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CHAPTER 7

FURTHER ANALYSIS OF THE INCREASES IN FEMALE LABOR FORCE PARTICIPATION OVER TIME

WHY did female labor force participation rise as income increased over time—instead of declining as might be expected on the basis of the behavior among different income groups and localities at a given time? This chapter inquires: (1) What has been the excess over the amount suggested by the moment-of-time relationship with real income? (2) What were the dynamic forces that might explain this excess?

Estimate of the Possible Excess of Actual Female Labor Force Participation over That "Expected" on the Basis of Rising Income

The excess in actual female labor force participation, over that suggested by the rise in real income, was estimated for the United States (Table 17). The first step (line 3) computed the increase in real income in each decade as a percentage of the income of the previous decade date.[1] The second step obtained the possible relationships between income and female labor force at a given time, i.e., other things remaining fairly equal. (See Chapter 4, where labor force was correlated with income among cities, states, and nations.) The most reliable comparison, because it offered the best chance of other things remaining equal, and because it allowed adjustment of earnings for inter-area differences in the cost of living, was the study of 38 large United States cities.[2] Its results varied from one decade to another, but as such statistics go the variations during 1900–1940 were moderate. The highest was —0.74 in 1900, the lowest —0.35 in 1930, and the remaining two were —0.51 in 1920 and —0.50 in 1940—equal to the average for the four decades. These are the percentages by which the female labor force participation was lower in cities where incomes were 1 per cent higher. In 1950 the inverse association disappeared.[3] We use these individual decade associations, despite the fact that the data were scarcely accurate enough to reflect real changes in the labor

[1] Actually, to reduce randomness, a three-year average was computed from incomes in each census year and the two preceding years.

[2] The study covered 1900 and 1920–1950. Because of the difficulty presented by the probability of varying degrees of overcount or undercount in the different cities in 1890 and 1910, these dates were omitted.

[3] It disappeared only for white females; for colored females, it was about what it had been for all females in the previous decades.

TABLE 17

Illustrative Estimate of the Difference between the Actual Rate of Female Participation and the Rate Expected, Had the Female Labor Force Been Inversely Related to Income over Time as It Was at a Given Time in the 38 Large Cities, United States, Census Dates, 1890–1950

	1890	*1900*	*1910*	*1920*	*1930*	*1940*	*1950*
1. Personal disposable income per adult-male equivalent employed (1929 dollars) [a]	1,011	1,203	1,418	1,486	2,079	2,293	2,701
2. Change in income, measured in 1929 dollars	–	+192	+215	+68	+593	+214	+408
3. Per cent of previous income	–	+19.0	+17.9	+4.8	+39.9	+10.3	+17.8
4. Per cent change in female labor force participation among 38 cities associated with 1 per cent higher incomes (Table 2)	–	−0.74	−0.53[b]	−0.51	−0.35	−0.50	0
5. Per cent decline in female labor force participation, if the percentage associations in line 4 are multiplied by the percentage income increases in line 3	–	−14.1	−9.5	−2.4	−14.0	−5.1	0
6. Expected rate of female labor force participation, on basis of actual rate in 1890 and the percentage reductions postulated in line 5 (per 1,000 females 14 and older)	199	171	155	152	131	124	124
7. Actual rate of female labor force (per 1,000 female population 14 and older) [c]	199	210	228	232	237	254	284
8. Difference to be explained (line 7 minus line 6)	–	39	73	80	106	130	160
9. Difference, in millions of females	–	1.0	2.3	2.9	4.7	6.6	9.1

Source: Appendixes A and D; Table 2.

[a] Three-year averages of income for each census year and the two preceding years.
[b] Average percentage for 1900, 1920, 1930, and 1940. See discussion in text.
[c] Standardized for age and rural-urban residence on the basis of population of the United States in 1940.

force-income relationship from decade to decade (even assuming that such changes actually occurred).[4]

[4] The association for 1900 had to be constructed from 34, instead of 38 cities, and without adjustment of earnings for inter-city cost-of-living differences; thus the −0.74 found in 1900 is probably not as accurate as the lower inverse associations for the later dates. For this reason the 1910 percentage, which had to be estimated in the absence of a 38-city study for that year, was assumed to be the average of the four decades 1900–1940 instead of the average of 1900 and 1920.

The third step multiplied these moment-of-time percentages by the percentage increases in real income per male worker between the various decade dates (line 3 × line 4), in order to discover what percentage declines in female labor force participation might have been expected (line 5).[5]

The fourth step used the percentages in line 5 to find the expected participation (line 6). This was done by a chain method: the actual rate in 1890 (199 per 1,000 female population 14 and older standardized for age and rural-urban residence) was reduced by 14.1 per cent, to get the 1900 rate of 171; this in turn was reduced by 9.5 per cent to figure the 1910 rate of 156; and so on until the 1940 rate of 124 was reached. The latter was allowed to remain constant to obtain the 1950 expected rate of 124 per 1,000 female population 14 and older.

The excess of actual over expected participation was arrived at in the fifth and final step (line 8). From 1900 to 1950, this excess increased from 39 to 160 per 1,000 female population 14 and older. Computed in absolute numbers it began at 1.0 million in 1900 and reached 9.1[6] million—roughly half of the female labor force—in 1950. If these highly speculative calculations have any merit, the numbers of female labor force that have to be explained through so-called dynamic forces are enormous. Where shall we look to explain such magnitudes?

[5] In this connection there should be noted a number of differences in the income data between those used in the moment-of-time studies and those used over time: (1) The moment-of-time studies were based on wage or salary earnings, and during 1900–1930 rested on earnings of factory workers only; the incomes over time were real national disposable income divided by the number of employed workers of all kinds in all industries. (2) The moment-of-time earnings were not always those of an adult-male equivalent, since in 1939 and 1949 earnings of males 14 and older were used; the incomes over time were adjusted in all years to an adult-male equivalent basis. (3) The moment-of-time earnings data were unadjusted for income tax payments or withholdings; the income data over time were after income taxes (this tax difference could have been important only for the last decade). (4) The moment-of-time earnings were those of the calendar year preceding the census year in which the labor force was enumerated; the income data over time were averages of the census year and the two preceding years.

[6] Similar calculations might have been made for the four foreign countries, had there been moment-of-time studies by which to measure their internal labor force-income associations. Some consideration was given to basing the calculations for the foreign countries on the association found among the 38 United States cities, for these were not very different from the moment-of-time associations among the nations at various census dates (−0.40 for the 16 nations around 1930; −0.23 for the 12 nations around 1950; and, for the five nations, −0.79 around 1930, −0.79 around 1940, and −0.50 around 1950). But it was decided that the calculations would have been too tenuous even for illustrative purposes.

Possible Reduction of Housework as a Result of Technological Developments

HOUSEHOLD APPLIANCES.

Certainly the use of durable household appliances in the United States has greatly increased over the past half century (Table 18). Assuming that the stocks of appliances in homes at any census date are equal to output over the preceding ten years, the equipment per

TABLE 18

Illustrative Estimate of Female Labor Possibly Saved by Greater Use of Household Appliances, United States, 1890–1950

	1890	*1900*	*1910*	*1920*	*1930*	*1940*	*1950*
1. Stocks of household appliances [a] (millions of 1929 dollars)	763	1,200	2,394	3,245	5,483	7,654	11,299
2. Household labor possibly saved [b] (millions of hours)	254	400	798	1,082	1,828	2,551	3,766
3. Standard work year (hours)	3,300	3,100	2,870	2,670	2,600	2,150	2,050
4. Household labor possibly saved (thousands of person-years)	77	129	278	405	703	1,187	1,837
5. Excess over 1890 in line 4	–	52	201	328	626	1,110	1,760
6. Household labor possibly saved (females per 1,000 female population 14 and older)	–	2	7	9	14	22	31

Source: Appliances: 1890–1900, W. H. Shaw, *Value of Commodity Output since 1869*, National Bureau of Economic Research, 1947, p. 73; 1910–1950, R. W. Goldsmith, *A Study of Savings in the United States*, Princeton University Press, 1955, Vol. I, p. 681. Female population and labor force; Appendix Table A-2. Hours: the author's estimates of standard hours in major industry groups, weighted by employment in given year.

[a] Value of finished commodities produced for domestic consumption in the ten previous years; the 1890 figure is ten times the average of production in 1879 and 1889.

[b] It is assumed that each dollar's worth of appliances saves one-third hour of labor per year.

female increased between 1890 and 1950 about fivefold. Did these mechanical aids lighten housework materially, and did they release many housewives and daughters to the labor force? There can be no really satisfactory answer. If, for illustration, we make the modest supposition that each dollar's worth (in 1929 prices) released one-third hour of work per year,[7] the resulting saving of labor would have

[7] Based on the assumption that 3⅓ hours of labor were saved for each dollar's worth of appliances over a ten-year duration. The assumption is that the housewife valued her time at 30 cents per hour at 1929 prices. In the earlier decades housewives doubtless placed a lower value than this on their time and in the

equalled 2 out of 1,000 females 14 and older in the population in 1900, 7 in 1910, and so on, to 22 per 1,000 in 1940, and 31 per 1,000 in 1950. It is not certain, of course, that such labor-saving actually took place; perhaps many appliances were acquired not to save work, but to impress friends or improve the standard of housekeeping! In any case the figures suggested by the illustration are not large.

PURCHASE OF MANUFACTURED FOOD AND CLOTHING.

Housekeeping has been eased also by the transfer of much of the nation's production from the washboard, the cook stove, and the sewing circle at home to the commercial laundry, the restaurant, and the department store. The saving in household labor may be estimated from the increase in factory production and store distribution of food and clothing. An estimate—again illustrative—is made by dividing the potential earnings of housewives into the increase in value added through the manufacture of food and clothing (Table 19), yielding the number of equivalent full-time persons conceivably released from home production. The computation assumes that the value added in the factory roughly corresponds to the value of the labor saved by the housewife when she buys her supplies instead of processing the raw food and cloth herself.[8]

Table 19 suggests that the labor thus conserved substantially exceeded that saved by appliances. The possible saving was greatest in 1919, when high employment and income enabled housewives to buy many things ordinarily produced at home; the decline in 1939 may have represented a return to the family economy, as high unemployment and low purchasing power forced many wives to bake bread, can fruit, and make their own clothes.

SERVICES BOUGHT BY THE HOUSEWIFE.

There has been an increasing tendency for the housewife to buy services—mostly from commercial establishments—which she formerly performed herself. There are no statistics of value added for services

later decades, a higher value. The fact that the appliances have undoubtedly been improving in labor-saving faster than they have been increasing in cost has probably provided an offsetting bias.

[8] F. C. Mills objects in a letter that "the increase in value added reflects the play of many forces—fuller processing of food (packaging, etc.), quality changes, relative advances in cost of manufacture over part of the period covered," and he therefore questions the author's right to attribute the value of labor saved to the shift to the market. Mills' comment about the cause of the changes in value added is correct, but it does not destroy the present argument; for whatever the cause of the value added, it may be assumed that housewives would not have paid the prices required to create the value, had they not felt they were getting their money's worth.

TABLE 19

Illustrative Estimate of Female Labor Possibly Saved by Greater Use of Manufactured Food and Clothing Formerly Produced in the Home, United States, 1889–1949

	1889	*1899*	*1909*	*1919*	*1929*	*1939*	*1949*
1. Value added by manufacture to food and clothing (millions of 1929 dollars [a])	1,880	2,576	3,885	6,259	7,530	8,334	13,256
2. Same, per 1,000 females 14 and older [b] (thousands of 1929 dollars)	93.1	103.5	125.7	172.0	171.5	164.7	232.6
3. Excess over 1890 in line 2	–	10.4	32.6	78.9	78.4	71.6	139.5
4. Annual earnings per female worker [c] (1929 dollars)		690	765	835	1,170	1,375	1,881
5. Household labor of females possibly saved (line 3 ÷ line 4), in person-years per 1,000 female population 14 and older	–	15	43	95	67	52	74

Source: For value added, *Census of Manufactures: 1900*, Vol. VII, Part 1, p. cxlv ("value of product" minus "cost of materials used"); *1910*, Vol. VIII, *General Report*, p. 53; *1930*, Vol. III, p. 37. Also, *Statistical Abstract of the United States: 1946*, pp. 815, 817, 820; *1949*, p. 932; *1952*, p. 757. For population, Appendix Table A-2.

[a] In adjusting to 1929 prices for 1909 and earlier the cost-of-living index employed by Lebergott was used (*Journal of the American Statistical Association*, March 1948, p. 76). Since his data begin with 1890, his cost of living relative for that year was used to convert the value added for 1889. For 1919 and on, the base was the index of the Bureau of Labor Statistics for manual workers in large cities.

[b] Population data refer to 1890, 1900, 1910, 1920, 1930, 1940, and 1950.

[c] Female earnings were estimated roughly from the ratio to male earnings given in Appendix Table C-8. This ratio was multiplied by disposable income per adult-male equivalent employed given in Appendix Table D-4. Precisely speaking, these figures are not earnings of all females but rather disposable income of adult-female equivalent employed. The error is not significant for the rough illustrative purpose of this table.

as there are for commodities; the saving of household labor must be estimated from the number of workers engaged in cooking, waiting on table, chauffeuring, and generally performing for pay many tasks common to home life. The labor saved (per 1,000 females) is taken to equal the net growth in the number of persons so employed (Table 20). It is hard to tell whether this outside labor is as productive as that of the housewife in the home. One can only guess that a female does the same amount of work in gainful employment as she would do without pay for her own family; or whether efficiency in the performance of personal service has proceeded more rapidly inside or outside the household.[9] In any case the combined number of domestic servants

[9] Technological improvements in the store, restaurant, hotel, laundry, and barber shop have been appreciable, though many of the mechanical devices, e.g. electric mixers, toasters, refrigerators, and coffee makers, are also used in the home.

TABLE 20

Illustrative Estimate of Female Labor Possibly Saved by the Rise in Domestic and Commercial Services Purchased by Housewives, United States, 1890–1950

	1890	*1900*	*1910*	*1920*	*1930*	*1940*	*1950*
1. Persons in domestic service and service industries (millions) [a]	2.2	2.7	3.7	3.3	4.8	5.7	6.0
2. Same, per 1,000 female population 14 and older	104	108	119	91	109	113	105
3. Excess over 1890 in line 2 [b]	–	4	15	−13	5	9	1

Source: Persons in service: Daniel Carson, "Changes in the Industrial Composition of Manpower since the Civil War," *Studies in Income and Wealth, Volume Eleven*, National Bureau of Economic Research, 1949, p. 47; *Census of Population, 1950*, Vol. II, *Characteristics of the Population*, Part 1, p. 101. Population and labor force: Appendix Table A-2.

[a] Computed before rounding.

[b] This is taken as a rough measure of the amount of labor saved through purchases of services formerly performed by family members.

and personal service employees has changed very slightly in relation to the female population 14 and older. It rose in 1940 when office and factory jobs were scarce and unprofitable, and declined in 1920 when these jobs were plentiful and paid well.[10] But the fluctuations involved trifling numbers.

Less Housework because of Smaller Families

The burden of housework may depend less upon the size of the house or number of appliances than upon the size of the family. Some argue that the care of five small children is not much more confining than the care of one; but it is possible for five children to so range in age as to keep a woman tied down until her fifty-fifth year, and even to absorb the time of older sisters, maiden aunts, and grandmothers. Though easier by the dozen sounds intriguing, what mother really believes it? Certainly the 1940 census data indicate that the more young children she has, the less apt the wife is to be in the labor force. Among both white and colored wives, the rate of participation of those with three or more children was lower than that of wives with one child, and that of wives with one child was lower (to about the same degree) than that of wives with no children at all (Table 21).

A really satisfactory estimate of the "need" for females in their own homes would require decennial statistics on the number of families and

[10] "The class who usually seek employment in factories are such as would be usually employed as domestics in families." *Third Biennial Report, 1888–1889*, Maryland Bureau of Industrial Statistics and Information, p. 86.

TABLE 21

Wives in Labor Force from Families Having Male Head of House and Specified Number of Children under 10, United States, 1940

	As Per Cent of Total Wives	*As Per Cent by Number of Children*			
		None	*1*	*2*	*3 or More*
All classes	11.9	15.0	9.0	6.4	4.9
White	10.8	13.8	8.1	5.5	3.4
Nonwhite	24.3	30.0	21.1	16.7	12.9

Source: *Census of Population, 1940, Families, Types of Families*, p. 214.

their distribution by size. It would also require information for some base date on the number of houseworkers (excluding paid domestic servants) in families of various sizes. Since the latter is not available, even for a single date, it is assumed that the need bears a simple proportion to the civilian population. Though a crude assumption, it may be tested against annual averages of monthly data (from *Current Population Reports*) on the number of females actually keeping house in each year during 1940–1954. The test supposes that the number needed in each year was the same proportion as in 1950—22 per cent. The estimated need, and the actual number during each of the fifteen years are compared in Table 22, which shows the discrepancies to be small, ranging from —03.4 to +03.2 per cent of the estimate. One of the largest appears for the post-World War II year, 1947, when about 1 million more females were in housework than were needed—perhaps because many women who had worked during the war desired to resume full-time family life. The discrepancies seem specially modest considering the margin of sampling and interview error and the huge changes in civilian population and in the need for females in housework resulting from World War II and the Korean conflict. For illustrative purposes it may be safe to use this method for calculating the same need from 1890 through 1940. This is done in Table 23 (line 3) where the number has been estimated as 21.3 per cent of the total civilian population, based on actual data at the decennial census of 1950.[11] Its rough reliability is attested by the fact that for 1940 the estimate was 28.0 million—only 0.4 million, or 1.4 per cent, different from the 28.4 million reported by the 1940 census.

To the number thus needed in home housework is added the number

[11] The difference between this 21.3 per cent, and the 22.0 per cent used in Table 22, arises from the fact that the 1950 census enumeration's labor force and not-in-labor-force results were rather different from those of the sample survey for the same month (Appendix F and Supplementary Appendix I).

TABLE 22

Need for Females in Housework Based on Population to be Cared for, Compared with Actual Number of Females (Not in Labor Force) Keeping House, United States, 1940–1954

(millions of persons)

	ANNUAL AVERAGES OF MONTHLY DATA							
	1940	*1941*	*1942*	*1943*	*1944*	*1945*	*1946*	*1947*
1. Total civilian population	131.7	131.6	130.9	127.5	126.7	127.6	138.4	142.6
2. Estimated need for persons in housework (line 1 × .220 [a])	29.0	29.0	28.8	28.1	27.9	28.1	30.4	31.4
3. Actual number of females (not in labor force) who were keeping house	28.4 [b]	28.9	28.6	27.2	27.3	27.7	31.1	32.4
4. Excess of actual over need: millions (line 3 minus line 2)	−0.6	−0.1	−0.2	−0.9	−0.6	−0.4	+0.7	+1.0
Per cent excess was of need	−2.1	−0.3	−0.7	−3.2	−2.2	−1.4	+2.3	+3.2

	1948	*1949*	*1950*	*1951*	*1952*	*1953*	*1954*
1. Total civilian population	145.2	147.6	150.2	151.1	153.3	156.1	159.1
2. Estimated need for persons in housework (line 1 × .220 [a])	31.9	32.5	33.0	33.2	33.7	34.3	35.0
3. Actual number of females (not in labor force) who were keeping house	32.8	33.0	33.0	33.0	33.3	34.2	33.8
4. Excess of actual over need: millions (line 3 minus line 2)	+0.9	+0.5	–	−0.2	−0.4	−0.1	−1.2
Per cent excess was of need	+2.8	+1.5	–	−0.6	−1.2	−0.3	−3.4

Source of data on which calculations were based: *Current Population Reports*, Bureau of the Census, 1940–1954.

[a] 1950 ratio of females in housework to total civilian population.
[b] April data.

in school (line 4) and the estimated number in institutions and unable to work (line 5).[12]

The sum of these three groups is the number of females "not available" for labor force at the various census dates (line 6). The number

[12] The benchmark for the latter was the actual number of females 14 and older in institutions and unable to work, as reported by the 1950 census: 2.4 million. It was assumed that, except for 1940, for which we have actual census data, the estimates at the earlier censuses would bear a constant ratio to the population of

TABLE 23

Illustrative Estimates of Female Labor Possibly Saved and Its Availability for Labor Force Participation due to Decline in Number of Females Needed in Own Home Housekeeping as Population to be Cared for Rose Less Rapidly than Number of Females 14 and Older, by Rural-Urban Residence and Color, United States, 1890–1950

(millions of persons, except where stated otherwise)

	1890	*1900*	*1910*	*1920*	*1930*	*1940*	*1950*
A. RURAL AND URBAN							
1. Civilian population	62.7	75.6	91.8	105.8	122.6	131.3	149.7
2. Females 14 and older	20.2	24.9	30.9	36.4	43.9	50.6	57.0
3. "Needed" in home housework (line 1 × .213 [a])	13.4	16.2	19.6	22.6	26.2	28.0	31.9
4. In school	1.6	1.9	2.7	3.0	4.3	4.4	4.5
5. In institutions and unable to work	0.9	1.0	1.3	1.5	1.8	2.7 [b]	2.4 [b]
6. Not available for labor force (sum of lines 3–5)	15.9	19.1	23.6	27.1	32.3	35.1	38.8
7. Available for labor force (line 2 minus line 6)	4.3	5.8	7.3	9.3	11.6	15.5	18.2
8. Available, per 1,000 females 14 and older	213	233	236	255	264	306	319
9. Actual labor force, per 1,000 females 14 and older [c]	199	210	228	232	237	254	284
10. Per cent actual was of available	93	90	97	91	90	83	89
B. RURAL							
1. Civilian rural population	40.7	45.6	49.2	51.5	53.7	57.1	54.4
2. Rural females 14 and older	12.1	14.0	15.2	16.2	17.4	19.8	18.6
3. "Needed" in home housework (line 1 × .213 [a])	8.7	9.7	10.5	11.0	11.5	12.2	11.6
4. In school	1.0	1.2	1.6	1.6	2.0	1.9	1.7
5. In institutions and unable to work	0.6	0.6	0.7	0.7	0.8	1.6 [b]	0.9 [b]
6. Not available for labor force (sum of lines 3–5)	10.3	11.5	12.8	13.3	14.3	15.7	14.2
7. Available for labor force (line 2 minus line 6)	1.8	2.5	2.4	2.9	3.1	4.1	4.4
8. Available, per 1,000 females 14 and older	149	179	158	179	178	207	237
9. Actual rural labor force, per 1,000 rural females 14 and older [d]	118	143	151	148	158	164	207
10. Per cent actual [d] was of available	79	80	96	83	89	79	87

[a] Ratio of actual number of females 14 and older not in the labor force and keeping house in April 1950 to the civilian population in April 1950. The number reported by the decennial census differs from the number reported by the *Current Population Reports.*

TABLE 23, *continued*

	1890	*1900*	*1910*	*1920*	*1930*	*1940*	*1950*
C. URBAN							
1. Civilian urban population	22.0	30.0	42.6	54.3	68.9	74.2	95.3
2. Urban females 14 and older	8.1	10.9	15.7	20.2	26.5	30.8	38.4
3. "Needed" in home housework (line 1 × .213 [a])	4.7	6.5	9.1	11.6	14.7	15.8	20.3
4. In school	0.6	0.7	1.1	1.4	2.3	2.5	2.8
5. In institutions and unable to work	0.3	0.4	0.6	0.8	1.0	1.1 [b]	1.5 [b]
6. Not available for labor force (sum of lines 3–5)	5.6	7.6	10.8	13.8	18.0	19.4	24.6
7. Available for labor force (line 2 minus line 6)	2.5	3.3	4.9	6.4	8.5	11.4	13.8
8. Available, per 1,000 urban females 14 and older	309	303	312	317	321	370	359
9. Actual labor force, per 1,000 urban females 14 and older [d]	252	253	278	286	289	312	333
10. Per cent actual [d] was of available	82	83	89	90	90	84	93
D. WHITE							
1. Civilian white population [e]		54.8	66.4	94.9	110.1	117.8	134.0
2. White females 14 and older		17.9	22.0	32.7	39.5	45.7	51.3
3. "Needed" in home housework (line 1 × .22 [a])		12.1	14.6	20.9	24.2	25.9	29.5
4. In school		1.5	1.7	2.7	3.9	4.1	4.0
5. In institutions and unable to work		0.7	0.9	1.3	1.5	2.3 [b]	2.0 [b]
6. Not available for labor force (sum of lines 3–5)		14.3	17.2	24.9	29.6	32.3	35.5
7. Available for labor force (lines 2 minus 6)		3.6	4.8	7.8	9.9	13.4	15.8
8. Available, per 1,000 white females 14 and older		201	218	239	251	293	308
9. Actual labor force, per 1,000 white females 14 and older [d]		156	173	210	225	244	289
10. Per cent actual [d] was of available		78	79	88	90	83	94
11. Actual labor force, per 1,000 white females 14 and older [f]		183	192	217	225	244	281
12. Per cent actual [f] was of available		91	88	91	90	83	91

[b] The 1940 and 1950 figures were those actually reported by the census.

[c] Standardized for age and rural-urban residence on the basis of population of the United States in 1940.

[d] Standardized for age on the basis of population of the United States in 1940.

[e] Includes a small number of armed forces during 1890–1930.

[f] Also "standardized" for rural-urban residence. This was actually a crude adjustment made by subtracting the female participation rate of all classes, standardized for age from that standardized for both age and rural-urban residence, and adding the difference to the rate of participation of white females standardized for age only. It thus assumes that the effect of rural-urban standardization of white females would be the same as that of females of all classes. The assumption is reasonably safe, since white persons constitute about 90 per cent of the total population.

[g] Ratio of persons in own home housework to population as reported by the *Census of Population, 1940.*

continued on next page

TABLE 23, *continued*

	1890	*1900*	*1920*	*1930*	*1940*	*1950*
E. NONWHITE (thousands of persons, except where stated otherwise)						
1. Civilian nonwhite population [e]	7,846	9,185	10,890	12,488	13,454	15,688
2. Nonwhite females 14 and older	2,299	2,867	3,667	4,361	4,944	5,688
3. "Needed" in home housework (line 1 × .1525 [g])	1,197	1,401	1,661	1,905	2,052	2,392
4. In school	141	165	321	388	425	528
5. In institutions and unable to work	141	175	224	267	378 [b]	348 [b]
6. Not available for labor force (sum of lines 3–5)	1,479	1,741	2,206	2,560	2,855	3,268
7. Available for labor force (line 2 minus line 6)	820	1,126	1,461	1,801	2,089	2,420
8. Available, per 1,000 nonwhite females 14 and older	357	393	399	413	423	425
9. Actual labor force, per 1,000 nonwhite females 14 and older [d]	374	409	414	412	360	364
10. Per cent actual [d] was of available	105	104	104	100	85	86

Source: Appendix Tables A-2 and A-3. *Abstract of the Census: 1900*, pp. 15, 27; *1920*, p. 405; *1930*, p. 262. *Census of Population: 1940, Characteristics of Persons Not in the Labor Force*, p. 17, and *Families, General Characteristics*, p. 24; *1950*, Vol. II, *Characteristics of the Population*, Part 1, pp. 94, 99, 206, and PB-1, p. 97.

"available" (line 7) divided by line 2, provides the "available participation," which may then be compared with the actual. The data used for comparison were standardized for age and rural-urban residence to help reconcile changes in participation due to larger proportions of females reaching adult age, or moving to urban areas where they were more pressed to work and where there were greater job opportunities.

As might be expected, in all years the actual was below the available female participation. But the percentage (actual of available) stayed remarkably constant. The lowest—83 per cent—occurred in 1940 when, as we shall see in Chapter 10, the female labor force was presumably depressed by the harsh difficulties faced in getting jobs. For the other six decade dates—all years of comparatively high employment—the percentage remained between 89 and 97, narrowing to between 89 and 91 for four of the six.

females 14 and older. There is some question whether the number unable to work and in institutions would bear such a constant relation to the female population. While there were relatively fewer older females at the earlier censuses thus indicating fewer unable to work, the level of medical care was lower and the hazards of industry and disease were much greater. These opposing trends, it is supposed, cancel out to yield a constant percentage of females 14 and older who were unable to work and in institutions.

Similar computations for rural and urban areas and for nonwhites and whites in the United States (Table 23—Section B–E), indicate that the relation between actual and available was on the whole less stable than that for the nation as a unit. While the rural and urban actual female labor force was below the available for all census dates, there was some fluctuation. This may have been due to defects in our estimates of rural and urban labor force before 1930. Of the color groups, the best explanation was offered in the case of the whites.[13] Among the nonwhites, the actual tends in the earlier years to slightly outnumber the available, probably because extreme poverty kept many colored females in the labor force despite the fact that they were needed in home housework, attended school, or had ailments that might have kept a white person out of gainful work. The actual remained fairly constant at 100 per cent or slightly more of the available during the first four decades, declining sharply to 85 per cent in 1940 and showing almost no change in 1950. The availability factor may thus have been the important one up to 1930; but after that date the decline in the labor force participation of colored females needs explaining. This question is deferred until Chapter 13.

Of the four foreign countries such illustrative computations have been made only for Canada and Great Britain from 1911–1951, since only these offer adequate statistics on female school attendance (Table 24). In the case of Britain the ratio of females needed in own home housekeeping was assumed to have been the same as in the United States.[14] The availability of women provides a good explanation for Great Britain—better than for the United States. In Britain the proportion of actual to available stayed between 83 and 90 per cent and was lowest in 1921 and 1931, when it may have been depressed by the fairly high unemployment.[15]

In Canada there was less agreement between actual and available. In part, this may have been because the actual participation cannot be

[13] The native and foreign-born whites had to be treated as a unit, rather than by nativity, as the native-born include persons in the families of the foreign-born. However, the explanation was not very satisfactory unless the actual labor force of whites was standardized for rural-urban residence. Since there were no data over this whole period cross-classified by color, age, and rural-urban residence, the device of "partial" standardization was used, the assumption being that the effect of standardizing whites for rural-urban composition would be the same as that for *all classes*. Since the population of whites is around 90 per cent of that of *all classes*, this assumption is not too risky. Thus standardized, the actual labor force (line 12 of Table 23, section D) is a very stable percentage of the available for all years except 1940; for the high-employment years 1890–1930 and 1950, it remains between 88 and 91 per cent.

[14] The level is not particularly important, since it does not affect the changes over the decades and it is with these changes that we are concerned.

[15] Actual labor force participation was standardized only for age and not for rural-urban residence; but rural-urban migration was minor in Britain during 1911–1951.

TABLE 24

Illustrative Estimates of Female Labor Possibly Saved and Its Availability for Labor Force Participation due to the Relative Decline in Number of Females Needed in Own Home Housekeeping as Population to be Cared for Rose Less Rapidly than Number of Females 14 and Older, Great Britain and Canada, 1911–1951

	1911	*1921*	*1931*	*1939*	*1951*
A. GREAT BRITAIN (millions of persons, except where stated otherwise)					
1. Civilian population [a]	40.8	42.8	44.8	46.2	48.0
2. Females 14 and older	15.2	16.8	18.3	19.6	20.4
3. Needed in home housework (line 1 × 213 [b])	8.7	9.1	9.5	9.8	10.2
4. In school [c]	0.1	0.2	0.3	0.3	0.6
5. In institutions and unable to work	0.6	0.7	0.7	0.8	0.8
6. Not available for labor force (sum of lines 3–5)	9.4	10.0	10.5	10.9	11.6
7. Available for labor force (line 2 minus line 6)	5.8	6.8	7.8	8.7	8.8
8. Available, per 1,000 females 14 and older	382	405	426	444	431
9. Actual labor force, per 1,000 females 14 and older [d]	345	338	358	385	388
10. Per cent actual [d] was of available	90	83	84	87	90
B. CANADA (thousands of persons, except where stated otherwise)					
1. Civilian population [e]	7,192	8,775	10,363	11,180	13,939
2. Females 14 and older	2,274	2,845	3,477	4,130	4,948
3. Needed in home housework (line 1 × .226 [f])	1,625	1,983	2,342	2,527	3,151
4. In school	114	175	274	311	302
5. In institutions and unable to work [g]	61	76	93	110	132
6. Not available for labor force (sum of lines 3–5)	1,800	2,234	2,709	2,948	3,585
7. Available for labor force (line 2 minus line 6)	474	611	768	1,182	1,363
8. Available, per 1,000 females 14 and older	208	215	221	286	275
9. Actual labor force, per 1,000 females 14 and older [d]	149	164	184	219	240
10. Per cent actual [d] was of available	72	76	83	77	87
11. Actual labor force per 1,000 females 14 and older [h]	161	171	184	219	232
12. Per cent actual [h] was of available	77	80	83	77	84

Source: Appendixes A and B. *Census of Canada, 1951*, Ottawa, Dominion Bureau of Statistics, Vol. IV, *Labour Force*, Table 3.

[a] Total population during 1911–1931; total population minus armed forces in 1939 and 1951.

[b] Ratio of females needed in own home housework to population was assumed to be the same as in the United States.

[c] Estimated as one-half the total of both sexes 14 and older attending school plus the total of full-time female students in further education and universities.

standardized for rural-urban residence and thus manifests a rising percentage of the available over the period. Partial adjustment was made for this (line 11 of Table 24 B), by assuming that the effect of standardizing for rural-urban residence would be the same in Canada as in the United States. The resulting ratio on line 12 fluctuates somewhat; but its behavior is consistent with the possibility that the changing composition of population released females from own home housework to the labor force.

This method furnishes no proof that female labor force is thus determined by the relative abundance of working-age females.

One objection is that it seems to "predict" female labor force so closely as to leave no role for the other possible household labor-saving sources analyzed in this chapter. The various estimates of labor saving are summarized in Table 25 (lines 1–4). There the total labor saved (in excess of 1890) increased from 41 per 1,000 females in 1900, to 212 in 1950 (line 6). But not all of it was necessarily available, for it must also be assumed that the proportion *available* might have declined as income rose (Table 17, line 5) if some women had wished to have more leisure or to improve upon their housekeeping. Table 25, in line 7, gives an estimate of the saving in labor possibly available, which may be compared with the difference between the actual and expected labor force participation on line 8. The two estimates have very similar trends. However, in certain years—particularly 1920—there were substantial discrepancies.

There need be no surprise at these discrepancies; rather, it is surprising they were not greater. Only the crudest information was available on stocks of household appliances, purchases of food and clothing, and volume of services paid for by the housewife. And the grounds for translating their changes into household labor saved were most tenuous. It is just as likely that the standard of housekeeping or more leisure for the housewife, though adjusted for, would have absorbed the saving, as the adjustment was very imperfect. It treats all the females of the nation as if they belonged to one family. It ignores problems of aggregating the snatches of time and effort conserved by a great many women into full-time equivalents available for labor force participation. It uses the income-labor force associations in 38 cities at a moment-of-

[d] Standardized for age, but not for rural-urban residence.

[e] Total population 1911–1931; total population minus armed forces 1941 and 1951.

[f] Ratio derived by dividing population by number of females not in the labor force and keeping house as reported by the 1951 census.

[g] Figure for 1951 as reported by the 1951 census; earlier figures estimated to bear a proportion to the 1951 figure based on the population of females 45 and older.

[h] Also "standardized" for rural-urban residence. This was actually a crude adjustment for the effect of rural-urban migration, on the assumption that the effect was the same in Canada as in the United States.

TABLE 25

Further Illustrative Estimates to Show How Labor Saved in the Home Might Explain the Excess of Actual, over "Expected" Female Labor Force Participation, United States, 1890–1950

(per 1,000 females 14 and older)

	1890	*1900*	*1910*	*1920*	*1930*	*1940*	*1950*
Own home household labor possibly saved by:							
1. Increased stock of appliances (Table 18)	–	2	7	9	14	22	31
2. Purchase of goods and clothing (Table 19)	–	15	43	95	67	52	74
3. Services bought (Table 20)	–	4	15	–13	5	9	1
4. Total possibly saved by technology (sum of lines 1–3)	–	21	65	91	86	83	106
5. Labor possibly saved in the home as a result of fewer persons for the average female to care for (Table 23)	–	20	23	42	51	93	106
6. Total labor possibly saved in the home (sum of lines 4–5)	–	41	88	133	137	176	212
7. Estimated labor-saving possibly available for labor force participation [a]	–	41	82	124	112	147	182
8. Difference between actual and "expected" labor force, to be explained (Table 17, line 8)	–	39	73	80	106	130	160
9. Unexplained discrepancy (line 8 minus line 7)	–	2	9	44	6	17	22
10. Discrepancy as per cent of estimate on line 7	–	4.9	11.0	35.5	5.4	11.6	12.1

[a] Estimated by assuming that the availability for labor force participation would decline, as incomes rose, by the percentages given in Table 17, line 5.

time as if these were reliable indications of how much female participation might have varied over time, other things equal, when the city is not a completely homogeneous unit for labor force purposes and when many developments could have occurred over time besides those accounted for in Table 26. It overlooks the fact that income data over time could not be used for intercity comparisons as they were different from those used at a given time, and could not always be adjusted for cost-of-living differences among localities—and that the census materials themselves are not always reliable or comparable.

But even if the number of females made thus available could be estimated accurately, it must be concluded that they might not all enter the labor force or that they might enter only after long delay. We have also to consider the inducements and opportunities which might have

determined whether and when these employable women would enter the labor force and find jobs.

Rising Ratio of Female to Male Earnings

A rise in the ratio of female to male earnings could mean that the gainful effort of females was being rewarded more favorably, that females had an increasing incentive to work outside the home and that males might encourage their wives, daughters, or mothers to seek employment, out of desire to prolong their own education or to hasten their own retirement. Or, depending upon the circumstances, the rise could mean that female labor was becoming more expensive relative to that of males—thus discouraging employers from expanding their hiring of females quite as rapidly as they would otherwise be inclined to do.

Separate data on the earnings of males and females are not abundant. One set consists of earnings in manufacturing in five countries, but it is not entirely satisfactory, since wages and salaries of factory workers do not necessarily reflect fees, commissions, and profits of employed and self-employed persons, nor wages and salaries of employees in other industries with very different occupational compositions. The material is also subject to variations because of changes in age composition. And it provides no means of assessing the dilution of earnings by labor turnover and part-time employment. We cannot therefore be certain that a rising ratio of female to male earnings really reflects better terms for females in jobs.

Such as they are, the data seem at first glance to support the hypothesis that the change in female relative to male participation was attributable to the change in the relationship between female and male earnings, for both ratios have moved upward. A closer look raises vigorous doubts. In the United States, the earnings ratio did not really begin to rise until after World War I, whereas the labor force ratio had been moving upward since 1890. In Canada no relative rise in female earnings occurred until after 1931, although female participation in the labor force, relative to that of males, had been advancing rapidly and steadily since 1911. In New Zealand the earnings ratio was virtually constant from before World War I until after World War II, but the labor force ratio rose after 1926. In Britain the two ratios moved almost oppositely throughout; and in Germany, they moved in contrary directions during 1925–1939. All in all, the ratio of female to male earnings in manufacturing does not help to explain the tendency of females to flow into the labor force more rapidly than males.

For 1940 and 1950, additional data are provided by the census which enable us to compute, separately for white and colored, the ratio of

wage and salary earnings of females to those of males—not just for factory workers but for all employees. This ratio may be compared with the ratio of female to male participation at the same census dates.[16] The results show an actual decline in the relative earnings of both white and colored females, while the labor force of white females was making its greatest gain as compared to that of white males, and the labor force of colored females related to that of colored males was rising moderately.

A third set of data consists of annual earnings during 1944–1951. The ratio of female to male earnings and that of female to male labor force show no similarity of movement in either trend or fluctuation (Chart 12). Except for a sharp rise at the end of World War II, female earnings fell rather steadily, from nearly half of male earnings to scarcely over a third, while the ratio of female to male participation first declined to 1947 and then showed a fairly steady rise through 1951.

A fourth set of data gives ratios for major industries and occupational groups between 1940 and 1950.[17] Again there was no association between the female-to-male earnings ratio and the female-to-male *employed* ratio.[18] Manufacturing, which showed the only rise in the earnings ratio, had one of the lowest increases in its employed ratio. Finance, insurance and real estate, and retail trade, with the greatest decreases in female-to-male earnings ratio, had the largest increases in female-to-male employed ratio. But the other rankings were scattered. Much the same may be said for the occupational classifications.

Finally, it might be expected that females would be most attracted to those industries where the ratio of female-to-male earnings was already high and therefore need not be expected to rise. But no association could be discovered, at least from data of 1940 or 1950. The materials offer no evidence that the ratio of female-to-male earnings had anything to do with the ratio of female-to-male labor force.

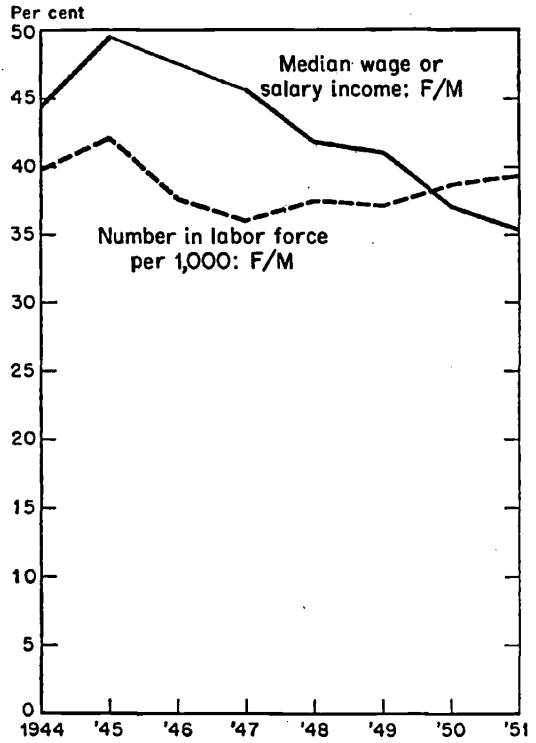
[16] Earnings data are for the calendar year 1939. The source does not indicate whether the earnings pertain only to persons who worked the entire year; it must be presumed that they include income of persons whose participation in the labor force may have lasted only a few months. If so, the dilution might have been greater for female than for male earnings. However, the ratio for persons who worked twelve months in 1939 was practically the same as that for all persons, so that any relative dilution must have been insignificant. *Census of Population, 1940, The Labor Force (Sample Statistics), Wage or Salary Income in 1939*, pp. 39–41; Appendix A; "Income of Families and Persons in the United States: 1949," *Current Population Reports*, Bureau of the Census, Series P-60, No. 7, p. 36.

[17] "Income of Families and Persons in the United States: 1950," *Current Population Reports, Consumer Income*, Series P-60, No. 9, p. 39; *Census of Population, 1950*, Vol. II, *Characteristics of the Population*, Part 1, PB-1, pp. 102–104.

[18] A classification by industry for the labor force would have been much better for this purpose, but it was not available.

CHART 12

Ratio of Female to Male Labor Force Participation for Persons 14 and Older, and Ratio of Female to Male Median Wage or Salary Income: United States, 1944–1951



Source: Appendix B, and *Current Population Reports, Consumer Income,* Bureau of the Census, Series P-60, No. 7, p. 35.

Improving Employment Opportunities

The rise in the female labor force participation could scarcely have occurred without an expansion of opportunities for female employment. But where did these openings occur, and why? Was it because the usefulness of women was enhanced by their improved education and training, bcause girls and women were needed in bakeries, stores, and factories to produce and sell things which they were no longer producing in their own kitchens, or because women may have been better suited to do the paper work, the semiskilled labor, and the sales and service functions demanded by modern industry, than to do the heavy farm and factory work of earlier years? It is probably impossible to separate these causes one from another or to say which came first

or was more important. We shall, however, try to throw some light on them by considering each one separately.

EDUCATION.

Education is not necessarily related to skill or efficiency in a specific job, e.g., a man of little schooling may be a good pipe fitter and a girl with much Latin a mediocre stenographer. Nevertheless, the analysis in Chapter 5 brought out that education has probably been important—perhaps more important than age—in determining, at any given time, whether females would be in the labor force. Furthermore, in the United States there has been an impressive increase over the years in the amount of education completed by the average female aged 20 and older [19] (Chart 13), particularly in relation to that completed by the average older male (Chapter 9, Chart 19). But, the ratio of women's education to that of older men tended to rise less than the ratio of women's participation to that of older men. Also, the movements of these ratios were not very similar from decade to decade.

INDUSTRIES EMPLOYING FEMALES

The women who entered the labor force after 1890 did not, on the whole, select those industries that displaced their labor in the home, e.g. laundries, restaurants, hotels, beauty parlors, and factories processing food and making clothing.[20]

The industries that were the chief employers of females in 1890 tended to be the same in 1940 and 1950 (Table 26). Throughout the sixty years, domestic and personal service, manufacturing, and professional services led either in number of females employed or in percentage of workers in the industry who were females, and at some decades they led in both number and percentage. Conversely, transportation and communication, public service, and mining, which employed few females at the turn of the century, continued to employ few females in 1950. Only agriculture dropped drastically—from fourth place as a relative employer of females in 1890 to fifth place in 1930 and to seventh in 1940 and 1950. Trade and public services registered sharp rises.

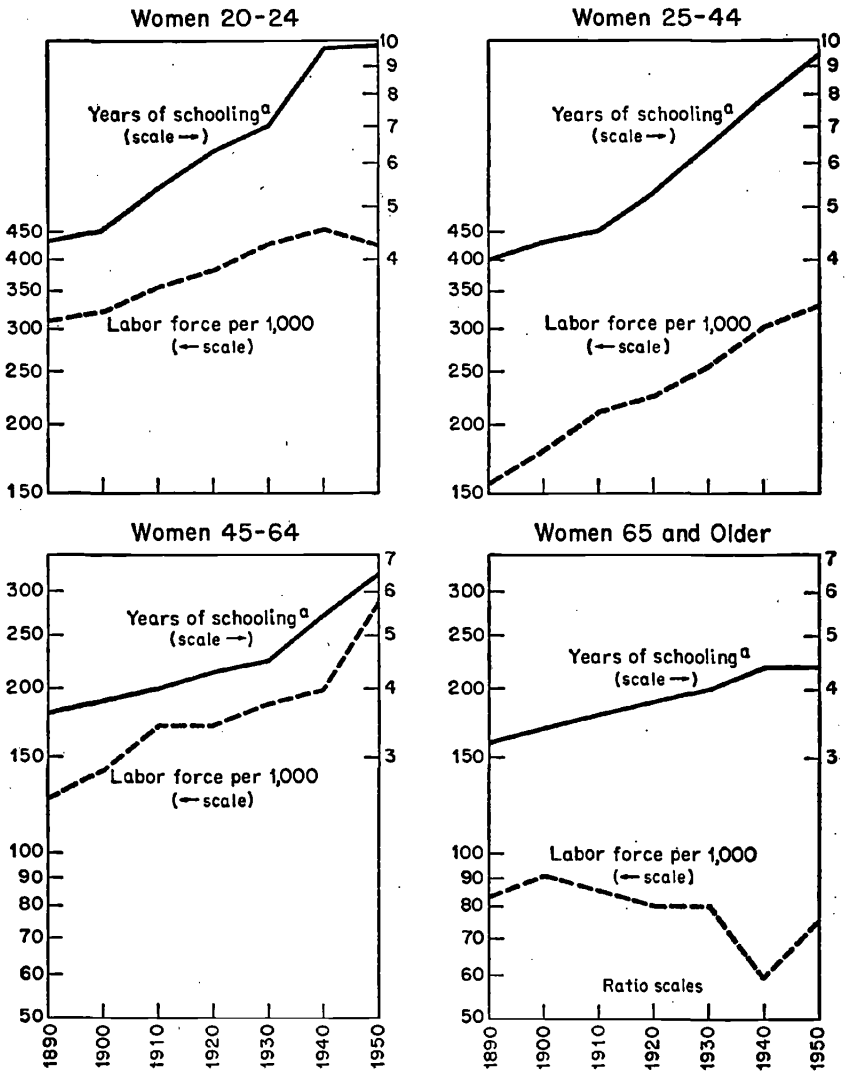
Nor has there been any startling change in the ratio of females to males in broad occupational groups (Table 27). In most of these classifications—notably professional workers, proprietors, skilled and un-

[19] An even greater increase occurred among younger girls, but they are excluded from the comparison because their education is in many cases still going on and because time spent in further schooling would serve only to keep them out of the labor force.

[20] In these occupations, males and females combined were fewer, in relation to the female population aged 14 and older, in 1930 and 1940 than in 1890 and 1900.

CHART 13

Years of Schooling for Women 20 and Older, and Proportion in the Labor Force: by Age Group, United States, 1890–1950



[a] Median equivalent full-time years of school completed, based on length of school year in 1940.

Source: Labor force, Appendix A. Years of school completed: *Census of Population, 1940,* Vol. IV, Part I, pp. 6–7, and *1920, Monographs V,* pp. 49–51, 113–114, Tables 30, 31; *Statistical Abstract of the United States,* Bureau of the Census, 1954, p. 125; *Census of Population, 1950, Education,* PE No. 5B, pp. 73–74.

TABLE 26

Industries Ranked According to Per Cent of Female Workers, United States, 1890, 1930, 1940, and 1950

	In Labor Force [a]				*Employed* [b]			
	1890		*1930*		*1940*		*1950*	
	Per Cent	*Rank*	*Per Cent*	*Rank*	*Per Cent*	*Rank*	*Per Cent*	*Rank*
Domestic and personal services	72.1	1	64.2	1	71.4	1	66.8	1
Professional services	35.7	2	46.9	2	56.7	2	58.1	2
Manufacturing, mechanical, and building	19.0	3	13.4	4	18.0 [c]	5	20.2 [c]	5
Agriculture, forestry, and fishing	7.9	4	8.5	5	5.8	7	8.5	7
Trade, finance, insurance, real estate	6.9	5	15.8	3	27.5	3	34.7	3
Transportation and communication	1.3	6	7.3	6	11.0 [d]	6	15.6 [d]	6
Public service (not elsewhere classified)	0.8	7	2.1	7	21.9 [e]	4	26.2 [e]	4
Extraction of minerals	0.1	8	0.1	8	1.2	8	2.5	8

Source: *Census of Population: 1940*, Alba M. Edwards, *Comparative Occupation Statistics for the United States, 1870 to 1940*, p. 187; *1950*, Vol. II, *Characteristics of the Population*, Part 1, Table 124.

[a] Clerical occupations were omitted on the ground that they do not constitute an industry; it was not possible to assign them to the industries in which they belonged.

[b] Clerical workers included in the industries in which they were employed.

[c] Includes business and repair services.

[d] Includes other public utilities.

[e] Public administration.

skilled workers—the ratio of females to males remained fairly constant, and in the semiskilled group the ratio dropped. Virtually the entire rise in the female-to-male ratio was found in the clerical occupations—in 1950 there were nearly six times as many females as there had been thirty years before, and the proportion of females to males had risen from less than 30 per cent to over 50 per cent. Thus the labor released from housekeeping went to satisfy the demand for salesgirls, cashiers, office clerks, bookkeepers, typists, and telephone operators, teachers, nurses, and librarians.[21] The switch to sedentary and semiskilled office

[21] "Women in all businesses are supplanting men and in some branches have attained the place God intended them to have–a man measuring dry-goods will illustrate my point. Type-writing has greatly assisted the employment of females, and they have, especially in New England, displaced male book-keepers. I have especially inquired regarding their adaptability; they are, without exception considered more painstaking and trustworthy. Women cashiers and telegraph operators are also being substituted for men, they are quick and their sense of touch is such that the latter are selected for special work. I do not think that machinery has encouraged the substitution of women for men in the heavier departments;

TABLE 27

Major Occupational Groups Ranked According to Per Cent of Female Workers, United States, Census Dates, 1910–1950

	1910		1920		1930		1940		1950	
	Per Cent	Rank	Per Cent	Rank	Per Cent	Rank	Per Cent	Rank	Per Cent	Rank
Professional persons	44.0	1	48.2	1	49.2	1	45.4	1	39.4	2
Semiskilled workers	39.6	2	34.1	3	31.7	3	32.8	3	29.8	4
In manufacturing	44.7		38.3		36.8		32.8		29.8	
Other	29.6		26.1		24.9					
Clerks and kindred workers	28.4	3	38.6	2	38.7	2	41.0	2	51.9	1
Unskilled workers	24.8	4	20.3	4	22.1	4	23.5	4	30.9	3
Farm laborers	23.6		18.0		13.9		9.3		18.6	
Factory and bldg. const. laborers	3.3		5.4		3.7		2.3		3.7	
Other laborers	0.6		1.1		1.1					
Servants	76.6		69.9		69.3		64.3		62.9	
Proprietors, managers, and officials	4.6	5	4.6	5	5.2	5	5.8	5	8.5	5
Farmers (owners and tenants)	4.5		4.2		4.4		2.9		2.7	
Wholesale and retail dealers	5.5		5.7		6.3		8.8		13.5	
Other	4.6		5.6		7.0		10.3			
Skilled workers and foremen	2.2	6	1.8	6	1.3	6	1.7	6	3.0	6

Source: *Census of Population: 1940*, Alba M. Edwards, *Comparative Occupation Statistics for the United States, 1870 to 1940*, p. 187; *1950*, Vol. II, *Characteristics of the Population*, Part 1, Table 124.

and factory jobs was especially congenial to girls and women and would certainly facilitate the shift of females from housekeeping to gainful

until women are as strongly, physically developed, it would be impossible for them to compete. Sewing machines and light machinery is their work." *Third Biennial Report, 1888–1889*, Maryland Bureau of Industrial Statistics and Information, p. 78. "We are, on principle, opposed to their employment, but for certain operations we are compelled to employ them, as otherwise the work would be too expensive. This is especially the case where large numbers of small pieces have to be produced, the operations on which are simple but time-taking." *Ibid.*, p. 79. "We could not do our business without the employment of women and children. As you are aware, the hulling of peas, strawberries, and the packing of such vegetables belongs to women, they being so much neater and quicker, and more cleanly than men." *Ibid.*, p. 81. "Owing to the large hands which belongs to the sterner sex, they cannot become as neat and dexterous as female labor." *Ibid.*, p. 83. "I am of the opinion that some factories prefer female labor, because they can impose on them, at least, we have heard many reports to that effect." *Ibid.*, p. 84. (Statements made by dealers, engineers, packers, and an individual company.)

employment. But it may be doubted that this pull of opportunity was the sole, or the major factor drawing women into the labor force. In any case forces operating on the supply side were necessary to provide for the release of these additional females to the labor force.

Reductions in Working Hours

Very few working girls and women enjoy freedom from household cares, for some nurse babies or care for adolescent children, and many cook breakfast in the morning before they leave, and after they return prepare supper, wash underwear, iron clothes, and struggle with an occasional housecleaning; [22] and almost all go through bedside drudgery of curling hair and painting nails, since the female does not work for bread alone. Any attempt to account, therefore, for the large-scale transformation from housewife or mother's helper to secretary or grinding-machine operator, must consider whether the shorter workweek may have been a factor in allowing a female who has typed until five o'clock the necessary time in which to look for a cheap roast or a rich husband.

There need not be a simple connection between a reduction in working hours and an increase in the proportion of females in gainful activity. Some of the released time would be absorbed by improvements in housekeeping, child care, and personal toilet, some by commutation over longer distances. The influence of hours was examined in this study both for different areas at the same time (1940) and for the same area over time. The 1940 data disclosed no tendency for females to be in the labor force in large proportions in areas where the workweek was shorter, even when wives were standardized for age of wife, color of wife, presence of young children, or income of husband.

The comparisons over time made use of "standard" or "full-time" hours rather than hours actually worked. They were not, therefore, adjusted for time lost because of sickness, strikes, mechanical breakdowns, labor turnover, or layoffs, but represent the amount of time normally worked in all major branches of industry, including government and agriculture (though for farmers and other self-employed persons accurate data on hours are extremely difficult to obtain and even the concept of a workweek is obscure).

[22] "My sister and I . . . have no time to do our own cooking as we work eleven hours a day, so we must board out. We manage, however, to room ourselves which is more homelike, and we consider ourselves much better off than some of the girls who are obliged to board at the corporation boarding house." *Fifth Annual Report*, Maine Bureau of Industrial and Labor Statistics, 1891, p. 143. "After working hard all day many women stay up late at night to do cleaning and washing." *Ibid.* (Statements embodied in the report.)

In the four countries for which data were available, the full-time week fell about four hours per decade in the last half century, while the female labor force rose 10 to 30 for each 1,000 females aged 14 and older—about 3 to 10 additional female workers per 1,000 for every reduction of one hour.

What is the significance of these changes? Are there merely two long-run trends—downward in hours and upward in the labor force—but no real correlation? To answer this question we must study the census-to-census fluctuations. This was done for the United States as a unit and for its rural and urban areas, as well as for the three foreign countries (Chart 14), but we confine the comparison to censuses taken in time of high employment, since a severe depression may cut down the workweek and the labor force and thus interfere with the inverse relationship (Chapter 10). In the United States there was, apparently, a close association between the reduction in the average full-time workweek of all major industry groups and the increase in female labor force participation. It was almost perfect for the nation as a whole and was about as good as could be expected for rural and urban areas, since the urban labor force was compared with hours in manufacturing, and the rural labor force (which really represents also a wide variety of nonagricultural industries) with the workweek on farms. For example, there was little change in either hours or the labor force in the 1920's, but an enormous contraction in hours and a huge inflow of female labor force in the 1930's and 1940's. The rise in hours on farms between 1910 and 1920 was associated with the only instance of a drop in female participation.

The apparent affinity between hours and female labor force could not be tested fairly for certain of the census years—in Germany for 1907, in Canada for 1951, or in New Zealand for 1895–1951—owing to lack of satisfactory materials. Nor could it be tested in Great Britain and Canada for 1921 and 1931 or in Germany for 1939, 1946, and 1950, because these were years like 1940 in the United States when both hours and the labor force tended to be curtailed by unemployment. Thus the investigation in foreign countries covers only 1911–1939 and 1939–1951 in Great Britain, 1911–1941 in Canada, and 1895–1925 and 1925–1939 in Germany. The association between declining full-time hours and expanding labor force was close—though less so than in the United States—and it was still closer when the workweek in manufacturing was the measure of hours rather than the less well documented average for "all industries." These relationships do not warrant a final pronouncement that the reduction of the workweek in industry made it easier for women with household obligations to take outside jobs; but they require that this explanation be given serious consideration.

CHART 14

Increase in Female Participation in Labor Force Associated with Reduction in Full-Time Workweek: 4 Countries, Various Periods, 1890–1951

Percentage changes between census dates when employment was high: increase in number of females 14 and older in the labor force per 1,000 of same population group and decrease in full-time workweek (hours).

Labor force participation ratios standardized for age, and for other differences as noted, on basis of United States population in 1940.

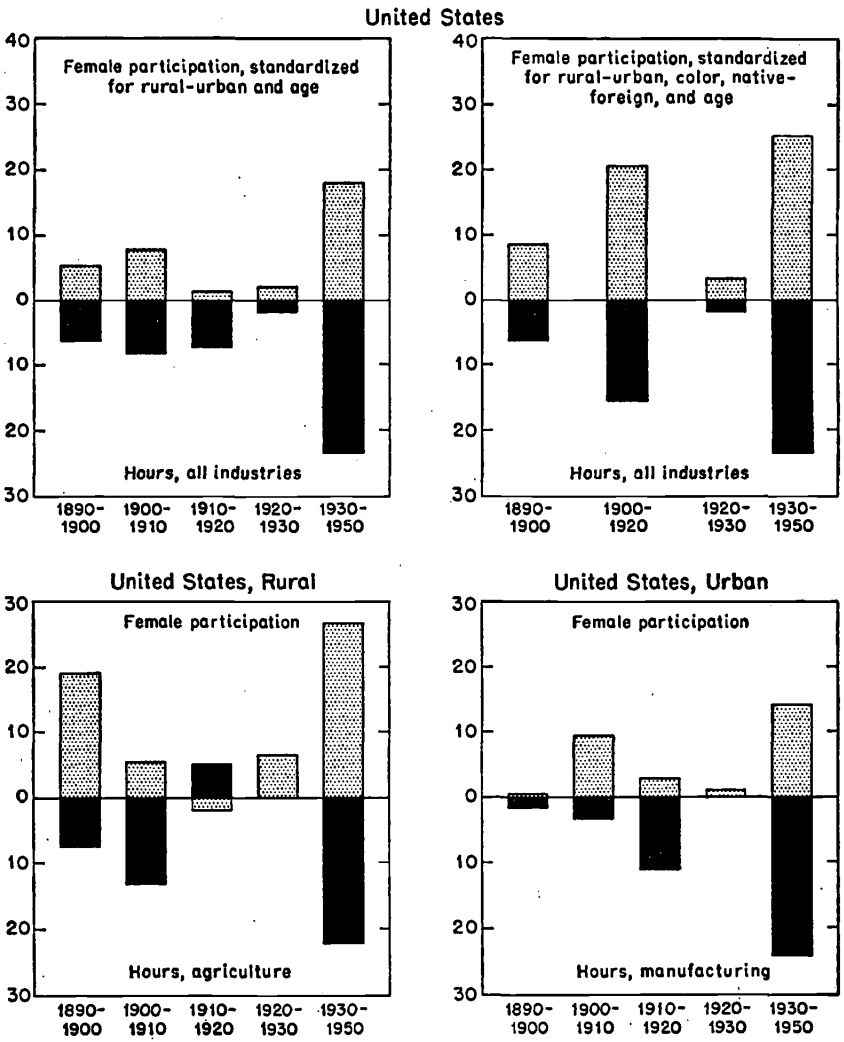
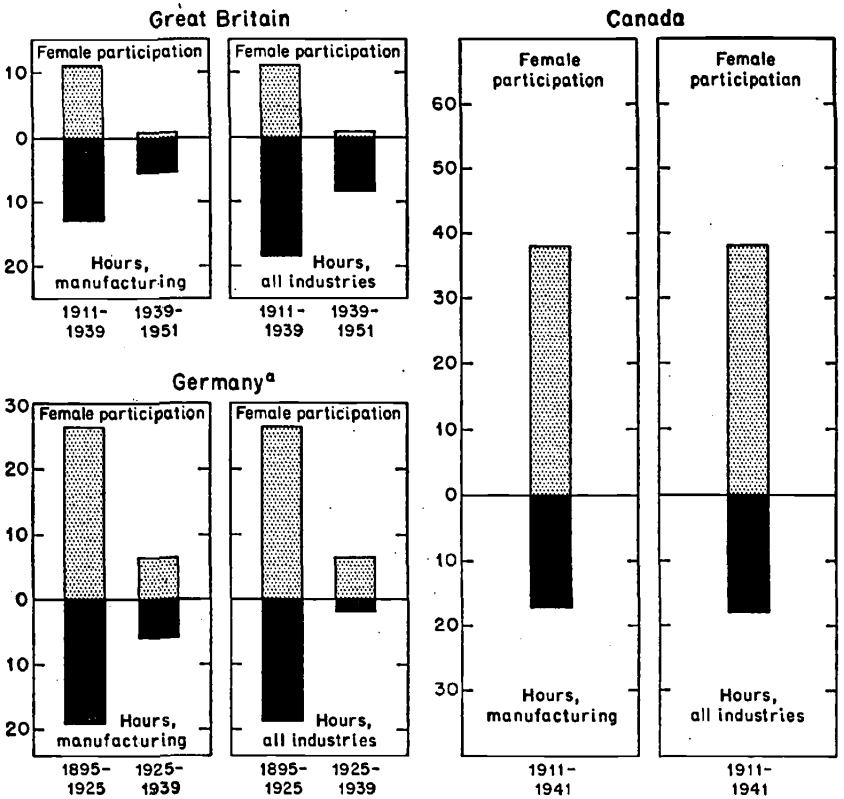


CHART 14, concluded



[a] For 1895–1939, boundaries after World War I, without the Saar.

Data on females in labor force, Appendix A. Data on hours:

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