

Married women's work in war and depression, 1917-1940

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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 fold, 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

To understand this change in behavior I use data from two different sources, two decades apart to model women's behavior. The data I use are from the 1917/19 *Cost of Living Survey (COLS)*—a survey of 12,000 predominantly urban families—and the 1940 census. The COLS was conducted in the days before survey sampling, and so the people it included are not representative of the entire American population. The target population in mind was the urban working class. Using the Integrated Public Use Microdata Series of U.S. census samples I pick a similar set of people from the U.S. census of 1940.

My main findings are that women's behavior changed in important, if not dramatic, ways during these two decades. Women in 1940 were less responsive to unemployment and falls in

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.

family income than they had been in 1917/19, despite the change in economic conditions over time.

Data and theory

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.² 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.

² 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. One of these less representative sources is the 1917/19 *Cost of Living Survey*.

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. 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.”

Most people using the 1940 census to study labor force behavior have used the contemporary measure of labor force participation, which asks whether a person was working in the same week. Because this variable does not exist in the COLS I use the census information about earnings and weeks worked in 1939 to generate two measures of labor market participation that are analogous to those found in the COLS. The first measure of labor market behavior is a binary indicator of whether a woman worked any weeks for pay during the preceding year; and the second is a binary indicator of whether a woman earned any wage or salary income in the preceding year.

In this paper I restrict myself to analyzing white families, so as to concentrate on the change over time. The inter-racial differences in labor force behavior in the United States then and now are large and important, and require more sustained treatment than I can give them here. The COLS was largely composed of urban families, but the 1940 census does not offer such fine geographic detail, the best we know about the families in 1940 is the city they lived in and its population if the city was over 100,000 people. To get around this, I present supplementary results restricting the sample in both 1917/19 and 1940 to residents of cities over 100,000; and models restricting the results to families not living on farms, and models restricted to manufacturing workers.³

Results

First, it is important to know just how much white, urban married women actually worked between 1918 and 1940. For example, a recent paper by 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.⁴ However, as William Sundstrom has pointed out, before 1940 the census tabulations included married people whose spouses were absent.⁵ This has a relatively large effect on estimates of how much married women were working in 1920 (Table 4). 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 in the census, but that they worked more, both before and after standardizing for the different distribution of occupation and place of residence. By 1940

³ I restrict the 1940 sample to white families with at least one child (the *COLS* required families to have at least one child), where the husband was not an employer or self-employed. The woman must be over 18 and the husband over 21.

⁴ Carolyn M. Moehling. "Women's Work and Men's Unemployment." *Journal of Economic History*, 2001, 61(4), p.937.

⁵ William A. Sundstrom. "Discouraging Times: The Labor Force Participation of Married Black Women, 1930-1940." *Explorations in Economic History* 38, no. 1 (2001): 126.

the overall rate of labor force participation by married women was up by about half, from 9% to 14%. However, this masks substantial variation in market participation by different groups of married women. Women living on farms continued to have a much lower rate of market participation, as measured by earned income, than women not living on farms. Conversely, black women continued to have much higher rates of labor force participation than white women. Amongst similar groups in both 1917/19 and 1940, the 50 percent increase in the participation rate can be seen amongst the wives of workers in manufacturing, and women living in large cities. In that respect, although we are analyzing a subset of the population, the trends in the inter-war period compare closely to the overall trends in married women's labor market behavior.

Turning to the modeling of women's behavior, I first estimated models which restricted the change in behavior between 1917 and 1940 to a simple additive shift, of more women entering the labor market. However, in likelihood ratio tests (available on request) it was clear that the change between 1917 and 1940 was not just in the observed rates of participation — it was in behavior. This was true for all women, and the three subsets of women who were not living on farms, living in large cities, or whose husbands worked in manufacturing. Therefore, I report interaction models that allow the parameters to be different in 1917 and 1940 (Table 6)

The differences in observed behavior between World War I and the eve of World War II were partly due to changes in behavior, and partly to changes in the characteristics of women. The economic circumstances families faced in 1917/19 and 1939 were quite different. In 1918 and 1919 the labor market in the United States was very tight; with unemployment below 3% in both years. In 1939, however, the United States had still not emerged from the Great Depression, and unemployment in 1940 was still 14.6%. This can be seen in the quite different non-employment statistics for the two samples — on average husbands in the 1917/19 COLS had less than two

weeks out-of-work in the preceding year; whereas husbands of similar families in 1940 averaged nearly 12 weeks out of employment during 1939 (Table 5). Even amongst selected sub-groups, such as manufacturing workers, the differences between 1917/19 and 1939 were large: husbands who were manufacturing workers in 1917/19 averaged two weeks out of work in the previous year; compared to eight weeks amongst similar husbands in 1940.

The most direct comparisons about how behavior changed between World War I and World War II can be made by simulating two counter-factual situations, (1) how much would women have worked in 1939 if they had the same average characteristics as women in 1917/19, and (2) how much would women have worked in 1939 if they had the same average characteristics but behaved like women in 1917/19 (Table 7). If women in 1940 had had the same characteristics as women in 1917/19 they would have worked just slightly less than they actually did. Given that male unemployment was so much higher in 1939 compared with 1917/19, the difference (0.093 predicted, compared to 0.096 observed) is an indication of a secular shift in women's behavior; confirmed by comparing actual participation in 1917/19 (0.085) with the rate predicted if women had behaved like they did in 1939 (0.093). This same pattern of behavior can be seen amongst the sub-groups of non-farmers and manufacturing workers, with the effect somewhat stronger when farmers are excluded.

Balancing this shift in behavior was that women were actually becoming less responsive to falls in their husband's income or employment over time; that is the added worker effect diminished between the wars. It is somewhat of a paradox that in 1940 when there appeared to be so many added workers, the magnitude of the added worker effect had actually declined. This can be seen by comparing the observed labor force participation rates in 1939, with the rates predicted if women in 1939 had behaved like women in 1917/19. If women in 1939 had behaved

like women in 1917/19, women would have worked more than they actually did in 1939. This result is due largely, but not entirely, to the differences in how women responded to changes in their husband's employment and income. The effects of changes in husband's income and employment in 1939 were insignificantly different from zero, whereas twenty years earlier they had important effects on women's decisions to work for pay or not.

Conclusion

Although it has often been claimed that married women's labor market behavior changed quite rapidly in the inter-war period, this hypothesis has not been tested directly using individual level data. In this paper I find that married women's work decisions did change a lot between World War I and World War II. Despite much higher unemployment on the eve of World War II, and an overall rise in women's participation in paid work, married women were actually less sensitive to their husband's economic circumstances in deciding whether to work or not. Women's decisions to go out to work were more distinctly their own decisions to go to work, and not a reaction to economic hardship.

Table 1. Regional distribution of white families: 1917-1940

Region	1917/19 COLS	1920 Census	1940 Census*
East	0.29	0.43	0.33
Midwest	0.31	0.35	0.32
South	0.23	0.14	0.24
West	0.17	0.08	0.11
Number of observations	11,905	71,628	128,870

* All white families meeting criteria

Table 2. Distribution of husband's occupations: 1917-1940

Occupational category	1917/19 COLS	1920 Census PUMS	1940 Census sample
Professional, technical and kindred workers	0.02	0.06	0.04
Farmers and farm managers	-	0.01	0.00
Managers, officials and proprietors, except farm	0.04	0.15	0.07
Clerical and kindred workers	0.10	0.06	0.07
Sales workers	0.04	0.06	0.06
Craftsmen, foremen, and kindred workers	0.39	0.28	0.21
Operatives and kindred workers	0.28	0.18	0.23
Service workers	0.06	0.04	0.05
Farm laborers and foremen	-	0.01	0.04
Laborers, except farm and mine	0.07	0.12	0.13
No occupation	0.00	0.03	0.08
Number of observations	11,905	71,628	128,870

Table 3. Distribution of husband's industry: 1917-1940

Occupational category	1917/19 COLS	1920 Census PUMS	1940 Census sample
Agriculture, forestry and fisheries	-	0.02	0.05
Mining and construction	0.10	0.10	0.17
Manufacturing, durable goods	0.26	0.20	0.17
Manufacturing, non-durable goods	0.18	0.15	0.13
Transportation, communication, utilities	0.22	0.14	0.10
Wholesale and retail trade	0.10	0.18	0.12
Financial and business services	0.02	0.03	0.03
Personal, recreational and professional services	0.05	0.10	0.08
Public administration	0.06	0.03	0.05
No industry information available	0.01	0.04	0.10
Number of observations	11,905	71, 628	128.870

Table 4. Measures of labor force participation: 1917-1940

Sample	Definition of labor force participation	Labor force participation rate	n
<u>1917/19 COLS</u>	Any weeks of employment in last year	0.070	11,905
	Labor earnings in last year	0.085	
<i>Manufacturing workers</i>	Any weeks of employment in last year	0.078	4,254
	Labor earnings in last year	0.092	
<i>Living in city over 100,000 people</i>	Any weeks of employment in last year	0.066	7,887
	Labor earnings in last year	0.079	
<u>1920 PUMS*</u>	All women in sample	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
<u>1940 census</u>			
	<i>Sample of white families with 1 child</i>		
	Any weeks of employment in last year	0.117	128,870
	Labor earnings in last year	0.096	
<i>All married women with spouse present</i>	Any weeks of employment in last year	0.176	273,981
	Labor earnings in last year	0.132	
<i>White wives with children present and spouse absent</i>	Any weeks of employment in last year	0.367	6,198
	Labor earnings in last year	0.326	
<i>White wives with children and spouse present on farms</i>	Any weeks of employment in last year	0.120	40,275
	Labor earnings in last year	0.034	
<i>Manufacturing workers</i>	Any weeks of employment in last year	0.150	25,864
	Any labor earnings in last year	0.136	
<i>Living in city over 100,000 people</i>	Any weeks of employment in last year	0.105	39,866
	Labor earnings in last year	0.096	

* Urban sample of white families with more than one child (Group quarters included).

Table 5. Means of independent and dependent variables

	1917/19 Cost of Living Survey		1940 Census sample of white families	
	Average	s.d	Average	s.d.
Wife had labor earnings in last year	0.085	0.279	0.096	0.295
Wife worked in last year	0.070	0.255	0.117	0.321
Weeks of husband's non-employment	1.915	3.980	11.836	17.174
Husband's labor income	1352.617	363.860	1225.533	1007.239
Log of family size	1.462	0.306	1.465	0.330
Wife's age	33.383	7.777	38.760	11.972
Family earned more than \$32.30 (1917/19) or \$50 (1940) non-labor income in past year	0.344	0.475	0.270	0.444
Presence of children less than six	0.681	0.466	0.372	0.483
Female greater than 13 in household	0.144	0.351	0.341	0.474
Male greater than 13 in household	0.162	0.368	0.314	0.464
Owned home in previous year	0.269	0.443	0.412	0.492
Lived in city of over 100,000 population	0.662	0.473	0.309	0.462
Lived in Midwest	0.313	0.464	0.323	0.468
Lived in South	0.229	0.420	0.237	0.425
Lived in West	0.169	0.375	0.106	0.308
Number of observations	11,905		128, 870	

Table 6. Probit analysis of wife's participation in the labor market

Dependent variable is binary indicator that wife earned labor income in past year	All in sample		Non-farmers		City over 100,000		Manufacturing husband	
	Marginal effect	Standard error	Marginal effect	Standard error	Marginal effect	Standard error	Marginal effect	Standard error
Husband's non-employed weeks	0.00267	0.00107	0.002714	0.001093	0.003626	0.001381	0.005815	0.002637
Husband's non-employed weeks squared	-0.00013	4.09E-05	-0.00013	4.18E-05	-0.00018	5.79E-05	-0.00034	0.000135
Husband's labor income	-0.00039	3.86E-05	-0.00039	3.94E-05	-0.00037	4.79E-05	-0.00048	7.97E-05
Husband's labor income squared	8.36E-08	1.35E-08	8.54E-08	1.38E-08	8.05E-08	1.67E-08	9.46E-08	2.80E-08
Family had some non-labor income	0.022568	0.00594	0.023291	0.006109	0.027677	0.007422	0.021254	0.012158
ln (Family size)	0.017841	0.010746	0.018283	0.010988	0.021332	0.013028	0.038659	0.022074
Children less than six in household	-0.05761	0.006352	-0.05846	0.006436	-0.05734	0.00749	-0.07522	0.013594
Wife's age	0.016827	0.002611	0.017173	0.002669	0.015566	0.003137	0.028466	0.005898
Wife's age squared	-0.00023	3.47E-05	-0.00024	3.54E-05	-0.00021	4.12E-05	-0.00042	8.15E-05
Male greater than 13 in family	-0.01094	0.007811	-0.01103	0.007984	-0.00012	0.009643	-0.00912	0.016165
Female greater than 13 in family	0.00247	0.007941	0.002685	0.00812	-0.00867	0.009187	0.000818	0.016254
Owned home	-0.0083	0.006268	-0.0084	0.006402	-0.01677	0.007494	0.004387	0.013394
City over 100,000 population	-0.02309	0.005255	-0.0239	0.005469			-0.04029	0.010638
Midwest	-0.0281	0.006201	-0.02865	0.006357	-0.01109	0.007685	-0.06126	0.012165
South	-0.03105	0.006382	-0.03144	0.006426	-0.00903	0.008955	-0.03792	0.012112
West	-0.00677	0.007897	-0.00683	0.008082	0.004913	0.010335	-0.00054	0.017401
In 1940 census sample	-0.15973	0.101001	-0.15952	0.101047	-0.04604	0.084842	0.025311	0.097956
Census 1940*Non-employed weeks	-0.00288	0.001081	-0.00296	0.001107	-0.00304	0.001409	-0.00625	0.002669
Census 1940*Non-employed weeks sqd.	0.000137	0.000041	0.000136	0.000042	0.000169	5.82E-05	0.000331	0.000135
Census 1940*Huband's labor income	0.000357	3.87E-05	0.00035	3.95E-05	0.00032	4.82E-05	0.000402	8.05E-05
Census 1940*Huband's labor income sqd.	-8.46E-08	1.35E-08	-8.38E-08	1.38E-08	-7.69E-08	1.68E-08	-9.75E-08	2.82E-08
Census 1940*Non-labor income	-0.06569	0.011078	-0.06525	0.011375	-0.07625	0.013908	-0.11278	0.023087
Census 1940*Wife's age	-0.00568	0.002663	-0.00505	0.002731	-0.00469	0.003284	-0.01024	0.006099
Census 1940*Wife's age squared	5.95E-05	3.52E-05	0.00005	3.61E-05	3.17E-05	4.28E-05	0.000124	0.000084
Censu 1940*ln(family size)	-0.03367	0.004832	-0.03095	0.005004	-0.03135	0.005977	-0.02942	0.010572
Census 1940*Children less than six	0.005942	0.007396	0.006162	0.007608	0.006979	0.009468	0.011433	0.015548
Census 1940*Male greater than 13	0.014857	0.008776	0.015396	0.009011	0.006734	0.010526	0.018385	0.01832
Census 1940*Female greater than 13	0.006345	0.008324	0.007265	0.008559	0.017551	0.010854	0.024429	0.01836
Census 1940*Owned home	0.006007	0.006659	0.005727	0.006831	0.017513	0.009164	-0.01084	0.013617
Census 1940*Lived in city over 100,000	0.029141	0.006565	0.025214	0.006524			0.020336	0.012691
Census 1940*Midwest	0.01063	0.007362	0.014734	0.007646	0.017841	0.009173	0.022476	0.015264
Census 1940*South	0.03487	0.009196	0.046041	0.009967	0.036318	0.013098	0.067008	0.019975
Census 1940*West	0.0165	0.009732	0.018129	0.010078	0.022526	0.012853	-0.0154	0.017396

All in sample	Non-farmers	City over 100,000	Manufacturing husband
Number of obs = 140775	Number of obs = 125823	Number of obs = 47753	Number of obs = 30118
LR chi2(33) =4973.80	LR chi2(17) =4441.85	LR chi2(31) =2042.19	LR chi2(17) =1912.60
Prob > chi2 = 0.0000	Prob > chi2 = 0.0000	Prob > chi2 = 0.0000	Prob > chi2 = 0.0000
Pseudo R2 = 0.0562	Pseudo R2 = 0.0547	Pseudo R2 = 0.0686	Pseudo R2 = 0.0822
Log likelihood = -41765.151	Log likelihood = -38122.044	Log likelihood = 13866.084	Log likelihood=-10680.248

Table 7. Change in married women's labor force participation over time

Labor force participation rate	All in sample	Non-farmers	City over 100,000	Manufacturing husband
1917/19 (observed)	0.085	0.085	0.079	0.092
1940 (observed)	0.096	0.100	0.097	0.136
1940: calculated using 1917/19 average characteristics	0.093	0.096	0.095	0.122
1940: calculated using 1917/19 responses	0.132	0.113	0.084	0.141