Labor Force Participation by Married Women in the United States

Results from the 1917/19 Cost-of-Living Survey and the 1920 PUMS

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Introduction

One of the most important changes in the United States labor market in the twentieth century was the increased participation of married women. In 1900 just 5.6% of married women were in the labor market. By 1998 61.8% of all married women were working or looking for work. The change is all the more notable because the labor force participation rates of single women have grown not twelve hold, but just by half in the same century (from 43.5% to 68.1%). Increased participation by married women in the labor market has occurred because the relationship between characteristics of women and their families, and labor force participation at a point in time has changed. For example, in cross-sectional data a negative association between husbands' income and wives' work is observed. Yet, over the course of the twentieth century men's incomes grew, while the labor force participation of married women continued to grow.[1] In this paper I use data from the 1917/19 *Cost of Living Survey (COLS)* weighted by city-specific occupational distributions from the 1920 census to calculate how much more likely women were to work when their husbands earnt less or worked fewer weeks in the year.[2] I find that women were more responsive to declines in their husband's weeks of employment than to declines in their husband's wages. Reweighting the *COLS* data by weights based on husbands occupation, city of residence and census region makes this effect stronger. The *COLS* under-surveyed households in the East where—at least in the *COLS* data—wages averaged more than $2 a week less than in other regions, or an 8 percent difference in weekly wages. This more than offset the slightly lower than average non-employment in the East. The finding that husbands wages and

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[1] Jacob Mincer, "Labor Force Participation of Married Women," in *Aspects of Labor Economics*, ed. H. Gregg Lewis (Princeton: National Bureau of Economic Research and Princeton University Press, 1962), p.64.

[2] The data utilized in this paper were made available (in part) by the Inter-University Consortium for Political and Social Research. The data for *Cost of Living in the United States, 1917-1919* were originally collected by the Bureau of Labor Statistics. Neither the collector of the original data nor the consortium bear any responsibility for the analyses or interpretations presented here.

earnings were lower in the East contradicts other evidence about regional variation in wages in the United States, and points to the need to use the fine occupational data in the *COLS* to closely compare wages for specific occupations in the *COLS* with wage data from the Census of Manufacturing and privately collected data such as the National Industrial Conference Board.

The increased participation of married women in the labor force when their husbands are out of work is known as the added-worker effect. While the added-worker effect today is small, in the early twentieth century it was relatively large. T. Aldrich Finegan and Robert Margo have shown that in 1940 the labor-market participation of women whose husbands were unemployed and not on public relief was half as large again as similar women whose husbands were employed.[3] Women whose husbands were unemployed and not on work relief had a labor force participation rate of 0.238 compared to a rate of 0.161 amongst women whose husbands were employed. Finegan and Margo, and a recent paper by William Sundstrom use the 1940 Public Use Microsample (PUMS) to model the labor-force behavior of married women. The 1940 Census was the first census to include information on income and earnings, and replaced questions on trade, profession and occupation with the contemporary notion of "labor force participation." In the 1910 through 1930 censuses the occupation, industry and class of worker was enumerated, but the time period respondents were meant to think about when describing their work was not specified. Hence, people who still had some attachment to a trade or profession but had not worked at it in months or years could still be identified as having an occupation. Moreover, these censuses did not include a question on income, which is vital to fully understanding the labor market behavior of households.

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[3] T.Aldrich Finegan, and Robert A. Margo. "Work Relief and the Labor Force Participation of Married Women in 1940." *Journal of Economic History* 54, no. 1 (1994): 71.

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Thus, the central problem in studying early twentieth century labor market behavior is that the most representative data source—the decennial census—omits a key variable, but data sources with income information may not be representative of the population as a whole. It is this problem that I will tackle in my dissertation. Broadly speaking, there are three sources of data which have income and labor force information in them in the early twentieth century

- Linking payroll records to census information
- State labor market surveys from the Historical Labor Statistics Project
- National labor market surveys by the Bureau of Labor Statistics carried out by the Bureau of Labor Statistics in 1888-1890, 1917-19 and 1935-36.[4]

In this paper I discuss some preliminary results from using the 1920 PUMS to construct weights for the 1917/19 Cost of Living Survey conducted by the Bureau of Labor Statistics.[5]

Data and methodology

The Bureau of Labor Statistics carried out the 1917/19 *Cost of Living Survey* between 1917 and 1919 to construct the original weights for the Consumer Price Index. It contains information on income, expenditure and labor market behavior of 12,817 families, primarily industrial and urban. The urban centers surveyed were large, with 78 having populations over 25,000 in 1920 and 47 having populations over 100,000. To be included in the survey, families had to contain a married couple, at least one child, not be a "slum or charity" family, have no boarders, no more than three lodgers, and be able to document their income and expenditure for the past year.

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[4] Robert A. Margo, "Employment and Unemployment in the 1930s", *Journal of Economic Perspectives,* 7, no. 2 (1993): 57.

[5] U.S. Department of Labor - Bureau of Labor Statistics, Cost of Living in the United States, 1917-1919 [Computer File]. Fifth ICPSR Edition, Ann Arbor, MI: ICPSR [producer and distributor] 1986. Steven Ruggles and Matthew Sobek et. al.Integrated Public Use Microdata Series: Version 2.0 Minneapolis: Historical Census Projects, University of Minnesota, 1997 [http://www.ipums.umn.edu]

Moreover, families had to be English-speaking and not have earned more than $2,000 in the previous year. The families were selected through local employers, and this also contributed to the survey over-representing some occupations and under-representing others, even within the broad category of "industrial worker."

In a recent paper Carolyn Moehling used the 1917/19 *COLS* to estimate how married women's labor force participation changed in response to variation in husbands' employment and earnings.[6] I estimate the same model as Moehling, but construct weights for each household based on the husband's occupation and city of residence. Following her paper I restrict the sample to white families in which the husband was aged 21 or older and the wife was aged 18 or older. As a measure of contribution to the household economy I construct a binary dependent variable which indicates whether or not a wife had labor earnings or the household earnt income from lodgers. Women who took in lodgers or did laundry and sewing are missed when work is measured as reporting positive weeks of employment. Some women with no weeks of employment reported positive labor earnings.

To create occupation-city weights for households I coded the occupational information in the *COLS* into the same occupational coding system as the 1920 PUMS. This allowed husbands' occupation in the *COLS* to be matched with similarly employed husbands from the 1920 census. Like the other IPUMS samples the 1920 PUMS has all occupations coded into the 1950

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6 Carolyn M. Moehling, "Women's Work and Men's Unemployment", *Journal of Economic History*, 61 no. 4 (2001): 926-949.

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occupational and industrial classification scheme.[7] Although the 1920 census had separate questions on occupation, industry and class of worker, the *COLS* asked for industry and occupation in one question, leading some respondents to omit their occupation or industry. For example, "chauffeur" or "clerk" omits information on what industry the husband was employed in. Conversely, "mining" identifies an industry, but not an occupation. The majority of cases which omitted occupations were employed in manufacturing, and following the rules used in coding occupational data in the IPUMS, these men were coded as "operatives and kindred worker, not elsewhere classified."[8] In other cases where the industry was ambiguous, and the occupation code was dependent on the industry code I gave the same occupation and industry codes as similar responses in the 1910 and 1920 census. For example, the occupation "conductor" could refer to either a street car conductor or a railroad conductor. A railroad conductor is classified with professional and managerial occupations (Major group 2, near heads of departments in department stores and inspectors employed by the government). A streetcar conductor is classified as an operative, and is found in a different major group (6). Luckily, there were very few ambiguous occupations, and the collection of the *COLS* through firms meant that firm names were often present in the occupational information. This made it possible to identify the industry of otherwise ambiguous responses. Other variables in the *COLS*—such as city and relationship between the household head and unrelated individuals—were also recoded into IPUMS coding schemes.

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[7] C. Ronnander. "The classification of work: Applying 1950 census occupation and industry codes to 1920 responses." *Historical Methods*. 32 (1999): 151-155.
[8] OCC1950=690.

To construct the weights from the 1920 PUMS I selected a sample of broadly similar families to the *COLS* sample. Specifically, to be included in the PUMS sample which generated the weights the family had to be white, residing in an urban area and have one or more of their own children in the household. Group quarters residents of any kind were excluded. The weights were based on the number of households who shared husbands' occupation, city of residence, and census region. It would be ideal to use detailed occupations and industries in both datasets to match households. However, there were only 28,104 unique combinations of husband's occupation, industry and city of residence in the 1920 PUMS for this restricted sample of white, urban families with more than one child in the household. In the *COLS* there were 8,027 unique combinations of the same variables. This meant that not all households in the *COLS* could be matched with a similar household in the PUMS. For example, there is one husband in the *COLS* data who was a surveyor working in coal mining in Scranton (PA).[9] This very specific combination of characteristics was not shared by any household in the 1920 PUMS. Similarly, although there was a household in the *COLS* where the husband worked as a painter in a factory that made agricultural implements in Evansville (IL), there was no corresponding household in the PUMS. However, it was possible to find white families with a professionally employed husband [in any industry] living in Scranton, just as it was possible to find other factory operatives who lived in Evansville.

Thus, to be able to match all households, I recoded occupations to the "major group level". The 1950 coding scheme has 10 major groups for occupations, and 9 major groups for industry (see Table 1). However, even with this recoding, there were still people who could not be

[9] OCC1950=92, IND1950=216.

matched with a similar family from the 1920 census. For example, in the *COLS* there is a "nursery tree surgeon" from Dallas. This response is classified as a professional (Group 0) working in agriculture (Group 1). There was no white family from Dallas in the 1920 PUMS where the husband was a professional working in the agricultural industry. Thus, I eliminated the industry variable from the matching routine.

A final problem was that some people in the *COLS* lived in cities that were not large enough to be distinctly identified in the IPUMS in 1920, even though their cities were identified in the *COLS*. These people were allocated to the IPUMS group "Not in identifiable city (or size group)". For example, people in Calumet MI cannot be identified in any IPUMS sample, and people in Huntsville AL cannot be identified in the IPUMS until 1980. So that these people could be grouped with others somewhat like them I also matched on the four census regions: East, Midwest, South and West. Using occupation at the major group level, city and region to match the IPUMS weights file to the *COLS* households I was able to match 11,837 of the 11,905 white families in the *COLS*. My analysis proceeds on this slightly smaller sample of 11,837 families.

Relative to the population of white, urban families in 1920 the *COLS* over sampled people from the West and South, and under sampled people from the Midwest and East (Table 2). The *COLS* over sampled craftsmen and operatives. Two thirds of all husbands in the *COLS* were craftsmen (Major Group 5) or operatives (Major Group 6), compared to 46% of husbands in the 1920 census sample of white, urban families. Correspondingly, the proportion of professionals and managers in the *COLS* was much lower than in the 1920 census sample (see Table 3). This

reflected the income restrictions on being included in the survey, and the way the survey respondents were found—through large enterprises. The discrepancy in the industrial distribution of husbands was somewhat less, though the *COLS* did include more men working in manufacturing, transport and utilities than the 1920 census sample (see Table 4). The *COLS* sample was also concentrated in large cities. Just 13% lived in cities with a population below 25,000. Two-thirds of the *COLS* sample lived in cities of over 100,000. Amongst the white urban families in the 1920 census, 32% lived in towns and cities with a population between 2,500 and 25,000. Thus, when re-weighted by the 1920 census sample people living in small cities will account for a larger fraction of the sample than they do in the original data.

The weights for each of the 11,837 white families retained in the *COLS* dataset were calculated as follows;

- The person weights for each unique combination of husband's occupation (major group level), city of residence, and region were totaled and then divided by 100 in the 1920 census dataset. There were 2,688 "cells" defined by these unique combinations of characteristics. On average, 27 other households in the same PUMS shared these characteristics.
- For each household in the *COLS*, the number of other families sharing the husband's occupation, city of residence and region was calculated. There were 644 "cells" defined by these combinations of characteristics. On average, there were 19 other households in each cell.
- The person weights from the 1920 census were attached to the *COLS* families by matching on husband's occupation, city of residence, and region. Of the 11,905 white households in the *COLS* 68 could not be matched. The 68 families that could not be matched in the *COLS*

were concentrated in three cities: Danville IL (15) Roanoke VA (12), and Winston-Salem NC (15).[10]

- The person weights were divided by the number of households sharing the same characteristics. I then divided the weights by the mean so that the total number of people remained the same (11,837).

This means that the *COLS* dataset now has the same marginal distribution for husband's occupation, city of residence and region as the 1920 census. The distribution of other characteristics will continue to differ between the *COLS* and the 1920 census sample of white urban families. However, the weighting allows us to standardize for three variables with which married women's labor force participation is known to vary.

Results

First, it is important to know just how much white, urban married women actually worked in 1918 and 1920. Carolyn Moehling quotes Claudia Goldin's statistic that just under 9% of white, urban married women worked in 1920—a figure calculated from the published statistics.[11] However, as William Sundstrom has pointed out before 1940 the census tabulations included married people whose spouses were absent.[12] This has a relatively large effect on estimates of how much married women were working in 1920 (Table 5). Restricting the census tabulations to families with one or more children to more closely match the families the *COLS* surveyed the discrepancy is not that the families surveyed by the *COLS* worked less than comparable families

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[10] In Danville the clerical and sales workers in the *COLS* could not be matched with any PUMS families, in Roanoke some clerical workers could not be matched with the PUMS, and in Winston-Salem a group of operatives could not be matched with any PUMS families.

[11] Moehling, p.937.

12 William A. Sundstrom. "Discouraging Times: The Labor Force Participation of Married Black Women, 1930-1940." *Explorations in Economic History* 38, no. 1 (2001): 126.

in the census, but that they worked more, both before and after standardizing for the different distribution of occupation and place of residence.

Table 7 presents the estimated models for women's labor force participation, with and without weights. Happily, the model estimated without weights results in co-efficients negligibly different from Moehling's estimates, except for the co-efficient on household size and the indicators for presence of males and females over 13 years old.[13] When the model is run with the occupation-city-region weights the most important co-efficients of interest—husband's earnings and employment, and the indicator for young children—only change slightly. However, some of the other co-efficients—the indicator for females over 13 years old and indicator for Southern households—change in sign and by an order of magnitude.

However, this had relatively little effect on the estimates for how much Southern women worked. An otherwise average woman in the South had a 0.127 probability of being in the labor market in the unweighted estimation, and a 0.129 probability of being in the labor market in the weighted estimation (see Table 8). What is of more interest is how women's labor market behavior responded to a decrease in their husband's earnings or employment. Moehling found that an increase in nonemployment weeks from 2 to 7 weeks—equivalent to a ten percent reduction in weeks employed—increased the probability of a wife having any market earnings from 13.5 to 17.2 percent. A ten percent reduction in husband's wages only increased the probability of participation to 15.3 percent. Due to the difference in co-efficients on household size and the indicators for children over 13 in the household, my initial estimate of the average

[13] Moehling, p.941.

woman's probability of participation is slightly lower. Moehling's main substantive finding that a reduction in employment weeks has a larger effect than a reduction in wages remains the same.

The weighted estimation shows the same effect—women respond more to a fall in their husband's employment than their husband's wage—but suggests that the size of the effect might be slightly greater. In the weighted estimation the increase in the probability of employment after a wage change is the same as in the unweighted model. The weighted model predicts a larger effect of cutting employment weeks. In the unweighted model, when employment decreases by five weeks, the probability of the wife participating increases from 0.118 to 0.157. In the weighted model, the probability that the wife will participate in the labor market increases from 0.130 to 0.188. The standard errors on this estimate are relatively large, and the confidence intervals for the two estimates overlap.

The weighted model produces a larger estimate of the effect of a change in employment weeks because it inflates the importance of respondents living in the East where women were more likely to be in the labor market. Using the coefficients from an unweighted model estimated on all families in the Midwest, South and West I predicted the probability of participation by women in the East — the average probability of a woman in the East being in the labor market was about 10% higher than in the rest of country (0.129 compared to 0.116). Performing the reverse cross-prediction (applying Eastern co-efficients to the rest of the country) the difference in predicted probabilities was smaller (0.164 compared to 0.161). Thus, women in the east had a greater propensity to go to work, and had characteristics which made them slightly more likely to go to work—principally that their husbands earned wages about 8% lower than in

all other regions. Because unemployment was slightly lower in the East, the difference in yearly earnings was only 7.5%. In the weighted estimates in Table 7, the behavior of women in the East influences the model more than in the unweighted estimates where East is significantly under-represented. This is a somewhat surprising conclusion, and might suggest that *COLS* is unrepresentative of the regional distribution of male wages.

The most proximate evidence for this surprise is Joshua Rosenbloom's article which examines real wages in manufacturing from 1879-1919 using data from the manufacturing census.[14] Rosenbloom found that manufacturing earnings were highest in the West ($1,470 p.a.), and significantly lower in the South ($1005-$1027 p.a.). Two thirds of the *COLS* sample is made up of tradesmen and operatives, and over forty percent of husbands worked in manufacturing. When we restrict our estimate of wages and earnings to men employed as tradesman or operatives (major groups 5 and 6) in manufacturing the strange regional disparity persists (Table 9). This result points to the need to examine more in fine detail the occupational make-up of the *COLS* survey and try to reconcile this with what we know from the Census of Manufacturing and data collected by the National Industrial Conference Board on wages in this time period.

Conclusion

In this paper I have explored one method for adjusting models estimated from unrepresentative survey data to better represent the population distribution in the country as a whole. The results are necessarily tentative, but suggest that paying attention to the regional composition of non-census surveys can reveal important differences in labor market behavior between regions. Carolyn Moehling's finding that married women were more responsive to

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[14] Joshua L. Rosenbloom, "Was there a National Labor Market at the End of the Nineteenth Century? New Evidence on Earnings in Manufacturing?" *Journal of Economic History*, 56, no. 3 (1996): 626-656.

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reductions in their husbands employment than their husbands income is robust to this re-weighting of the 1917/19 *Cost of Living Survey* sample. The results also suggest that the regional distribution of wages in the *COLS* sample differs substantially from the Census of Manufacturing wage data.

Table 1. Occupational and industrial categories in the 1950 coding scheme

Occupation		Industry	
Group Number	*Description*	*Group Number*	*Description*
0	Professional, technical and kindred workers		
1	Farmers and farm managers	1	Agriculture, forestry and fisheries
2	Managers, officials and proprietors, except farm	2	Mining and construction
3	Clerical and kindred workers	3	Manufacturing, durable goods
4	Sales workers	4	Manufacturing, non-durable goods
5	Craftsmen, foremen, and kindred workers	5	Transportation, communication, utilities
6	Operatives and kindred workers	6	Wholesale and retail trade
7	Service workers	7	Financial and business services
8	Farm laborers and foremen	8	Personal, recreational and professional services
9	Laborers, except farm and mine	9	Public administration

Source: U.S. Bureau of the Census, *Alphabetical Index of Occupations and Industries: 1950*, Washington, D.C., 1950.

Table 2. Regional distribution of white urban families in the 1917/19 Cost of Living Survey and the 1920 Census

Region	1917/19 *COLS*	1920 Census PUMS
East	0.29	0.43
Midwest	0.31	0.35
South	0.23	0.14
West	0.17	0.08
Number of observations	11,837	71,628

Table 3. Distribution of husband's occupations in the 1917/19 Cost of Living Survey and the 1920 Census

Occupational category	1917/19 *COLS*	1920 Census PUMS
Professional, technical and kindred workers	0.02	0.06
Farmers and farm managers	-	0.01
Managers, officials and proprietors, except farm	0.04	0.15
Clerical and kindred workers	0.10	0.06
Sales workers	0.04	0.06
Craftsmen, foremen, and kindred workers	0.39	0.28
Operatives and kindred workers	0.28	0.18
Service workers	0.06	0.04
Farm laborers and foremen	-	0.01
Laborers, except farm and mine	0.07	0.12
No occupation	0.00	0.03
Number of observations	11,837	71, 628

Table 4. Distribution of husband's industry in the 1917/19 Cost of Living Survey and the 1920 Census

Occupational category	1917/19 *COLS*	1920 Census PUMS
Agriculture, forestry and fisheries	-	0.02
Mining and construction	0.10	0.10
Manufacturing, durable goods	0.26	0.20
Manufacturing, non-durable goods	0.18	0.15
Transportation, communication, utilities	0.22	0.14
Wholesale and retail trade	0.10	0.18
Financial and business services	0.02	0.03
Personal, recreational and professional services	0.05	0.10
Public administration	0.06	0.03
No industry information available	0.01	0.04
Number of observations	11,837	71, 628

Table 5. Labor force participation in the 1917/19 Cost of Living Survey and the 1920 Census

Sample	Definition of labor force participation	Labor force participation rate	n
	Goldin, *Understanding the Gender Gap*, p.129 "white married women in urban areas" (quoted in Moehling, p.937)	0.087	
1920 PUMS Urban sample of white families with more than one child (Group quarters included)	All women in sample (1)	0.073	81,044
	Women with spouse present	0.056	77,189
	Women with spouse absent	0.432	3,592
	Women over 18 with spouse present and over 21	0.045	71,628
1917/19 *COLS*	Wife with any weeks of employment (unweighted)	0.070	11,905
	Wife with labor earnings or family earnt income from lodgers (unweighted) (dependent variable used in Moehling's analysis)	0.130	11,905
	Wife with any weeks of employment (weighted)	0.083	11,837
	Wife with labor earnings or family earnt income from lodgers (weighted)	0.148	11,837

Notes to table
(1) Restricting the sample to white married women 18 or older for compatibility with the *COLS* analysis had no effect on this rate. Of the 263 white urban married women under 18 in the 1920 PUMS, 28 were in the labor force.

Table 6. Means of independent and dependent variables for white families in Cost of Living Survey 1917/19

	All regions	East	Midwest	South	West
Wife had labor earnings or family had border and lodging income	0.13	0.16	0.11	0.12	0.11
(dependent variable)	(0.34)	(0.37)	(0.32)	(0.33)	(0.31)
Wife had positive labor earnings	0.09	0.11	0.07	0.07	0.08
	(0.28)	(0.32)	(0.26)	(0.26)	(0.27)
Wife had positive weeks of employment in past year	0.07	0.11	0.05	0.07	0.06
	(0.26)	(0.31)	(0.21)	(0.25)	(0.23)
Husband's weeks of non-employment	1.91	1.77	1.84	2.10	2.02
	(3.96)	(4.08)	(3.69)	(4.17)	(3.93)
Husband's weekly wages	27.13	25.58	27.00	27.62	29.37
	(8.22)	(7.03)	(7.88)	(7.83)	(10.40)
Non-labor income	40.13	41.85	38.12	36.82	45.29
(income from rents, gifts and other sources)	(71.18)	(73.09)	(69.61)	(69.64)	(72.41)
Presence of child less than six years in house	0.68	0.68	0.69	0.70	0.65
	(0.47)	(0.47)	(0.46)	(0.46)	(0.48)
Wife's age	33.38	34.09	32.96	32.76	33.75
	(7.78)	(8.04)	(7.41)	(7.83)	(7.80)
Presence of male > 13 years	0.14	0.17	0.13	0.14	0.12
	(0.35)	(0.38)	(0.34)	(0.35)	(0.33)
Presence of female > 13 years	0.16	0.18	0.14	0.17	0.15
	(0.37)	(0.39)	(0.35)	(0.38)	(0.36)
Home ownership	0.27	0.14	0.33	0.22	0.43
(positive spending on owned housing in past year)	(0.44)	(0.35)	(0.47)	(0.42)	(0.49)
City population in 1920 over 25,000	0.87	0.89	0.90	0.87	0.81
	(0.33)	(0.31)	(0.30)	(0.34)	(0.40)
City population in 1920 over 100,000	0.67	0.80	0.69	0.49	0.64
	(0.47)	(0.40)	(0.46)	(0.50)	(0.48)
Log of household size	1.46	1.49	1.45	1.48	1.41
	(0.31)	(0.32)	(0.30)	(0.31)	(0.29)
Number of observations	11, 837	3,435	3,708	2,685	2,009

Note: Standard deviations are in parentheses

Table 7. Probit analysis of wife's participation in the labor market

Dependent variable: Wife had labor earnings or family earnt income from lodgers	**Unweighted estimation**		**PUMS weights**		
	Coefficient	*Standard error*	*Coefficient*	*Standard error*	*Ratio of weighted/unweighted coefficients*
Husband's weeks of unemployment	0.041	0.006	0.049	0.006	1.20
Husband's weeks of unemployment—squared	-8.87E-4	2.4E-4	-1.0E-3	1.71E-4	1.13
Husband's weekly wage	-0.037	2.9E-3	-.052	.003	1.41
Husband's weekly wage—squared	1.16E-4	1.8E-5	1.66E-4	2.54E-5	1.43
Non-labor income	7.45E-4	2.0E-4	9.31E-4	1.87E-4	1.25
Household size (log)	-0.076	0.062	.263	.060	-3.46
Presence of child less than six	-0.257	0.040	-.301	.040	1.17
Wife's age	.097	0.015	.085	.014	0.88
Wife's age squared	1.26E-3	1.9E-4	-1.23E-3	1.9E-4	-0.98
Presence of male greater than 13	-0.046	0.048	-.088	.047	1.91
Presence of female greater than 13	-0.014	0.047	-.149	.047	10.64
Home ownership	-0.053	0.037	.080	.037	-1.51
City population in 1920 ≥ 25,000	0.026	0.054	.169	.079	6.50
City population in 1920 ≥ 100,000	-0.202	0.045	-.337	.084	1.67
Midwest	-0.116	0.049	-.123	.048	1.06
South	2E-3	0.060	-.057	.071	-28.50
West	-0.056	0.054	.045	.068	0.80
Intercept	1.574	0.052	1.05	.513	0.67
Log Likelihood	-4335.241		-4594.372		
Number of observations	11,837		11,837		

Note: Estimated models also included indicator variables for survey date.

Table 8. Influence of economic and demographic factors on probabilities of women's participation in the labor market

	Probability of labor force participation		
	Unweighted estimation	*Weighted estimation*	*Mean of variable (unweighted)*
Woman with average characteristics on all variables	0.118 (3.1E-3)	0.130 (3.1E-3)	
Husband unemployed for seven weeks	0.157 (7.3E-3)	0.188 (1.7E-2)	1.91 (3.95)
Husband unemployed for twelve weeks	0.188 (0.011)	0.232 (2.2E-2)	
Husband's wages 10% below mean	0.133 (3.4E-3)	0.146 (3.3E-3)	27.12 (8.22)
Husband's wages 10% above mean	0.101 (3.2E-3)	0.100 (3.2E-3)	
No children under six	0.156 (7.3E-3)	0.178 (7.8E-3)	0.68 (0.47)
One or more children under six	0.103 (3.8E-3)	0.111 (3.8E-3)	
Did not own home	0.121 (3.7E-3)	0.126 (3.6E-3)	0.27 (0.44)
Owned home	0.111 (5.7E-3)	0.144 (7.2E-3)	
Lived in town or city of 2,500-25,000 population	0.142 (9.8E-3)	0.150 (6.6E-3)	
Lived in city of 25,000 – 100,000 population	0.147 (8.7E-3)	.193 (2.1E-2)	0.87 (0.33)
Lived in city of over 100,000 population	.106 (3.7E-3)	0.114 (4.7E-3)	0.66 (0.47)
East	0.127 (7.2E-3)	0.141 (7.1E-3)	0.29 (0.45)
Midwest	0.105 (5.3E-3)	0.115 (5.7E-3)	0.31 (0.46)
South	0.127 (8.0E-3)	0.129 (1.2E-2)	0.23 (0.42)
West	0.116 (7.8E-3)	0.151 (1.3E-2)	0.17 (0.38)
Number of observations	11,837		

Note: Standard errors are in parentheses

Table 9: Wages and earnings of tradesmen and operatives in manufacturing (unweighted)

	Wages		Yearly earnings	
	Mean	**95% confidence interval**	**Mean**	**95% confidence interval**
Overall (n=4,242)	27.53	(27.29, 27.78)	1376.62	(1364.24, 1388.99)
East (n=1,467)	26.28	(25.94, 26.63)	1316.41	(1298.44, 1334.38)
Midwest (n=1,306)	27.29	(26.87, 27.72)	1369.64	(1348.09, 1391.18)
South (n=892)	27.71	(27.17, 28.25)	1379.17	(1351.35, 1407.00)
West (n=577)	30.98	(30.11, 31.85)	1541.55	(1499.82, 1583.28)

Table 10. Dates survey year ended by region

	Census region				
Date survey year ended	**East**	**Midwest**	**South**	**West**	**Total**
Unknown	5	0	7	1	13
	0.0015		0.0026	0.0005	0.0011
31 August 1918	1,225	171	1	0	1,397
	0.3566	0.0461	0.0004	0.00	0.1180
31 July 1918	0	0	188	0	188
	0.00	0.00	0.0700	0.00	0.0159
30 September 1918	756	22	0	549	1,327
	0.2201	0.0059	0.00	0.2733	0.1121
31 October 1918	1,008	1,170	98	426	2,702
	0.2934	0.3155	0.0365	0.2120	22.83
30 November 1918	440	437	153	153	1,183
	0.1281	0.1179	0.0570	0.0762	0.0999
31 December 1918	1	1,030	885	444	2,360
	0.0003	0.2778	0.3296	0.2210	0.1994
31 January 1919	0	627	1,095	334	2,056
	0.00	0.1691	0.4078	0.1663	0.1737
28 February 1919	0	251	258	102	611
	0.00	0.0677	0.0961	0.0508	0.0516
Total	3,435	3,708	2,685	2,009	11,837