1900 to 1930," Ph.D. dissertation, New School for Social Research, 1983; Margo Anderson Conk, "Accuracy, Efficiency and Bias: The Interpretation of Women's Work in the U.S. Census Statistics of Occupations," *Historical Methods* 14 (Spring 1981): 65-72; Celia Davies, "Making Sense of the Census in Britain and the U.S.A.: The Changing Occupational Classification and the Position of Nurses," *Sociological Review* 28 (1980): 581-609; Desley Deacon, "Political Arithmetic: The Nineteenth-Century Australian Census and the Construction of the Dependent Woman," *Signs* 11 (1985): 27-47; Nancy Folbre and Marjorie Abel, "Women's Work and Women's Households: Gender Bias in the U.S. Census," *Social Research* 56, no. 3 (1989): 545-569; Nancy Folbre, "The Unproductive Housewife: Her Evolution in Nineteenth-Century Economic Thought," *Signs*, forthcoming; Claudia Goldin, *Understanding the Gender Gap* (Chicago: University of Chicago Press, 1990), especially 219-231; Catherine Hakim, "Census Reports as Documentary Evidence: The Census Commentaries, 1801-1951," *Sociological Review* 28 (1980): 551-580; Suzanne Lebsock, *The Free Women of Petersburg* (New York: Norton, 1984), 167-194; Joan Scott, "Statistical Representations of Work: The Politics of the Chamber of Commerce's *Statistique de l'Industrie a Paris, 1847-48*," in *Work in France: Representations, Meaning, Organization, and Practice*, ed. Steven Laurence Kaplan and Cyn-

thia J. Koepp (Ithaca: Cornell University Press, 1986), 335-363; Christine Stansell, *City of Women* (Urbana: University of Illinois Press, 1987), 114ff.

[3] See, for example, Marilyn Waring, *If Women Counted: A New Feminist Economics* (New York: Harper & Row, 1988); Joan Acker, "Women and Stratification: A Case of Intellectual Sexism," *American Journal of Sociology* 78 (1973): 936-945; Lourdes Beneria, "Conceptualizing the Labour Force: The Underestimation of Women's Economic Activities," in *On Work*, ed. R. E. Pahl (New York: Basil Blackwell, 1988), 372-391; Maurice Weinrobe, "Household Production and National Production: An Improvement of the Record," *Review of Income and Wealth*, Series 20 (1974): 89-102; Luisella Goldschmidt-Clermont, *Unpaid Work in the Household: A Review of Economic Evaluation Methods* (Geneva: ILO, 1982); Robert Eisner, "Extended Accounts for National Income and Product," *Journal of Economic Literature* 26 (December 1988): 1611-1184.

[4] Hakim, "Census Reports as Documentary Evidence"; Deacon, "Political Arithmetic."

[5] See, for example, James H. Cassedy, *Demography in Early America: Beginnings of the Statistical Mind* (Cambridge: Harvard Univeristy Press, 1969); James H. Cassedy, *American Medicine and Statistical Thinking, 1800-1860* (Cambridge: Harvard University Press, 1984); Patricia Cline Cohen, *A Calculating People: The Spread of Numeracy in Early America* (Chicago: University of Chicago Press, 1982); Michael J. Cullen, *The Statistical Movement in Early Victorian Britain* (New York: Barnes & Noble, 1975); Ian Hacking, *The Emergence of Probability: A Philosophical Study of Ideas about Probability, Induction and Statistical Inference* (New York: Cambridge University Press, 1975); Ian Hacking, *The Taming of Chance* (New York: Cambridge University Press, 1990); David V. Glass, *Numbering the People: The Eighteenth Century Population Controversy and the Development of the Census and Vital Statistics in Britain* (New York: D.C. Heath, 1973); Stephen Jay Gould, *The Mismeasure of Man* (New York: Norton, 1981); Theodore M. Porter, *The Rise of Statistical Thinking, 1820-1900* (Princeton: Princeton University Press, 1986); Stephen M. Stigler, *The History of Statistics: The Measurement of Uncertainty Before 1900* (Cambridge: Harvard University Press, 1986); Donald MacKenzie, *Statistics in Britain, 1865-1930: The Social Construction of Scientific Knowledge* (Edinburgh: Edinburgh University Press, 1981); D. B. Owen, ed., *On the History of Statistics and Probability: Proceedings of a Symposium on the American Mathematical Heritage* (New York: M. Dekker, 1976); Paul Starr and William Alonzo *The Politics of Numbers* (New York: Basic Books, 1987); Lorenz Kruger, Lorraine J. Daston, and Michael Heidelberger, eds., *The Probabilistic Revolution*, vols. 1 and 2 (Cambridge: M.I.T. Press, 1987); Gerd Gigerenzer, Zeno Swijtink, Theodore Porter, Lorraine Daston, John Beatty, Lorenz Kruger, *The Empire of Chance* (New York: Cambridge University Press, 1989); Paul Lazarsfeld, "Notes on the History of Quantification in Sociology—Trends, Sources, and Problems," *Isis* 52 (1961): 277-333, reprinted in *The Varied Sociology of Paul F. Lazarsfeld*, ed. Patricia L. Kendall (New York: Columbia University Press, 1982), 97-167; Jean-Claude Perrot and Stuart J. Woolf, *State and Statistics in France, 1789-1815* (New York: Harwood Academic Publishers, 1984); James C. Riley, *Population Thought in the Age of the Demographic Revolution* (Durham, NC: Carolina Academic Press, 1985); Stephen P. Turner, *The Search for a Methodology of Social Science: Durkheim, Weber, and the Nineteenth-Century Problem of Cause, Probability, and Action* (Boston: D. Reidel Publishing Company, 1986); Stuart Woolf, "Statistics

and the Modern State," *Comparative Studies in Society and History* 31 (July 1989): 588-604; Jean M. Converse, *Survey Research in the United States: Roots and Emergence, 1890-1960* (Berkeley: University of California Press, 1987); Otis Dudley Duncan, *Notes on Social Measurement: Historical and Critical* (New York: Russell Sage Foundation, 1984).

[6] Norma Basch, *In the Eyes of the Law: Women, Marriage, and Property in Nineteenth-Century New York* (Ithaca, N.Y.: Cornell University Press, 1982); Ellen C. DuBois, "Outgrowing the Compact of the Fathers: Equal Rights, Woman Suffrage, and the United States Constitution, 1820-1878," *Journal of American History* 74 (1987): 836-862; Amy Dru Stanley, "Conjugal Bonds and Wage Labor: Rights of Contract in the Age of Emancipation," *Journal of American History* 75 (1988): 471-500.

[7] Margo Anderson, *The American Census: A Social History* (New Haven: Yale University Press, 1988).

[8] For a description of nineteenth-century census schedules, see Carroll Wright and William C. Hunt, *History and Growth of the United States Census* (Washington, D.C.: GPO, 1900); or U.S. Bureau of the Census, *Twenty Censuses* (Washington, D.C.: GPO, 1979).

[9] *Twenty Censuses*, 13. These are the 1840 categories. For the 1820 categories, see page 11.

[10] Lemuel Shattuck, *Report to the Committee of the City Council Appointed to Obtain the Census of Boston for the Year 1845* (New York: Arno Press, 1976; originally published 1846), 79-82.

[11] Anderson, *The American Census*, 32-57; *Twenty Censuses*, 14.

[12] Compare Joan Kelly, "The Doubled Vision of Feminist Theory," in *Women, History and Theory* (Chicago: University of Chicago Press, 1984). For the critique of the automatic designation of a male head of household, see Harriet Presser's statement from the Social Scientists in Population Research reprinted in Folbre and Abel, "Women's Work and Women's Households," 567-569.

[13] Walker revealed his "northern" interest in industrialization by what he did not tabulate as well. The occupation data were not broken down by race in the 1870 and 1880 census reports. The first tabulations of occupations by race appear in the 1890 census.

[14] U.S. Census Office, Ninth Census of the United States, 1870, vol. 1, *The Statistics of the Population* (Washington, D.C.: GPO, 1872), especially 659ff; Richmond Mayo-Smith, *Statistics and Economics* (New York: MacMillan Company, 1899), 62. Francis Amasa Walker, "American Industry in the Census," in *Discussions in Economics and Statistics*, vol. 2, ed. Davis R. Dewey (New York: Burt Franklin, 1970, reprint of 1899 edition), 3-25.

[15] Ninth Census, 659-661.

[16] Mary F. Eastman, Henrietta L. T. Woolcott, et al., "Memorial . . . Praying that the Tenth Census May Contain a Just Enumeration of Women as Laborers and Producers," Senate Misc. Doc., 45th Cong., 2d Sess. (Serial 1786). For a recent article that cites the full text, see Folbre and Abel, "Women's Work and Women's Household," 566-567. Nancy Folbre brought the memorial to my attention. For back-

ground on the AAW, see William Leach, *True Love and Perfect Union: The Feminist Reform of Sex and Society* (New York: Basic Books, 1980).

[17] The other AAW requests also fared poorly. Walker had no mandate to collect information on wages. Efforts to improve vital statistics required cooperation between the federal government and the states to record deaths and births. Only about a third of the population was included in death registration areas by 1890; the United States would not have an adequate system of vital statistics until the 1930s. Women began to work on tabulating the census in the 1880s, but only as lower-level employees.

[18] In 1870, a majority of the male gainful workforce worked in agriculture as measured in the occupation statistics. According to an industrial distribution of the labor force, 53 percent worked in agriculture. In 1880, the census classified 44 percent of the population as "farm population." See U.S. Bureau of the Census, *Historical Statistics of the United States* (Washington, D.C.: GPO, 1976), 127, 138, 139, 457. In 1910, the census bureau created the category of "unpaid family worker" to encompass individuals who worked in a family enterprise. See *Twenty Censuses*, 44. See also Goldin, *Understanding the Gender Gap*, 43ff: "the census . . . did severely understate [married women's] paid and unpaid labor within the home and on the family farm" (45).

[19] See, for example, Caroline Dall, *The College, The Market, and The Court* (New York: Arno Press, 1972, first published 1867) for a study with anecdotal evidence.

[20] James Leiby, *Carroll Wright and Labor Reform: The Origin of Labor Statistics* (Cambridge, MA: Harvard University Press, 1960).

[21] Helen Campbell, *Women Wage-Earners* (New York: Arno Press, 1972, first published 1893), 13, 23, 111-125.

[22] Campbell, *Women Wage-Earners*, chs. XI-XII; Carroll Wright, *The Working Girls of Boston* (New York: Arno Press, 1969, first published in the Fifteenth Annual Report of the Massachusetts Bureau of Statistics of Labor, 1884).

[23] Annie Howes, *Health Statistics of Women College Graduates: Report of a Special Committee of the Association of Collegiate Alumnae* (Boston: Massachusetts Bureau of Statistics of Labor, 1885); see also Rosalind Rosenberg, *Beyond Separate Spheres* (New Haven: Yale University Press, 1982), 19ff; Lucy Maynard Salmon, *Domestic Service* (New York: Arno Press, 1972, first published 1897), quote from ix; Lucy Maynard Salmon, "A Statistical Inquiry concerning Domestic Service," *Journal of the American Statistical Association* 3 (1892): 89-118; Carroll Wright, *The Slums of Baltimore, Chicago, New York, and Philadelphia* (Washington, D.C.: GPO, 1894); *Hull House Maps and Papers* (Boston: Thomas Crowell & Co., 1895); see also Kathryn Kish Sklar, "Hull House in the 1890s: A Community of Women Reformers," *Signs* 10 (1985): 658-677.

[24] United States Census Office, Eleventh Census of the United States, *Report of the Population of the United States at the Eleventh Census: 1890*, Part I (Washington, D.C.: GPO, 1895), clxxix, and Part II (Washington, D.C.: GPO, 1897), cxxxi.

[25] Martha May, "Bread Before Roses: American Workingmen, Labor Unions, and the Family Wage," in *Women, Work, and Protest: A Century of U.S. Women's Labor History*, ed. Ruth Milkman (Boston: Routledge & Kegan Paul, 1985), 113-131;

Martha May, "The Historical Problem of the Family Wage: The Ford Motor Company and the Five Dollar Day," *Feminist Studies* 8 (1982): 399-424.

[26] Edward T. Devine, "The Economic Function of Woman," *Annals of the American Academy of Political and Social Science* 5 (1894-95): 361-376; Mayo-Smith, 75.

[27] Wright, *Working Girls*, 118, 128; Mayo-Smith, *Statistics and Economics*, 76; Salmon, *Domestic Service*, 266, 270; Ely, in Campbell, *Women Wage-Earners*, v-viii.

[28] Exciting work is currently under way to estimate women's economic contributions to development and the economic situation of women. See especially the United Nations publications, *The World's Women, 1970-1990: Trends and Statistics* (New York: United Nations, 1991) and *Methods of Measuring Women's Participation and Production in the Informal Sector* (New York: United Nations, 1990). The latter was produced by the UN Statistical Office and the International Research and Training Institute for the Advancement of Women (INSTRAW).