

## Female employment and the socioeconomic and family factors in Japan

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### Research background

- \* Increasing numbers of women are entering the workforce.
- \* But, Almost 70% of women exit the labor market during marriage or childbirth and this figure remains high, especially among higher educated women (Cabinet Office 2006).

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### Aim of this research

- \* To identify determinants of female employment in Japan in order to achieve “work-life-balance”.
- Douglas-Arisawa’s law work well?
  - When income of husband is high, wife does not work?
  - When income of husband decreases, wife comes to work?

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### Douglas-Arisawa’s law

1. There is core revenue earner (nuclear members) in the household. Given the wage rate of non-nuclear members, non-nuclear member is more likely to work when core revenue earner makes less money.

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### Douglas-Arisawa’s law

2. For a certain set of households, when non-nuclear-member can make more money, the rate of her(his) working rate is higher than their counterpart.

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- \* There is a negative correlation to employment probability of wife and height of the income level of the husband in the comparison between the household.

### Previous research

- \* Income effect of the husband that affects the employment decision of his wife can be interpreted in two ways (Mincer 1962).
  - 1) Increasing the wages of the husband leads to reduce the working hours of the wife.
  - 2) The first place, female who prefers leisure time is married to men earning high wages.

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## Previous research

- \* The interpretation of “Douglas-Arisawa’s law” is often made as 1) pattern.
- \* However, in order to make such interpretation, we have to eliminate the problem of endogeneity made by preferences which can not be observed in women, such as 2) pattern (Takeuchi 2004).

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## Strategy in this study

- \* In a cross-sectional analysis, it is assumed that all economic entities would have the same behavior structure.
- \* Panel analysis takes into account the heterogeneity of the economic entity as the individual effect.

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## Strategy in this study

- \* random-effects model treats the individual effect that shows the attributes of the economic agents as a random variable.
- \* Fixed effects model is assumed that the individual effect is constant during the observation period.

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## Strategy in this study

- \* In this study, I verify the factor of the employment of women in the form of removing the effect of the preference of female by using a random-effects model and the fixed effects model.

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## Research question

- \* In removing the effect of preferences in mate choice of wife,

Q1: When income of husband is higher than the others, his wife do not work?

Q2: When the income of her husband fell, his wife become working from having no job?

## data

- \* National Family Research of Japan, 2008-2012 Panel Study done by The National Family Research committee of the Japan Society of Family Sociology. Survey date: January 2009 through January 2013, every year
- \* The first year research is called NFRJo8
- \* Survey area: All over Japan.
- \* Sample: NFRJo8 respondents who agreed to participate to the panel surveys (1,879 persons)
- \* Used only under 60 years old married women.

## variables

## ➤ Dependent variable

- \* Having job dummy (regular worker, part-timer, self-employed/family worker=1, Having no job=0)

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## variables

## ➤ Independent variables

- \* Age, the square of the age
- \* Education (Primary-junior high, high schools, vocational school, junior-technical colleges, university)
- \* Husband's annual income
- \* Youngest child's age
- \* Scale of Resident city (21 large cities, the city of more than 100,000, the city of less than 100,000.)
- \* Husband's working hours

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## Descriptive Statistics

Variable	average	s.d.	Min	Max
having job dummy	0.688	0.463	0	1
Age	44.523	8.382	28	60
Square of age	2052.538	755.801	784	3600
Educational background				
Primary-junior high school dummy	0.023	0.149	0	1
High school dummy	0.410	0.492	0	1
Vocational school dummy	0.171	0.376	0	1
Junior- technical college dummy	0.250	0.433	0	1
University dummy	0.147	0.354	0	1
Husband revenue	529.682	244.538	0	1200
Husband working hours	9.908	2.098	2	24
Cities of residence scale				
21 large cities	0.281	0.449	0	1
More than 100,000	0.415	0.493	0	1
Less than 100,000	0.304	0.460	0	1
Youngest child age				
Without children	0.066	0.248	0	1
0-3 years	0.146	0.353	0	1
4-6 years	0.121	0.327	0	1
7-12 years	0.207	0.405	0	1
13-15 years	0.089	0.285	0	1
16-18 years	0.084	0.278	0	1
19 years of age or older	0.287	0.452	0	1
Number of observations / number of samples		2217 / 591		

## Fixed-effect Analysis

Variable	Coefficient	standard error	Z
Age	1.264 **	0.452	2.8
Square of age	-0.011 *	0.005	-2.35
Husband revenue	0.002	0.001	1.62
Husband working hours	-0.145	0.090	-1.6
Cities of residence scale			
21 large cities (reference)			
More than 100,000	0.806	0.764	1.06
Less than 100,000	0.189	1.285	0.15
Youngest child age			
Without children	2.763 *	1.274	2.17
0-3 years (reference)			
4-6 years	1.581 **	0.551	2.87
7-12 years	1.786 *	0.780	2.29
13-15 years	2.479 *	1.021	2.43
16-18 years	3.350	1.781	1.88
19 years of age or older	3.826	2.230	1.72
log likelihood		-157.216	
Model $\chi^2$ square		61.14**	
Number of observations / number of samples		491 / 116	

\*\*: p&lt;0.010, \*: p&lt;0.050

## Results (1)

## \* Fixed-effect model

- Reduction of husband's revenue, the length of the husband's working hours did not affect you on whether or not the employment of his wife.

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## Random-effect Analysis

Variable	Coefficient	standard error	Z
Constant	-14.140 *	5.599	-2.4
Age	0.795 **	0.271	2.94
Square of age	-0.010 **	0.003	-3.31
Educational background			
Primary- junior high school (reference)			
Vocational school	-0.169	0.646	-0.26
Junior- technical college	-1.466 *	0.594	-2.47
University	-0.047	0.694	-0.07
Husband revenue	-0.002 **	0.001	-3.03
Husband working hours	-0.075	0.070	-1.06
Cities of residence scale			
21 large cities (reference)			
More than 100,000	0.365	0.477	0.76
Less than 100,000	0.219	0.560	0.39
Youngest child age			
Without children	2.485 **	0.844	2.94
0-3 years (reference)			
4-6 years	2.639 **	0.484	5.45
7-12 years	4.013 **	0.613	6.55
13-15 years	5.350 **	0.783	6.83
16-18 years	5.963 **	0.917	6.5
19 years of age or older	6.160 **	0.991	6.22
log likelihood		-310.849	
Model $\chi^2$ square		114.39**	
Number of observations / number of samples		2217 / 591	

\*\*: p&lt;0.010, \*: p&lt;0.050

## Results (2)

- \* Random-effects model
- Education(National College of Technology and College is negative compared to high school)
- When husband income is higher, wife tends not to work .
- Youngest child age has a clear effect. (1-3 years old and 0 years of age)

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## Conclusion

- \* That husband's income is relatively low encourage his wife to have job (random-effects model), but short-term decrease of his income had no effect on the entry into the labor market of his wife.
- \* It is consistent with the results of Takeuchi (2004, 2006) (=target 20-30 Young Women of the 1990s).

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## Conclusion

- \* By the constraints of the labor market, the entry to labor market of women who once left the labor market might be blocked.
- \* Or, we can consider the possibility that there is a difference between what women are looking for and the quality of work that is open to women.

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- \* Thank you for your attention.

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