Cross-national analysis of women's economic contribution

Saki Kudo

Introduction

The recent increase in the number of dual-earner couples has led to a growth in arguments regarding women's economic contribution.[1] Studies on women's economic contribution began with Sørensen and McLanahan (1987), who examined the changes in women's economic contribution from the 1940s to the 1980s in the United States. According to the authors, a women's economic contribution (dependency) is measured by "her contribution to the couple's income" (Sørensen & McLanahan 1987, 66)—namely a woman's income relative to her spouse's income. Since then, there have been some studies on relative earnings within couples in the United States (Raley, Mattingly, & Bianchi 2006), European countries (Arber & Ginn 1995; Van Berkel & De Graaf 1998; Ward, Dale, & Joshi 1996) and Japan (Sangu 2002). Furthermore, with the increase in the availability of cross-national datasets, there has been some recent cross-national

[1] Some researchers refer to this issue as "economic dependency". The terms vary according to assumptions regarding the role of women. I use the term "economic contribution" in this chapter.

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research (Bianchi, Casper, & Peltola 1999; Estévez-Abe & Hethey 2008; Stier & Mandel 2009). According to these studies, the economic contribution of European and American women has increased over the years, even though women tend to depend on their husbands' earnings. Furthermore, some scholars found that the number of women who earn more than men has also risen gradually and they have examined the patterns of those couples (Winkler, McBride, & Andrews 2005; Winslow-Bowe 2006). However, Japanese women's contribution has continually shown high dependency (Sangu 2002).

What are the determinants of the recent increase in women's economic contribution? According to previous studies, the determinants can be divided mainly into individual and institutional settings. First, in terms of the individual level factors, human capital theory (Becker 1975) is one of the leading explanations for women's economic contribution. For example, education and age are considered the main factors of productivity, meaning that when the individual's education or age is higher, the economic contribution also increases. Moreover, the number of children and presence of preschool children are crucial determinants of women's economic contribution from householdlevel perspectives. For example, childcare suspends work for at least some years and decreases the caretaker's economic contribution (Raley et al. 2006).

On the other hand, institutional factors such as family policies that moderate women's worklife balance are important explanations of women's economic contribution. Most studies indicate that family policies, such as maternity leave and the creation of affordable childcare, are influential in increasing women's economic contribution.[2]

[2] Other explanations are provided by Estévez-Abe and Hethey (2008), who argue that other countrylevel factors such as the degree of employment protection and the size of the public sector affect women's economic contribution. I do not address these factors in this paper, but they are also important in terms of women's economic standing.

The main findings regarding institutional factors are as follows: some researchers advocate the view that family policies enhance women's employment rate (Kenjoh 2005), continuity of employment (Stier, Lewin-Epstein, & Braun 2001) and fertility level (Björklund 2006). On the other hand, others argue that long leave provision and childcare benefits could ultimately have negative effects on the women's career and earning prospects (Rønsen & Sundström 2001). The prevalent conclusion about the impact of public childcare on women's employment is that generous public childcare enhances employment rates among married women and women with young children (Korpi 2000; Pettit & Hook 2005; Uunk, Kalmijn, & Muffels 2005). This is supported by data considering different points in time (Uunk et al. 2005) as well as by crossnational comparisons (Korpi 2000; Pettit & Hook 2005).

However, one determinant has been ignored in these previous studies: women's lifestyle preferences[3]. A central discussion on this issue is represented by Hakim's (2000) preference theory, which posits that there are three types of typical female preferences. According to the theory, a minority of women falls into the work-oriented and home-centred categories, while the majority falls into the adaptive career category, combining paid work with childcare.

Is the economic contribution explained either by women's lifestyle preferences or by the implementation of family policies? Referring to the study of Stier and Mandel (2009), I establish an appropriate model to test this question. According to Stier and Mandel (2009), family policy plays a role in moderating women's economic contribution

[3] Although preference theory has received attention from many researchers, it also has some critics. For example, some studies argue that women's career decisions and life satisfaction are determined by multi-dimensional aspects, and it is important to consider their interrelation with each other (e.g. Blackburn, Browne, Brooks, & Jarman 2002; Warren 2004). In the view of these critics, for instance, the financial situation, leisure time, social policies and the power of the employer should be taken into account when women's preferences are examined because the female life course is restricted by such factors.

through labour force participation—long maternity leave decreases women's economic contribution in the short run, whereas higher rates of childcare provision increase contributions. However, Stier and Mandel's study does not explain the effect of women's lifestyle preferences; thus, I include women's lifestyle preferences in my model. Furthermore, there is a need to include countries such as Japan, which have shown a low female economic contribution (Sangu 2002).

Hypotheses

This chapter addresses the primary question "Is women's economic contribution explained by family policy implementation or female lifestyle preferences?" The subsequent hypotheses are established in order to test this question. First, I examine the effect of women's attributes on their economic contribution from individual and institutionallevel perspectives. According to Stier and Mandel (2009), institution-level factors are expected:

1.1) *Long maternity leave decreases women's economic contribution in the short term.*

1.2) *An increase in the percentage of childcare facilities leads to an increase in women's economic contribution.*

Second, women's lifestyle preferences are examined. According to preference theory (Hakim 2000), there are different types of lifestyle preferences: home-oriented, adaptive lifestyle and work-oriented. Therefore, I assume that there is a variance in women's career preferences, and the hypothesis is thus stated:

2) *The more a woman's lifestyle preference is career-oriented, the higher her economic contribution is.*

Last, I expect that family policies might restrict the lifestyle choices of women because women might consider their career in light of the policy conditions. Furthermore, as previous studies show,

women's economic contribution varies from one country to another, and there is no convergent consequence. Thus, I presume that the economic contribution is explained by institutional factors rather than individual lifestyle preferences. Considering these reasons, the hypothesis of the relationship between family policies and lifestyle preferences is thus:

3) *Family policies affect women's lifestyle preferences to moderate toward being career-oriented.*

The hypotheses stated above will be examined in the sections below.

Data and variables

In this chapter, there are two levels of datasets: individual and institutional levels. I use *The International Social Survey Programme* (ISSP 2014) to investigate individual-level determinants. ISSP is a cross-national dataset created by annual surveys on diverse social topics. The data are from 2012; since the theme of that year's survey was *Family and Changing Gender Roles*, I deem the data appropriate to measure the balance within couples.[4] The data used for the main analysis contain 27 countries and 6,449 female respondents with partners.[5] Furthermore, the age of respondents is 25–60 years as a

[4] In a previous study (Stier & Mandel 2009), the Luxemburg Income Study (LIS) data were used, but they do not include the question of women's career preferences. More precisely, there is a question on "employment situation desired" in the LIS data, but it does not explain the lifestyle preference of the balance between family and work; it indicates the desired career position rather than the current working condition. For this reason, I consider ISSP a more appropriate data source to measure female lifestyle preferences.

[5] Since cohabitation without marriage is common in some countries, I include the respondents with partners. The data for East and West Germany are merged in this paper. The countries used are Argentina, Australia, Canada, Chile, Croatia, the Czech Republic, Denmark, Finland, France, Germany, Iceland, Israel, Japan, Latvia, Lithuania, Mexico, Norway, Poland, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, the United States and Venezuela.

proxy for the workingage population. The institutionallevel data were obtained from an online database from the OECD and UNESCO. The detailed summary of the institutional-level data is shown in the results section.

Individual-level variables

The main dependent variable is "women's economic contribution". I used question 22 from the ISSP: "Who has the higher income?" The question is answered on a sevenpoint scale with the contribution increasing with a rise in the number.[6] Other individual-level variables are education and age as factors of human capital. In addition, the number of children (under 18 years old), the presence of preschool children, and household income were included as household characteristics.

Women's lifestyle preferences were measured by the statement: "A job is all right, but what most women really want is a home and children," which was answered on a fivepoint scale (from zero to four) describing to what extent the respondent agreed with the statement.[7] Last, I made the dummy variable of "work," which indicates whether the woman works or not. The summary statistics of the individual variables are shown in Table 1.

[6] In a previous study (Stier & Mandel 2009), women's economic contribution is calculated by the following equation: women's economic contribution=[(Fwage) / (Fwage) + (Mwage)]. However, i) there is no question on the wage of the respondent and the partner in this questionnaire and ii) the answer on income has different scales in each country. Hence, I assume that using question 22 is a more appropriate indicator than the question on income.

[7] It is not fully appropriate to use this question to measure "lifestyle preferences," as this question might show only the personal values toward public opinion. Future studies should utilise a more precise question that asks directly the preferred lifestyle choices, such as the ideal career and level of family responsibility.

Table 1. Individual-level variables

Individual-level Variable	N	Mean	S.D.	Min.	Max.
Woman's Contribution		3,38	1,55	1	7
Woman with BA		0,53	0,50	0	1
Woman's Age		43,03	9,74	25	60
Difference of Age (male-female≥5)		0,25	0,43	0	1
Household Income (Log)	6,449	10,02	2,71	0	16,81
Woman in the Labor Force		0,73	0,45	0	1
Number of Children		0,73	1,02	0	21
Presence of Children (Preschool)		0,29	0,45	0	1
Preference (Higher: Work-Oriented)		2,27	1,27	0	4

It appears that the women's contribution is slightly less than the men's (mean of women's contribution = 3.38 on a seven-point scale), and many women are in the labour force (mean of work dummy = 0.727). These numbers indicate that the women's average contribution to the household is much closer to that of the men's. It shows that most couples are dual-earners; both partners are in the labour market to some extent in either a part-time or a full-time setting. In addition, the average of women's lifestyle preferences is 2.27, which means that slightly more than half of women really want to work rather than stay home to take care of the children.

Institutional-level variables

In terms of institutional-level variables, I focused on the length of paid maternity/parental leave (in weeks) and the percentage of public education participation. I also added the proportion of female part-time workers (female entire) in the country as a control variable. The country-level summary statistics are represented in Table 2.

Table 2. Country-level variables

Macro-Level Variable	N	Mean	S.D.	Min.	Max.
Long Maternity Leave	27	0,45	0,49	0	1
% in Public Childcare(preschool)		71,13	0,28	1,91	99,27
% Women Working Part-time		23,64	10,40	5,10	45,60

According to previous studies, long maternity leave has a negative effect on women's economic contribution in the short term (Stier & Mandel 2009). Thus, paid maternity leave was measured as a dummy variable in terms of whether it was longer than average or not. In the dataset, the average paid leave was 51.27 weeks, thus a dummy variable was created as "long=1" when it was more than 52 weeks, or else "other=0". The percentage of public education for preschool children varied across the countries from a minimum of 2% to a maximum of 99%.[8] Furthermore, the percentage of female part-time workers was considered as a control variable.

The model

Because cross-national data have a nested structure, as individuals are included in each country, a multilevel analysis is an appropriate method for examining the determinants of women's economic contribution. Multi-level analysis can consider the intraclass correlation—namely, the similarity of observations in the same country, which is a violation of the basic assumption of statistical tests regarding the independence of individual respondents (Hox, Moerbeek, & Van de Schoot 2010). First, the individual characteristics are described:

$$(Women's\ Economic\ Contribution)_{ij} = \beta_{0j} + \beta_{1j}\ (Preference)_{1j} + \beta X + e_{ij},$$

Where β_{oj} is the intercept, βX is a vector of individual factors and eij describes the error term. Using the multilevel analysis, I presume that the intercept varies from one country to another:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(Maternity\ leave)_j + \gamma_{02}(Public\ education)_j + \gamma X + u_{0j}.$$

Here, γ_{oo} is the country-level intercept, the other γs are country-level slopes on the individual intercept, and u_{oj} is the error term. As the equation denotes, individuals in the same country are regarded as having the same country-level factors in this analysis.

Last, in order to examine Hypothesis 3 (Family policies affect women's career preferences to moderate toward being career-oriented), I made the slope of the preference random:

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(Maternity\ leave)_j + \gamma_{12}(Public\ education)_j + u_{1j}.$$

Therefore, if family policies improve the career prospects as I assume, then both coefficient γ_{11} and γ_{12} will be positive.

Results

Figure 1 shows the distribution of women's economic contribution on a seven-point scale (from one: "I have no income," to seven: "My spouse/partner has no income". Category four is a middle option: "We have about the same income").[9]

According to Figure 1, in most countries, the women tend to rely on their partner's income. However, the dependency rate varies from one country to another. For example, women in the East Asian and South American regions have a significantly higher dependency rate. On the other hand, couples from European countries have relatively minor differences in their income, indicating that Category 3 is the dominant option.

[9] In the original data, the order of the scale is the other way around. Moreover, I created Figure 1 using those respondents included in the main analysis.

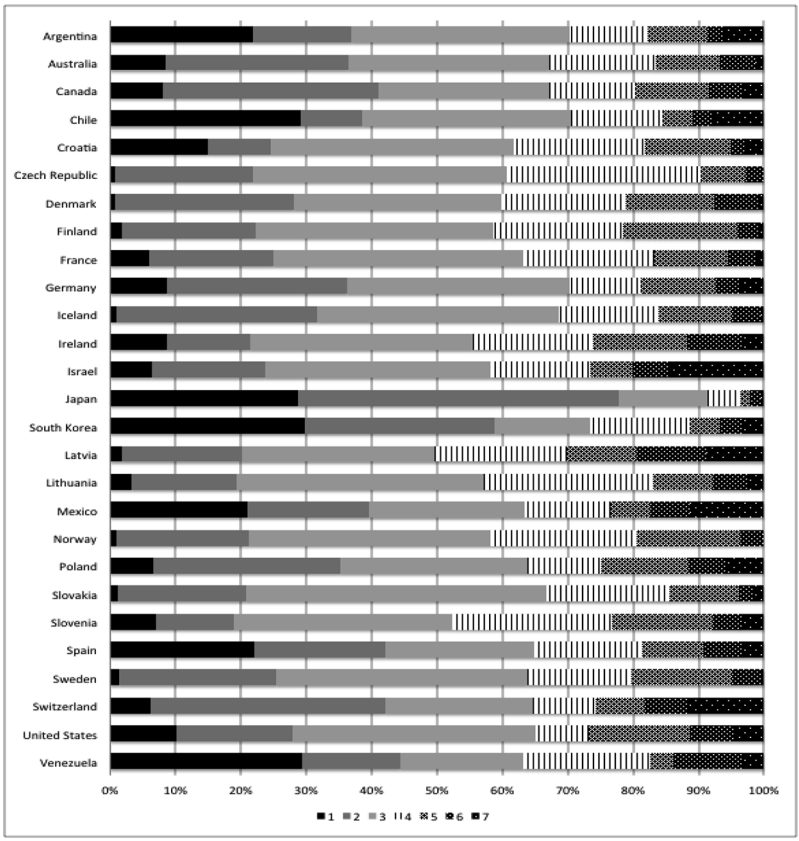

Figure 1. Women's Economic Contribution

Table 3 shows the main variables clustered by country. Women's lifestyle preferences are focused around the mean, but more women have a home-oriented view in some countries (countries with a preference of less than two points). Paid parental leave is included as paid maternity leave because more women tend to take parental leave compared to men. Public education for preschool children varies among countries. The ratios of East Asian countries are relatively small; on the other hand, Europe's ratios are larger compared to those of other countries. Additionally, Table 4 shows the determinants

Table 3. Main Variables

	Preference	**Paid Maternity Leave**	**Public Education for Preschool Children**
Source	ISSP (2012)	OECD Family Database (2012)	World Bank Education Statistics (2012)*a
Argentina	1,50	18*b	68,02
Australia	2,62	18	22,04
Canada	2,73	52	93,39
Chile	1,55	30*c	33,53
Croatia	1,80	56*c	85,77
Czech Republic	1,70	110	97,89
Denmark	3,01	50	80,73
Finland	2,42	159	91,52
France	2,45	42	87,16
Germany	2,96	57	34,93
Iceland	2,81	26	87,74
Ireland	2,65	26	1,91
Israel	1,96	14*c	90,89
Japan	2,30	58	28,68
South Korea	1,92	65	18,89
Latvia	1,47	94*c	94,90
Lithuania	2,06	62*c	99,27
Mexico	1,38	12	86,10
Norway	2,97	87	54,32
Poland	1,92	24	84,28
Slovakia	1,19	164	95,91
Slovenia	2,10	52.1*c	97,14
Spain	2,54	16	68,70
Sweden	2,95	60	82,85
Switzerland	2,16	14	96,16
United States	2,17	0	56,98
Venezuela	1,69	18*b	80,89
Mean	2,27	51,27	71,13
S.D.	1,27	41,02	28,36
Min	0,00	0,00	1,91
Max	4,00	164,00	99,27
N	6449	27	27

a) Enrolment (public / public + private)*100 The year of data is the ones closest to 2012.
b) ECLAC and UNICEF - Regional Office for Latin America and the Caribbean. (2011, July). Newsletter on Progress Towards the Millennium Development Goals from a Child Rights Perspective, Childcare and Parental Leave. Challenges Bulletin, 12,1-12.
c) Data derived from 2014

of women's economic contribution. In Model 1, I examined the determinants of women's economic contribution without controlling for the effect of the dummy variable of females in the labour market. Model 1 indicates that if women have completed higher education, they contribute more economically to the household. Moreover, all characteristics of households show the effect on women's economic contribution. For example, the increase in the number of children and presence of preschool children affect the female economic contribution negatively, which is explained by the difficulty of balancing the caretaker role and work at the same time.

What are the effects of the main variables, namely family policies and women's preferences? Model 1 shows that if the women's lifestyle preference is work-oriented, the economic contribution will rise. Thus, female preference affects their career choice significantly according to their preference (Hypothesis 2 is supported). Furthermore, public childcare for preschool children has a dramatic effect on the economic contribution between the two family-policy variables (=+.709 to intercept), as suggested in Hypothesis 1.2. It shows that the more a given country provides public education for preschool children, the more women will contribute to the income distribution. Nonetheless, unlike the previous study, long maternity leave does not have a negative effect on the economic contribution (Hypothesis 1.1 is not supported).[10]

[10] Because the cross-national dataset mixes long-term and short-term effects, I additionally ran an interaction model between parental leave and the presence of a preschool child. However, I could not find the short-term effect of maternity leave on the economic contribution using the dataset utilised in this analysis.

Table 4. Determinants of Women's Economic Contribution[11]

Individual-level Variable	Model 1			Model 2			Model 3		
Human Capital	Coef.	S.E.		Coef.	S.E.		Coef.	S.E.	
Woman with Higher Education	0,31	0,04	**	0,18	0,04	**	0,31	0,04	**
Woman's Age	0,00	0,00		0,01	0,00	**	0,00	0,00	
Household Features									
Number of Children	-0,06	0,02	**	-0,06	0,02	**	-0,06	0,02	**
Presence of Preschool Child	-0,25	0,05	**	-0,08	0,05	†	-0,25	0,05	**
Household Income	-0,05	0,02	**	-0,12	0,02	**	-0,05	0,02	**
Difference of Age (male-female ≥ 5)	0,11	0,04	**	0,11	0,04	**	0,11	0,04	
Other Female Factors									
Woman in Labour Force				1,16	0,04	**			
Preference	0,05	0,02	**	0,02	0,02		0,07	0,04	†
Intercept	3,21	0,35	**	3,31	0,37	**	3,15	0,37	**
County-level Variable									
Family Policy									
Paid Leave	-0,17	0,11		-0,19	0,12		-0,13	0,13	
Public Education for Preschool Child	0,71	0,21	**	0,21	0,23		0,76	0,25	**
% of Women's in Part-time	0,00	0,01		0,00	0,01		0,00	0,01	
Cross-level									
Cross-level Interaction: Career Preference									
*Paid Leave							-0,02	0,03	
*Public Education for Preschool Child							-0,02	0,05	
n(N countries)				6,449(27)					

†p<.10, *p<.05, **p<.01 (Two-sided test)

However, the effects of lifestyle preferences and public education for preschool children are not supported statistically when the "women in labour market" dummy variable is added. As Model 2 shows, when women work in the labour market, the contribution increases

[11] In order to maintain a plausible sample size, I omitted the two variables used in the previous study, "women more education" and "work-time limits". The former is caused by a lack of information on the partner's education in several countries, and the latter had an indifferent effect on the contribution according to Stier and Mandel (2009).

dramatically (=+1.163); on the other hand, the effects of preferences and public education for preschool children disappear. Therefore, the working condition is a parameter of the economic contribution, which means that both women's preferences and public education for preschool children affect women's choice of whether to work or not, and then the work choices of women increase the economic contribution. In short, the choice to work is partly explained by the provision of public education for preschool children and partly by women's lifestyle preferences. Lastly, Model 3 shows the cross-national interaction effect, which examines how family policies moderate women's career preferences. In line with Hypothesis 3, I expected that family policies would improve the career prospects of women, but in this analysis, neither maternity leave nor public childcare for preschool children had a moderation effect. Therefore, the relationship between lifestyle preferences and policies can barely be found in this analysis.

In sum, both lifestyle preferences and the implementation of family policies, especially public education for preschool children, are determinants of women's economic contribution through participation in the labour market. Moreover, there is a possibility that women's lifestyle preferences are affected by the availability of family policies, but this was not observed in this preliminary analysis. This might be explained by an inverse relationship—that is, the collective career preference of women creates the family policy in each country. Thus, a more detailed analysis is needed in order to clarify the relationship between the implementation of family policies and female lifestyle preferences.

Discussion

Women's economic contribution is mostly explained by whether they participate in the labour market or not. Under what conditions do

women continue to work? First, women consider their career if there are more public facilities for preschool children. Public pre-primary education facilities provide opportunities for women to work rather than remaining at home with their preschool children. Thus, women can decide to continue to work if more public education provision is available for preschool children. This result is relatively consistent with the work of Stier and Mandel (2009), although I take into consideration the East Asian countries, which were represented as countries where women are economically dependent.

Furthermore, women's preferences greatly affect their career choices. According to the descriptive statistics, more than half of women want to work rather than stay home: this is consistent with the preference theory introduced by Hakim (2000), which posits that a majority of women want to take both options—to work in the labour market and do domestic work. However, we should carefully consider the term "gender equality," which is stated mostly as reducing the gap between men and women, since there is a significant ratio of women who prefer to stay at home rather than work in the labour market. Last, higher education has a significant effect on the contribution: women who have a higher education degree have a greater commitment, which suggests that women's qualifications are properly utilised given the increase in income. Considering that female education levels have risen in recent years, the relative contribution gap might become even smaller in the future.

Finally, I would like to mention some limitations of this chapter. First, the main variable, women's economic contribution, had only a seven-point scale, which should be calculated by both partners' wages as previous studies have done.[12] In addition, many respondents were omitted from this analysis because of the variables used. Hence, a

[12] Because of the small number of scales, ICC was quite low regardless of applying multi-level analysis. Thus, I needed to re-analyse with a plausible dataset as the next step.

larger sample could be used in order to show more robust results. Second, there are some important outstanding questions, which, for example, could address how policy shifts or geographical features have an effect on economic contribution. These questions could be studied utilising different methodologies, such as panel data analysis or spatial analysis. Lastly, there is a need to consider the partner's cooperation—for example, the division of household work (Brines 1994; Greenstein 2000), fatheroriented policies (Eydal & Rostgaard 2015) and equivalent determinants. In the main analysis, the household income and age difference are considered, but the demographics of the partner may have strong effects on the woman's relative contribution. This should be considered carefully in future research.[13]

[13] I would like to acknowledge the anonymous reviewers for their useful suggestions. Moreover, the data for this secondary analysis, "The International Social Survey Programme" (ISSP Research Group (2014), Family and Changing Gender Role IV—ISSP 2012), was provided by the GESIS Data Archive in Cologne.

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