

Europe and the US: Female labor market participation

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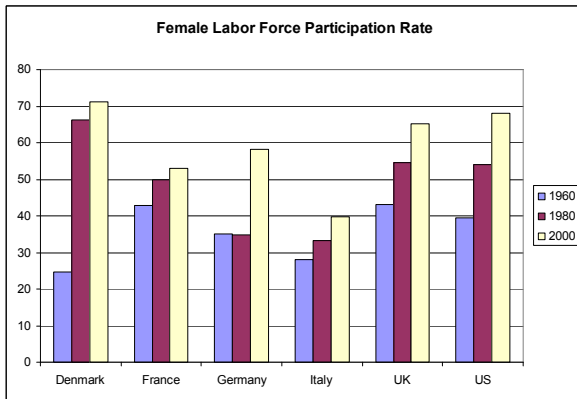
Female labor market participation: why should we care?

- Several groups in the population have relatively low participation rates.
- Why should policy makers in particular be concerned about increasing female labor market participation?

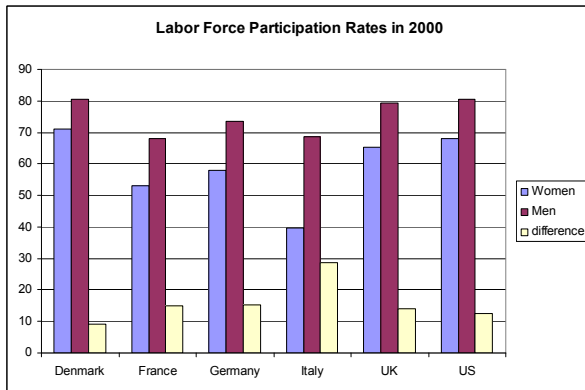
What explains female labor market participation?

- There is strong variation in female labor market participation between countries.
- There is strong variation in female labor market participation over time.

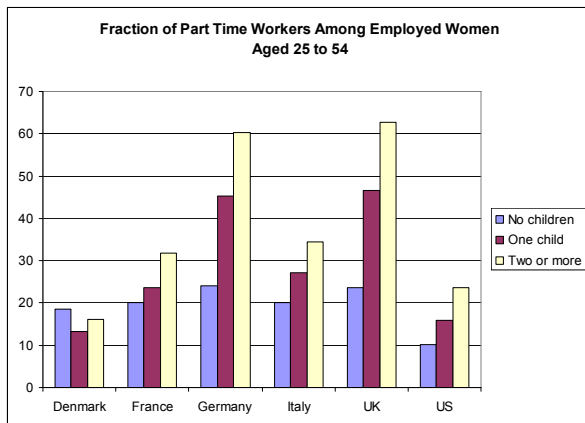
Evolution of Female Labor Force Participation over Time (OECD)



Comparison of Male and Female Labor Force Participation in 2000 (OECD)



Part-Time Work among Employed Women in 2000 (OECD)



What explains female labor market participation?

- Time to do housework - technical progress
 - Fridge
 - Washing machine
- Oral contraceptives - pill
- Skill biased technological change
 - Increase in demand for white color jobs
 - Increase in service sector
- Increase in female education
- Flexible working arrangement
- Child care facilities
- The tax and transfer system
- Affirmative action
- Culture

Joint taxation and female labor supply: Germany

- In Germany married couples file their taxes jointly and there is full income splitting
- Joint taxation with full income splitting induces negative working incentives for the secondary earner - most often the wife
- Steiner and Wrohlich (2004) simulate the hypothetical effect of individual taxation
 - They find on average an increase in working hours by about 10%
 - The effects are particular large for West Germany

Joint taxation and female labor supply: Germany

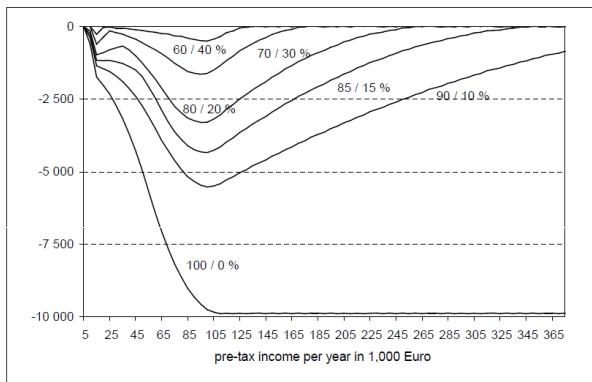
- Budget constraint under joint progressive taxation:

$$C_{joint}^h = \omega_f^h L_f^h + \omega_m^h L_m^h - 2T^h\left(\frac{\omega_f^h L_f^h + \omega_m^h L_m^h}{2}\right), \quad (1)$$

- Budget constraint under individual progressive taxation:

$$C_{individual}^h = \omega_f^h L_f^h + \omega_m^h L_m^h - T(\omega_f^h L_f^h) - T(\omega_m^h L_m^h). \quad (2)$$

Splitting advantage of married couples



Note: The first (second) number refers to the husband's (wife's) percentage share in the spouses' joint household pre-tax income per year (in €).

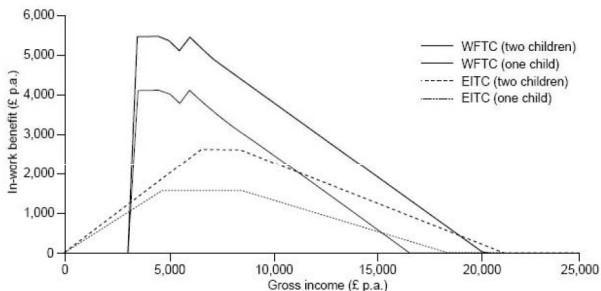
Source: Calculations by the German Institute of Economic Research (DIW Berlin).

Household specific in-work credits: US and UK

- Earned income tax credit (EITC) in the US
- Working Tax Credit (WTC) in the UK
- Idea of in-work credit is to subsidizing low pay employment
- Means-testing based on household income

Household specific in-work credits: The WTC in the UK

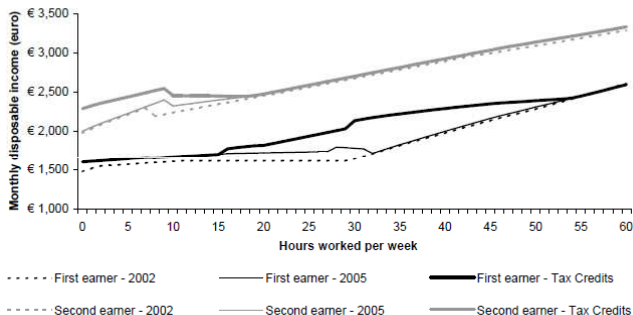
WFTC and EITC schedules compared, 2000



Notes: £1 = \$1.50. Assumes 2000 tax system in US. Assumes 2000 tax system in UK plus children's tax credit. Assumes two WFTC awards a year and minimum-wage work in UK, so eligible for 30-hour credit at gross annual income of £5,772 ($52 \times 30 \times £3.70$).

Working incentives induced by the WTC

Figure 6. Disposable incomes under three tax and benefit systems: couples with two children



Why can culture explain female labor participation?

- Most of the explanations for variation in female labor market participation are endogenous
- Culture: Set of beliefs, norms and preferences which vary between countries and time
- Identification of the effect of culture is very difficult
- Fernandez (2007): Epidemiological approach - exploiting different norms of children of migrants
- Fernandez et al. (2004): Exploiting variation over US states in draft rates for World War II
 - exogenous increase in female participation in the states with high draft rates
 - higher female participation affect the norms of the next generation with respect to female participation

Culture and female participation in the US over time

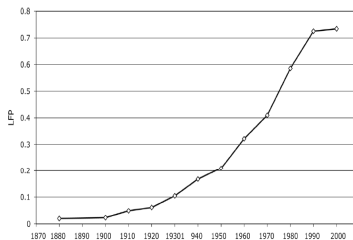


FIGURE 1. Married female labor force participation in the US.

Sources: U.S. Census data 1880–2000. White, married (spouse present) women born in the US 25–44 years old who report being in the labor force.

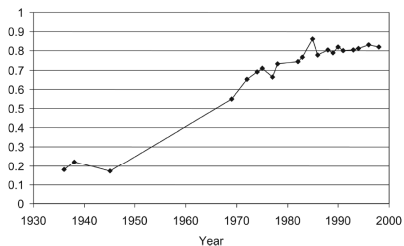


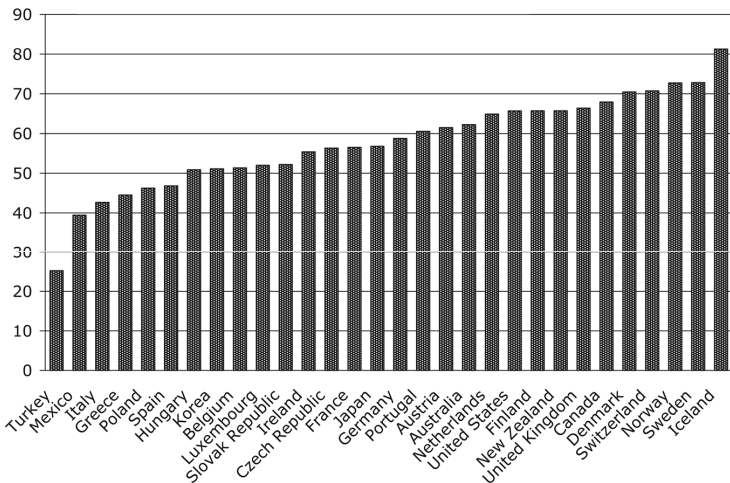
FIGURE 2. Fraction who agree with wife working if husband can support.

Sources: 1936–1938 and 1969 numbers are from the Gallup Poll (1972), 1945 is from Page and Shapiro (1992; pp. 101, 403–404). 1972 onwards are from the General Social Survey.

Fernandez (2007): Epidemiological approach - exploiting different norms of children of migrants

- Causality:
 - Do norms affect participation?
 - Does participation affect norms?
- Isolate culture from economic effects which might change over time:
 - income taxation
 - child care
- Identification strategy: exploiting different norms of children of migrants who live now in the US
 - economic circumstances are the same
 - norms vary since migrants inherited the culture from their parents

Future LFP as proxy for culture in home country: Variation in 2003 (OECD)



- US Census 1970 provides information about female labor participation in the US and father's place of birth
- Proxy for culture in parents country: LFP in 1990 (ILO)
 - in a previous paper she uses LFP in 1950 (correlation between 1950 and 1990 about 0.5)
- After some restrictions: 6774 women

LFP Rates in 1990 and Immigrants' Work Behavior in 1970: First evidence

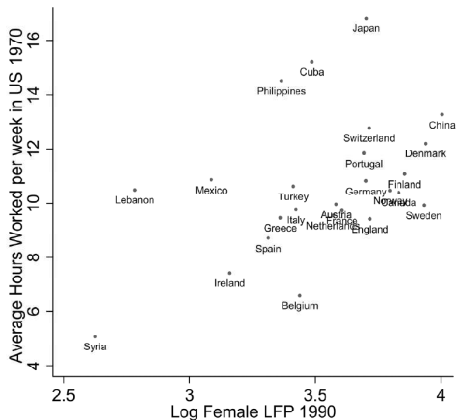


FIGURE 4. Labor force participation and culture.

Regression results: Dependent variable - working hours per week

TABLE 2. Culture (Female LFP) and work.

	(i)	(ii)	(iii)	(iv)
Female	0.056***	0.056***	0.081***	0.068***
LFP 1990	(0.020)	(0.021)	(0.016)	(0.016)
High School		0.502	2.203***	2.117***
		(0.501)	(0.561)	(0.552)
Some college		-0.163	3.256***	3.194***
		(1.038)	(1.007)	(0.989)
College*		0.787*	6.068***	5.994***
		(0.439)	(0.472)	(0.463)
Husband			-1.737**	-1.786**
high school			(0.718)	(0.717)
Husband			-1.342	-1.378*
some college			(0.823)	(0.824)
Husband			-4.998***	-5.049***
college*			(0.466)	(0.470)
Husband			-2.849***	-2.864***
total income			(0.304)	(0.303)
TFR 1950				-0.185*
				(0.111)
Observations	6774	6774	6774	6774
Adjusted R ²	0.0180	0.0241	0.0534	0.0534

Notes: The dependent variable is Hours Worked. * significant at 10%; ** significant at 5%; *** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income is measured in units of \$10,000. All specifications include a constant.

Attitudes in 1990 as cultural proxies

- Information for the World Value Survey (WVS)
- Questions:
 - ① Being a housewife is just as fulfilling as working for pay
 - ② Having a job is the best way for a woman to be an independent person
- On average 1617 individuals from 18 countries were interviewed in the 1990/1991 survey
- Use attitudes instead of LFP in 1990

Attitudes towards Working Women from WVS

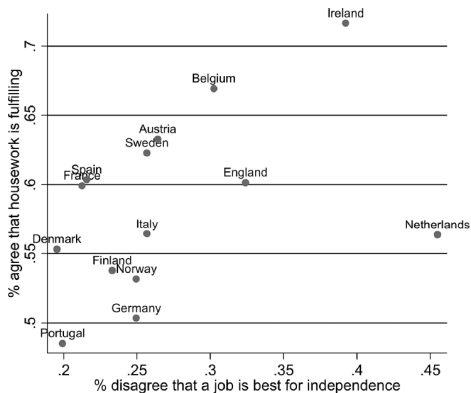


FIGURE 5. Percentage comparison of answers to job statement relative to housewife statement.
Source: WVS 1990.

Attitudes towards Working Women and Hours Worked

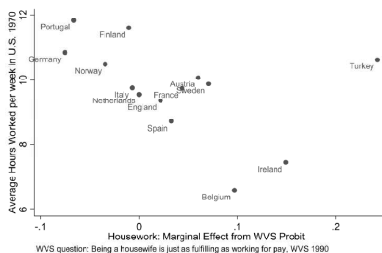


FIGURE 6a. Housework vs. average hours worked.

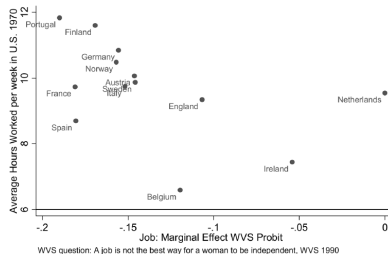


FIGURE 6b. Job vs. average hours worked.

Regression Results: Attitudes towards Housework

TABLE 4a. Attitudes (Housework) and work.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Housework	-9.973*** (2.454)	-9.685*** (2.089)	-7.428*** (2.527)	-7.314*** (1.580)	-6.568** (3.280)	
Female				0.081*** (0.014)	0.080*** (0.015)	
LFP 1950						
High school		0.064 (0.637)	1.629** (0.807)	1.488* (0.845)	1.567* (0.805)	2.125*** (0.678)
Some college		-1.208 (0.868)	2.173** (0.913)	1.912** (0.973)	2.045** (0.929)	3.182*** (1.177)
College*		0.661 (0.737)	5.697*** (0.655)	5.489*** (0.646)	5.577*** (0.638)	6.314*** (0.593)
Husband			-1.681* (0.968)	-1.755* (0.957)	-1.718* (0.964)	-1.382 (0.868)
high school						
Husband			-1.438 (1.015)	-1.543 (1.003)	-1.478 (1.010)	-1.518* (0.886)
some college						
Husband			-4.549*** (0.607)	-4.690*** (0.607)	-4.629*** (0.603)	-4.897*** (0.580)
college*						
Husband			-3.025*** (0.317)	-3.050*** (0.320)	-3.041*** (0.318)	-2.730*** (0.386)
total income						
Observations	4660	4660	4660	4660	4660	4660
Adjusted R ²	0.0162	0.0262	0.0592	0.0594	0.0600	0.0533

Notes: The dependent variable is Hours Worked. * significant at 10%; ** significant at 5%; *** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income is measured in units of \$10,000. All specifications include a constant.

Regression Results: Attitudes towards Job

TABLE 4b. Attitudes (Job) and work.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Job	-15.281*** (5.158)	-14.099*** (4.465)	-10.187** (4.771)		-8.406* (4.865)	-14.708*** (3.933)
Female				0.086*** (0.015)	0.078*** (0.015)	
LFP 1950						
High school		0.019 (0.641)	1.549* (0.820)	1.457* (0.849)	1.499* (0.817)	2.022*** (0.658)
Some college		-1.307 (0.908)	2.033** (0.992)	1.836* (0.988)	1.918 (0.976)	2.992* (1.195)
College*		0.686 (0.723)	5.623*** (0.653)	5.467*** (0.645)	5.525*** (0.642)	6.128*** (0.520)
Husband			-1.628* (0.988)	-1.703* (0.973)	-1.668* (0.982)	-1.366 (0.880)
high school						
Husband			-1.460 (1.010)	-1.568 (1.000)	-1.516 (1.006)	-1.545* (0.892)
some college						
Husband			-4.465*** (0.607)	-4.598*** (0.601)	-4.544*** (0.599)	-4.836*** (0.594)
college*						
Husband			-3.002*** (0.323)	-3.025*** (0.324)	-3.015*** (0.325)	-2.700*** (0.387)
total income						
Observations	4660	4660	4660	4660	4660	5708
Adjusted R^2	0.0164	0.0261	0.0585	0.0589	0.0591	0.0533

Notes: The dependent variable is Hours Worked. * significant at 10%; ** significant at 5%; *** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income is measured in units of \$10,000. All specifications include a constant.

Fernandez et al. (2004): Mothers and Sons: Preference Formation and Female Labor Force Dynamics

- Idea: Change of norms of children (sons) if mothers start working
- Dynamic theoretical model suggest two channels:
 - Sons with working mothers are more likely to marry working women
 - Sons with working mothers have higher home productivity thus their wives are more likely to work
- Empirical analysis: Exploiting variation over US states in draft rates for World War II
 - exogenous increase in female participation in the states with high draft rates
 - higher female participation affect the norms of the next generation with respect to female participation

Empirical evidence I

- Based on cross sectional survey data, the authors establish that:
 - the working status of the mother in law has a significant positive effect on the wife's current labor supply
 - the working status of the own mother has no significant effect on the wife's current labor supply
- To establish identification: Find exogenous variation in mother's labor force participation

Empirical evidence II

- Acemoglu et al. (2004) have shown that draft rates in the US for World War II were to a large extent random and therefore this variation can be seen as exogenous.
 - Mobilization rates varied from less than 42% (e.g. Georgia) and 52% (e.g. Washington)
- Estimate if this exogenous shock has an effect on mothers labor market participation
- Estimate if this exogenous shock has an effect on daughter's or wife of son's labor market participation
- Use census data between 1940 and 1980

Estimation results I

IMPACT OF WORLD WAR II MOBILIZATION RATES ON LABOR SUPPLY OF MARRIED WOMEN

Dependent variable is "Weeks Worked"

Panel A: 25-30

	(i)	(ii)	(iii)	(iv)
1940 mobilization rate \times 1950	18.11 (11.05)	17.29 (10.99)	21.68 (14.50)	22.59 (14.24)
1940 mobilization rate \times 1960	22.71** (11.30)	19.06* (11.12)	26.68* (15.1)	26.39* (15.15)
Year 1950	-11.23* (6.26)	-11.49* (6.16)	-19.44** (7.51)	-17.06** (8.19)
Year 1960	-5.58 (5.89)	-3.24 (5.72)	-11.73* (7.02)	-14.54* (7.47)
St. of residence & husband's st. of birth		yes	yes	yes
Education				yes
N. obs.	75,748	73,710	50,146	50,146
Adjusted R^2	0.01	0.015	0.016	0.027

Estimation results II

Panel B: 35–40				
	(i)	(ii)	(iii)	(iv)
1940 mobilization rate × 1950	25.25*** (8.36)	23.67*** (7.92)	33.02*** (9.99)	34.49*** (10.28)
1940 mobilization rate × 1960	18.34*** (6.76)	18.17*** (6.29)	22.55*** (7.89)	24.74*** (8.22)
1940 mobilization rate × 1970	14.24* (8.07)	14.78** (7.51)	22.01** (8.74)	25.12*** (8.64)
Year 1950	-2.25 (5.87)	-1.12 (5.63)	-11.88 (7.79)	-20.55*** (7.90)
Year 1960	-3.76 (4.91)	-3.12 (4.75)	-7.30 (6.73)	-16.73** (6.81)
Year 1970	1.79 (6.02)	.99 (5.65)	-6.19 (7.87)	-7.58 (9.02)
St. of residence & husband's st. of birth		yes	yes	yes
Education				yes
N. obs.	112,125	109,864	71,018	71,018
Adjusted R ²	0.039	0.045	0.05	0.05

Estimation results III

Dependent variable is "Weeks Worked"				
Panel C: 45-50				
	(i)	(ii)	(iii)	(iv)
1940 mobilization rate × 1950	12.59 (11.39)	17.92 (11.59)	27.98* (14.79)	26.17* (14.79)
1940 mobilization rate × 1960	11.47 (9.24)	16.22* (9.29)	15.44 (12.54)	15.33 (12.59)
1940 mobilization rate × 1970	3.25 (8.56)	8.99 (8.75)	13.77 (12.31)	15.96 (12.23)
1940 mobilization rate × 1980	17.26* (10.18)	21.72** (10.76)	32.89** (14.78)	33.07** (14.78)
Year 1950	-14.55 (9.59)	-17.96** (9.44)	-27.31** (13.21)	-26.23** (13.08)
Year 1960	.52 (6.53)	-2.09 (6.44)	-7.95 (10.39)	-11.71 (10.81)
Year 1970	9.50 (6.84)	5.07 (6.79)	1.82 (10.27)	-8.88 (10.59)
Year 1980	8.18 (7.46)	5.01 (7.60)	-1.84 (11.39)	-7.01 (11.80)
St. of residence & husband's st. of birth		yes	yes	yes
Education				yes
N. obs.	129,899	126,715	80,261	80,261
Adjusted R^2	0.087	0.091	0.098	0.11

Conclusion

- Culture seems to matter for behavior
- Most explanations for behavior are somehow affected by culture
- Identification is difficult