

《Article》

What Determines Employment of Women with Infants?

: Comparisons between Japan and US

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Abstract

There are significant differences in the labor force participation rate between Japanese and US women. The labor force participation rate of Japanese women decreases when they are in their thirties and increases when they are in their forties. On the other hand, the labor force participation rate of US women does not decline when they are in their thirties. These differences imply that the factors that push women into the labor force differ between Japan and US in the child-care stage. There are two main factors that push women into the labor force: human resources and family situation. This paper examines if these two factors have different effects on women's employment between Japan and US. The data used for analysis are obtained from NFRJ03 (National Family Research of Japan 2003) for Japanese women and NSFH 92-94 (National Survey of Families and Households) for US women. The results of the multinomial logistic regression analyses show the following differences and similarities between the determinants of women's employment in Japan and the US: (1) Higher education enhances women's longer and shorter working hours in the US, but not in Japan. In Japan higher education has a *negative* effect on women's shorter working hours. (2) Husband's higher income has a negative effect on women's employment in the US, but not in Japan. With regard to Japanese women who work less than 35 hours a week, husband's income shows a slight effect, but this effect does not appear robust (Only a slight replacement of variables changes its significance.). (3) Husbands frequently conducting housework enhances women's employment both in Japan and the US, except for shorter working hours for Japanese women. (4) Living with/-close to mother (or partner's mother) does not enhance women's employment both in Japan and the US. These results imply that differences in the labor force participation rate of women with infants between Japan and the US are because of limited opportunities for shorter working hours and high expectations from women as caregivers for children in the Japanese society.

Introduction

There are significant differences in the labor force participation rate between Japanese and US women. Figure 1 shows women's activity rate by age categories in 2008. We can see that the curve of Japanese women's activity rate is M shaped and bends downward when they are in their thirties and upward when they are in their forties. On the other hand, the activity rate curve of US women is in the shape of a trapezoid and does not bend downward when they are in their thirties.

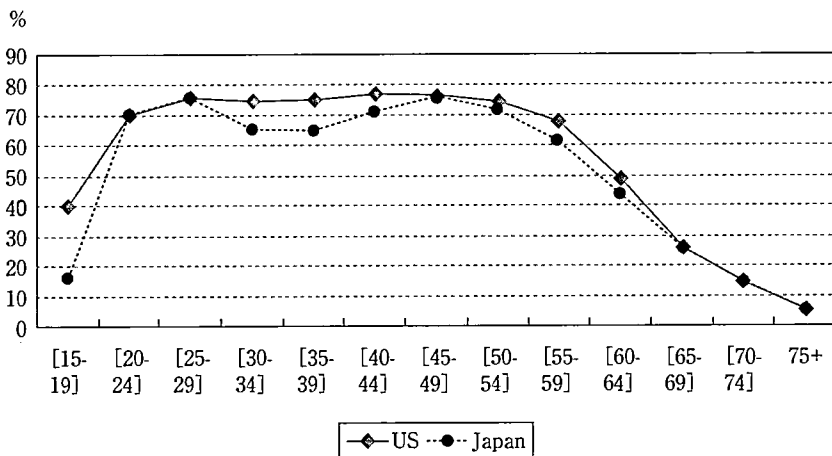
Several factors may explain these differences. For example, differences in women's marital behaviors are one possible factor. Marriages are known to be more stable in Japan than in the US, and when a marriage is not highly stable, women have to work to make their own living, which increases the labor force participation rate of the US women. Another possible explanation is that there may be differences in the age

distribution with respect to childbirth between two societies. Japan may be a type of society where many women give birth around a particular age.

However, the most influential factor that explains these differences in the labor force participation rate is the differences in the working behavior of women with infants. Differences in the labor force participation rate in women in their thirties arise because Japanese women quit working after childbirth and re-enter the labor force when their children grow older, while US women do not do the same. In fact, a research conducted by the National Institute of Population and Social Security reports that of Japanese women who were working when they got married, only 20% of them worked and raised their children in the first five years of their marriage (National Institute of Population and Social Security, 2006).

This paper focuses on the determinants of the employment of women with infants in Japan and the US and explores the

Figure 1. Women's Activity Rate 2008 (ILO, "LABORSTA")



differences. In this way, factors that explain the differences of labor supply in two societies are revealed.

Previous studies and hypotheses

One of the previous studies concerning women's labor force participation includes the economic analyses of labor supply, particularly the ones that consider family as a unit of analysis. Such studies insist that the analysis of the labor supply of married women should consider not only hours of leisure but also hours of work at home. In this perspective, women's labor supply is determined by two types of effects, namely, substitution effect and income effect (Mincer, 1962).

The substitution effect means that increase in the real wage rate increases the prices (alternative costs) of home production, which elicits an increase in the working hours. On the other hand, the income effect means that an increase in husband's income may decrease wife's (not husband's) working hours. The essential point here is that when family (or household) is the unit of analysis, an increase in one individual's income may not result in a decrease in his working hours, but in those of other family members, in this case, wife's working hours.

Another perspective that may explain women's labor force participation is the social support from husband or mothers.

Studies concerning husband's housework revealed that wife's employment and husband's frequencies of housework are correlated (Matsuda, 2004; Shelton & John, 1996). Husbands frequently conducting housework

may be a *result* of wife's employment rather than being its *determinant*. This study assumes that husband's housework is a determinant of women's employment, since there is a possibility that husbands frequently conducting housework enables women to work or makes it easier for them to continue working.

Another source of social support is the support from mother or partner's mother. In Japan, the effect of social support from mothers on women's employment is measured by the living arrangement most of the times, since Japan is a society where living with parents is preferred and occurs frequently¹. In Japanese studies, it is revealed that living with mother/-partner's mother enhances women's employment (Shintani, 1998). However, this effect has been diminishing since the late 1990s (Senda, 2002). Although the reason that this effect is diminishing is still unclear, it may be partly because of the changes in the life styles of the older generation or changes in the support relationship between parents and children.

With respect to these previous studies, this study sets four hypotheses as follows. First, higher human resources enhance women's employment. When women hold higher human resources, such as higher education, women's

¹ Of course, there is a debate that measuring social support from mothers by the living arrangement is not enough or lacks accuracy. Some researchers try to measure social support through practical ways such as taking care of children when they get sick.

employment is enhanced.

Second, when husband's income is higher, women's employment declines. It is because increase in husband's income leads to an increase in the purchases of various goods, including time for housework and childcare by wife, and thus, wife's working hours decrease.

Third, social support from husband/-mothers enhances women's employment. However, support from mothers has a weaker effect than support from husband.

Next, these effects differ between Japan and the US. The differences in the labor force participation rate between two societies are partly because of the differences in the effects of such factors on women's employment.

Methods

Data

The data that I used to analyze Japanese women is NFRJ03 (National Family Research of Japan 2003). The data is collected by the Japan Society of Family Sociology, and it is a nationally represented sample. Although NFRJ is designed as cross-sectional data, a survey is conducted every five years, and NFRJ03 is its second survey. NFRJ03 is a nationally represented large-scale family survey, which is open for any researcher to use.

The data I used for US women is NSFH (National Survey of Families and Households) Wave II, 1992-1994. It is designed and carried out at the Center for Demography and Ecology at the University of Wisconsin-Madison. Research items covered a wide

variety of aspects of family life, such as marital and parenting relationships, kin contact, living arrangements as well as education, fertility, and employment histories.

There is almost a ten-year gap between the collection of NFRJ03 and NSFH92-94. Thus, these data sets may not be really cross-sectionally comparable. However, because of the limitation of existing data sets and each data maintaining good quality, this study utilizes these two data sets.

The samples that I selected from these data comprise married women whose youngest child was less than six years old.

Variables

Dependent variable: Women's employment status is categorized as follows: (1) those who work 35 hours or more per week; (2) those who work less than 35 hours per week; and (3) those who are not employed, which means housewives.

I divided employees by their working hours, because shorter working hours is one of the most effective strategies to balance work and family at this stage of life, and the determinants may be different from longer working hours. Those who are self-employed are excluded from this study.

Independent variable: There are three types of independent variables. First, the extent of education is used as an indicator of human resources. Second, husband's income is measured by his total annual income. Next, as an indicator of husband's social support, this study uses husband's frequencies of or time used to do housework. Further, social support from mothers is measured by the residential

distance from mother or partner's mother.

Control variable: Respondent's age is used as a control variable.

Analytic procedures

To examine the hypotheses discussed above, multinomial logistic regression analyses were conducted for Japanese and US samples separately.

Results

Table 1 shows the demographic characteristics of each sample and the distribution of variables.

The average age of samples is similar between Japan and the US. With respect to the employment status, in NFRJ03, Japanese data, the ratio of those who are not employed is higher as compared to the US data. The

Table 1. Demographic characteristics of samples and distribution of variables

	NFRJ03(Japan)	NSFH92-94(US)
N	501	895
Average of age (range)	34.4	34.2
Employment status		
employed, works 35 hours or more/w	60	278
employed, works less than 35 hours/w	70	203
not employed (housewives)	317	352
Education (average years)	13.3	13.4
Husband's income (average ¥/\$)	5175400	36650
Husband's housework (average) ¹⁾	7.39	18.2
Residential distance of mother		
(Japan) same house/same lot/next door	34	
less than 1 hour (one way)	254	
more than 1 hour (one way)	178	
mother not alive	34	
(US) same house/less than 5 miles (one way)		240
more than 5 miles (one way)		538
mother not alive		102
Residential distance of partner's mother		
(Japan) same house/same lot/next door	99	
less than 1 hour (one way)	229	
more than 1 hour (one way)	143	
mother not alive	29	
(US) same house/less than 5 miles (one way)		220
more than 5 miles (one way)		560
mother not alive		103

1) Measures and items are different between Japan and US data.

extent of education is similar between Japan and US samples.

For husband's income and husband's housework, because of the differences of measures, values themselves are not comparable. To measure husband's housework, NFRJ03 uses the frequencies of five items per week, such as preparing meals, washing dishes, shopping groceries, washing, and cleaning. On the other hand, NSFH applies the time spent in doing nine household chores. They are preparing meals; washing dishes; cleaning house; outdoor tasks; shopping; washing and ironing; paying bills;

automobile maintenance; driving other household members to work, school and other activities. The differences in the numbers in Table 1 are because of the differences of measures and items applied in surveys.

The residential distance of a mother or partner's mother is also measured differently between Japan and the US. In NFRJ03, the residential distance of a mother is measured by the time to get there regardless of the means of transportation. On the other hand, in NSFH, it is measured by the actual distance. In US data, the number of people who live with their mothers or partner's mothers is

Table 2. Result of multinomial logistic regression for Japanese women

(Ref.) Not employed	NFRJ03(Japan)			
	Employed, 35h or more		Employed, less than 35h	
	B	Exp(B)	B	Exp(B)
Intercept	-9.13		-0.23	
Age	0.10 *	1.11	0.03	1.03
Education	0.13	0.13	-0.24 *	0.79
Husband's income: less than ¥4000,000	1.00	2.65	1.35 †	3.87
¥4000,000 ~ ¥6000,000	0.91	2.49	1.14	3.14
¥6000,000 ~ ¥8000,000	0.52	1.68	1.63 *	5.11
more than ¥8000,000 (Ref.)				
Husband's housework	0.25 **	1.29	0.02	1.02
Residential distance of mother				
less than 1 hour (one way)(Ref.)				
more than 1 hour (one way)	0.00	1.00	-0.16	0.86
mother not alive	0.55	1.74	0.10	1.11
Residential distance of partner's mother				
same house/same lot/next door(Ref.)				
less than 1 hour (one way)	-0.63	0.53	-0.71 †	0.49
more than 1 hour (one way)	-0.53	0.59	-0.02	0.98
mother not alive	-1.25	0.29	-0.45	0.64
-2 loglikelihood	589.37	Cox & Snell R ²	0.13	
χ^2	56.22 **	Nagelkerke R ²	0.16	
N	402			

† p<.10, *p<.05, **p<.01

extremely small (for own mother: n = 8 and partner's mother: n = 4) ; thus, cases who live with their mothers are included in the "less than five miles" category.

Even in Japanese data, the frequency of living in the same house/-same lot/-next door for respondent's own mother is only 34. Thus, the respondents who live in the same house/-same lot/-next door of their own mothers are included in "less than 1 hour" category in the following analysis.

Table 2 shows the coefficients of multinomial logistic regression for NFRJ03, Japanese data. The reference category is those who are not

employed. The left-sided rows in this table show the effects of independent variables for women working more than 35 hours a week as compared to those who are not employed. When compared to those who are not employed, women tend to work more than 35 hours a week when they are older and when husbands do more housework. Husband's income and residential distance of mothers do not have a significant effect. The right-sided rows show the effects of independent variables for women working less than 35 hours per week as compared to those who are not employed. Women tend to work less

Table 3. Result of multinomial logistic regression for US women

(Ref.) Not employed	NSFH92-94 (US)			
	Employed, 35h or more		Employed, less than 35h	
	B	Exp(B)	B	Exp(B)
Intercept	-4.45		-4.20	
Age	-0.01	1.00	0.00	1.00
Education	0.23 **	1.25	0.22 **	1.25
Husband's income: less than \$30,000	1.73 **	5.63	0.94 **	2.55
\$30,000 ~ \$50,000	1.44 **	4.22	0.83 **	2.29
more than \$50,000 (Ref.)				
Husband's housework	0.01 *	1.01	0.01 †	1.01
Residential distance of mother				
less than 5 miles (one way)(Ref.)				
more than 5 miles (one way)	-0.34	0.71	-0.14	0.87
mother not alive	0.21	1.23	0.24	1.28
Residential distance of partner's mother				
less than 5 miles (one way)(Ref.)				
more than 5 miles (one way)	0.10	1.11	-0.11	0.90
mother not alive	-0.05	0.95	0.02	1.02
-2 loglikelihood	1434.50	Cox & Snell R ²	0.11	
χ^2	84.40 **	Nagelkerke R ²	0.13	
N	707			

† p<.10, *p<.05, **p<.01

than 35 hours a week when they obtain less years of education. Husband's income has a slight effect that as compared to those whose husband's annual income is more than eight million yen, those whose husband's annual income is between six million yen and eight million yen and whose husband's income is less than four million yen tend to work less than 35 hours per week. Husband's housework does not have a significant effect. With respect to residential distance of mothers, there is a tendency that as compared to those whose partner's mothers live in the same house/-same lot/-next door, those whose partner's mothers live at less than one hour's distance tend to be unemployed rather than work less than 35 hours a week. However, it seems that the effects of the residential distance of partner's mother are not rather robust.

Table 3 is the result of the multinomial logistic regression for NSFH, the US women. The reference category here comprises those who are not employed. The left-sided rows show that as compared to those who are not employed, those who hold higher education, whose husband's income is relatively low, and whose husband conduct more housework tend to work more than 35 hours per week. The residential distance of mother or partner's mother does not have a significant effect. The right-sided rows show similar tendencies as in the case of employed women working for longer hours. In case of higher education, husband's income being low, and husbands doing housework, women tend to work less than 35 hours a week as compared to those

are not employed.

Discussion

Summarizing the results of the multinomial logistic regression analyses, this study reveals some differences and similarities in the determinants of women's employment in Japanese and the US women.

First, higher education enhances women's longer and shorter working hours in the US, but not in Japan. In Japan, higher education has a *negative* effect on women's shorter working hours.

Second, husband's higher income has a negative effect on women's employment in the US, but not in Japan. With respect to Japanese women working less than 35 hours a week, husband's income shows a slight effect, but this effect does not appear robust. (Only slight replacement of variables changes its significance.)

Third, husbands frequently conducting housework enhances women's employment both in Japan and the US, except for shorter working hours for Japanese women.

Finally, living with/-close to mother (or partner's mother) does not enhance women's employment both in Japan and the US.

From these results, some discussion could be possible on the reason that women's labor force participation rate differs in Japan and the US, particularly when they are in their thirties.

One possible and may be the most influential reason is differences in the behaviors of women raising infants. In Japan, there may be some mechanisms through

which such women quit working.

One of the factors that can be pointed out from this study is the limited opportunities of shorter working hours for highly educated women in Japan. In the US, women's higher education positively contributed to women's longer *and* shorter working hours, which means that there are certain chances of shorter working hours, which is attractive for highly educated women. On the other hand, in Japan, highly educated women rather stay home than work for shorter hours. This means that the labor market of shorter working hours is not attractive to them. In fact, in Japan, employees working for shorter hours are often called "part-timers" whose jobs are mostly unskilled and who are not much secured by social security.

Working for shorter hours can be one of the most effective strategies to balance work and family for women with infants. However, the Japanese labor market does not supply "good" opportunities to work for shorter hours, and this makes women, particularly highly educated women, decide not to work.

Another possible factor pointed out from this study is the high expectations from women as caregivers for children in the Japanese society. In Japanese data, husband's income was not much influential as compared to that in the US. Japanese mothers with infants stay home regardless of husband's income, which means that the expectations from women as caregivers exceed the needs for household income.

The results of this study imply that differences in the labor force participation

rate of women with infants between Japan and the US are because of limited opportunities for shorter working hours and high expectation from women as caregivers for children in the Japanese society.

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