

Which policies facilitate the reconciliation between work and family more?

- An international comparative study among seven developed countries -

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1. Introduction

For many developed countries, there had been negative correlations between the fertility rate and the women's employment rate. In the 1990's, we began to observe positive correlations, however. The rise in the female employment rate can decrease the fertility rate partly because the longer duration of a woman's schooling causes the average female age of her first birth to increase and also partly because the increase in the female income level raises the opportunity cost of child rearing. Therefore, the higher educational attainment for women is considered to be one of the most important backgrounds of the decline of the fertility rate. On the other hand, the increase of the female employment rate and the reduced gap between men and women are the signs of the progress of a society, which should be welcomed.

According to the recent trends of their fertility rates, we can separate two distinct sets of developed countries. Some of them are still maintaining their fertility rates exceeding 1.5., although even their figures are lower than the replacement level, i.e., 2.08. The other countries have much lower fertility rates. For example, in Japan, a member of the latter group, the fertility rate has been falling over a long period, and it was merely 1.33 in 2002.

Then, what has brought such a significant difference between these two groups? We examine several potential factors to explain this difference in this study. In the 1990's, the main policy concern shifted from directly abolishing sexual differentials in the labour market to balancing between labour force participations and family responsibilities as well as reconsidering the division of labour between men and women (Tamura 2002). Accordingly, most developed countries have taken some measures to promote the reconciliation between work and family. However, it was also the case that, while the work-family policies functioned well in some countries, they

did not perform as well in others. In a country where the work-family policies did not function or they were not provided sufficiently, the economic and mental burden of having children does not seem to have eased, which made it difficult for this country to achieve a higher fertility rate.

In this study, we especially focus on the opportunity costs of child rearing, i.e., major economic burdens of having children. In developed countries where the average woman's income has increased, interrupting a carrier incurs significant opportunity costs to her. On the other hand, if the surrounding environment is such that she can continue her carrier, the opportunity costs have to be small. We compare the actual values of the opportunity costs for seven major developed countries and discuss the relation between the scales of those opportunity costs and work-family policies implemented in each country.

In the next section, we describe the profiles of the selected countries, showing the birth rates and the economic activity rates for women during the childcare period. We then summarize child-rearing-related policies from the viewpoint of reconciliation support between work and family in section 3, and discuss the impacts of the policies, comparing the scales of the opportunity costs of child-rearing in the following section. Based on the discussions in the proceeding sections, the conditions under which the work-family policies can function well are examined in the concluding section.

2. The birth rates and economic activity rates for women during the childcare period

Under the circumstances where work is not quite compatible with family, there exists a trade-off between keeping

one's job and having a child. Due to this trade-off, leaving the labour market implies a significant income loss, and giving up a child leads to a decline of the fertility rate. In some countries, however, the income losses are considered relatively small because the work-family policies help mothers to return to their jobs so that they can maintain their jobs without long career interruptions. Also, in such countries, the fertility rate is stable or even increasing.¹ We first take a look at the fertility rate of each country.

For almost all the developed countries, the total fertility rate (TFR) is currently below the replacement rate and between 1 and 2. However, while some of them have the TFRs rather close to 2, the TFRs of other countries are even close to 1 and they are labelled as "The lowest-low fertility" countries. Table 1 shows the TFRs of the developed countries selected for this comparative study. According to Table 1, the TFRs are not especially high among the countries where gender equality policy and work-family policy are regarded as well-developed, such as in France and Sweden. The TFR is the highest in the United States, where the government role is not very significant, and the United Kingdom has a higher TFR than Sweden, in spite of its under-developed childcare services. It should be noted, however, that the high birth rates of teenagers contribute more to the high levels of the TFRs in the U.S. and the U.K. Table 2 presents the live birth rates (LBRs) of women during the childcare period (between the ages of 25 and 34). Unlike Table 1, the figures are relatively high for the countries with well-developed work-family policy. The relationship between the U.S. and France is reversed in Table 2, in a similar manner to the relationship between Sweden and the U.K. The high LBR of women aged 30-34 in the Netherlands is quite remarkable. Japan is known as the country with one of the lowest-low fertility countries. In fact, it has the second highest LBR for women aged 30-34 although it is much lower than the first highest LBR of the Netherlands. Germany has the lowest rate not only for the TFR but also for the LBR of the women during the childcare period.

The economic activity rates of women during the childcare period are presented in Figure 1. We can see that the activity rate increases along with the educational level of each country. This fact is consistent with the human capital theory which says that a wage rate rises with a higher educational qualification, which in turn provides an incentive for increasing a labour force. It should also be noted that the activity rate for university graduates in Japan is significantly lower than those in the other coun-

tries. Except for Japan, the differences among the activity rates for university graduates across countries are not so large. On the other hand, the activity rate varies widely for the lowly educated women. While the activity rates are relatively high in Sweden and France where work-family policies are conducted by the governmental initiative, the figures are considerably lower in the U.S. and the Netherlands where these policies are implemented mainly by the private initiatives.

Then, why do these two initiatives have quite different impacts? In general, it is costly for companies to provide work-family policies. Therefore, the providers are limited only to large companies and public offices, where highly educated women can find jobs more easily compared to the other types of women (OECD 2001, p. 148). In such a case, the work-family policies exclusively benefit highly educated women. On the other hand, if work-family policies are provided by the government, it is expected that lowly educated women can also benefit from work-family policies as well as highly educated women.

Next, we turn to the question why the economic activity rate for the highly educated women in Japan is remarkably low. The curve of the age-specific activity rate for Japanese women is widely known to be "M-shaped". However, the curve for female university graduates does not exhibit such a trend. The activity rate for these women is higher than that of high school graduates in their twenties. The rate drops during the child birth and hardly goes up ever after. That is because it is very difficult for mothers to continue to work as full-time workers in Japan due to the shortage in childcare services for infants. Also, there is a general view that only a small fraction of women can receive help from their parents, especially from their mothers, to be able to continue their careers. Many women without any kind of help have long career interruptions and, as a result, they can hardly find the offers of jobs that require specific skills and provide good remunerations that they desire, when they seek to resume working. This makes the income difference between a husband and a wife more significant, which seems to accelerate the division of labour between spouses. Such a tendency is stronger for highly educated couples (Nishimura 2002).

As we have seen above, Sweden and France, where the governmental roles are quite significant, have common characteristics such as high birth rates for women during the childcare period and high female activity rates as a whole. In the countries where the role of private sectors is more important, such as the U.S., the Netherlands and Germany, there is considerable differences between

the activity rates, depending on the women's educational qualifications, and it is quite low for lowly educated women. In Japan, where the work-family policies are not vigorously implemented either by the government or by the private sectors, both the birth rate for women aged 25-29 and the female activity rate are small. Hence, the differences in the initiatives are expected to lead to the significantly diverse impacts of the policy measures.

3. Work-family policies of seven developed countries

We summarize in this section the characteristics of the work-family policies of each country, based on the argument of the previous section. Our focus is upon the differences in political initiatives in subsection 3.1, and in the designs of policies in subsection 3.2.

3.1. Differences in political initiatives

OECD (2001) provides a comprehensive survey on work-family policies for eighteen countries and conducts a cross-country comparisons.² From the OECD's summary, we pick up the seven countries as in Table 3. In Table 3, each indicator is scaled so that these figures have mean zero and standard deviation unity, in order to equalise the degrees of variations and measure them on a common scale (OECD 2001, p. 152). As OECD points out, there is a high correlation between the childcare coverage for children under three years old and the employment rate of women aged 30-34. Childcare service for infants is therefore regarded as one of the most important policies for supporting the conciliation between work and family.

Given that the second and the third columns of Table 3 are policies implemented by the governmental initiative and the fourth and the fifth columns are related to the private initiative, we can observe that the first two policies are relatively significant in Sweden and France and the last two are more important in the U.S., the Netherlands, Germany and the U.K. It should be noted that the total maternity and childcare leave is considerably long in Germany. All the indicators for Japan from the second to the fifth column are below the averages. This implies that neither public nor private policies are very significant in Germany. As for the child-care coverage for the children under 3 years old, Sweden and France are generally well-known as advanced countries, especially as far as the publicly subsidized services are concerned. However, the first column of Table 3 shows the high rates for

the U.S. and the U.K., as well. This is because private services are also included in Table 3.

Table 3 also shows the correlations between the indicators of each policy and the economic activity rate for women during the child-care period. Additionally, we can obtain some interesting findings as in Table 4. While the policies implemented by the governmental initiative (in the second and the third columns) have relatively strong positive correlations with the activity rate of lowly educated women, the policies provided by private initiative (in the fourth and the fifth column) have stronger positive correlations with the activity rate of highly educated women. These observations confirm our argument in the previous section, that is, the policies of the private initiative have more impacts on highly educated women and the policies of the public initiative have more impacts on lowly educated women. Since the child-care coverage includes expensive private services, it has more positive impacts on highly educated women than on lowly educated women.

In this section, we have discussed the work-family policies in relation to the activity rate of women during child-care period, but we did not relate them to the fertility rate of woman. Hence, we still cannot conclude if these policies, as a whole, perform well or not.³

3.2. Differences in design of policies

In this subsection we observe the work-family policies from another viewpoint, i.e., linkages between policies. Even if a policy itself might be worthwhile to conduct, it may not perform as well as expected when the policy is not linked together to other related policies. As for Japan, several studies have evaluated the effect of the parental leave on the mother's employment rate and most of them find some positive impact. However, this effect may be significantly different if we consider how the policy was designed.

We first summarize the work-family policy of each country, emphasizing on the design of the parental leave arrangement, which would be one of the most important policies for mothers to continue their careers. Table 5 shows the details of the parental leave policies for different countries⁴. In this table, we can notice that the contents of the policies are considerably different among countries. Firstly, the duration of the leave is short in the U.S., the Netherlands and the U.K., and the leaves are unpaid in these three countries. When the leave is unpaid, it is generally hard for low-income employees to take up the leave. The low economic activity rate for lowly edu-

Table 1. Total fertility rates

Japan (2000)	US (2000)	France (1999)	Germany (1999)	Netherlands (1999)	Sweden (1999)	UK (1999)
1.36	2.13	1.77	1.36	1.65	1.50	1.68

Sources: Latest Demographic Statistics, National Institute of Population and Social Security Research

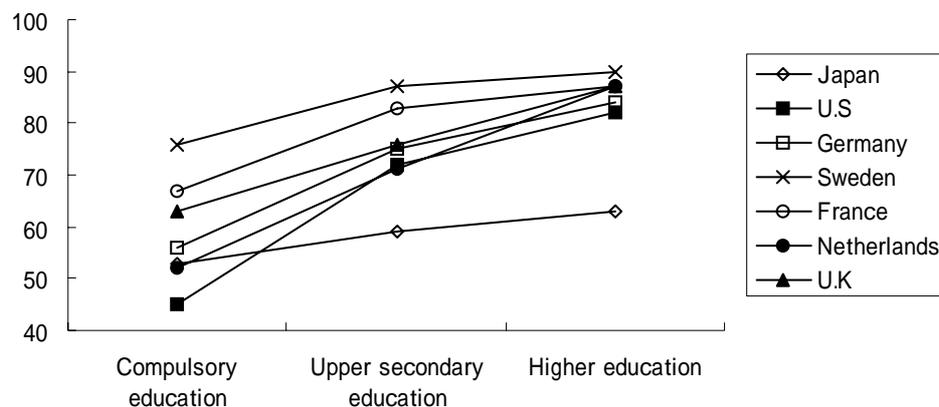
Table 2. Age-Specific Fertility rates

	Japan (2000)	U.S (1998)	France (1996)	Germany (1997)	Netherlands (1998)	Sweden (1997)	U.K (1997)
25-29	99.5	116.0	127.3	88.3	108.7	109.8	104.5
30-34	93.5	87.5	90.7	76.1	123.7	89.8	88.8

Rates are defined as the number of live births occurring to 1,000 women in each age group.

Sources: LIVE BIRTHS Special Report of Vital Statistics, Statistics and Information Department Minister's Secretariat, Ministry of Health, Labour and Welfare.

Figure 1. Economic Activity Rates for Women aged 25-39



Data based on women aged 25-64 was used only for U.S.

Sources: Employment status survey, 1997 for Japan, OECD "Education at a Glance", 1996 for U.S. and Eurostat, 1997 for others.

cated women in the U.S. and in the Netherlands (shown in Figure 1) might reflect such inconveniences of their policies. In Japan and the U.S., the qualified parents are substantially limited to employees who have long tenures and are working under good conditions. The leaves in these countries seem to be designed mainly for highly educated parents. In addition, in these countries, the leave system is not very flexible. For example, in Japan a taker has to use his/her leave without an intermission. Such an inflexible system prevents highly educated workers, whose amount of work tends to fluctuate, from taking their leaves. In contrast, the duration is quite long and the payment during the leave is also generous in France, Sweden and Germany. Moreover, as all the working parents are eligible, low-income parents can take a leave quite easily. However, it should also be noted that a long leave is not necessarily desirable, as we will discuss below. It would be more important for a parent's continuation of his/her career whether he/she can return his/her workplace easily. For this purpose, accessible childcare services must be sufficiently provided in the market. Hence, it is quite important to provide enough childcare services especially at the end of a leave.

The linkages between the parental leave policies and the childcare policies are well designed in Sweden, France and Germany. In Sweden, the service for children less than one year old was very limited because they considered that it was desirable that children should be cared by their parents until the age of one. The Swedish Ministry of Education believed that there was no problem on this issue since parents were guaranteed the high levels of benefits associated with their salaries during their parental leaves (one and a half years), according to JIL (2000). Whether this opinion might be reasonable or not, it is clear that the Swedish government designed its policies intentionally so that parents could obtain accesses to childcare services after their parental leaves. In France, a child begins attending a school at the age of three.⁵ Therefore, it seems that the parental leave arrangement (its maximum length is three years) is closely linked with the childcare policies in terms of their durations. The German parental leave (three years) is also set up in consideration of the fact that a child can enter a kindergarten when he or she becomes three years old (JIL 2000).

In the U.S. and the U.K., where the private childcare services are relatively well-developed, it may not take much time for parents to find childcare services after their parental leaves. However, qualified private ser-

vices are generally quite expensive and they are hardly accessible for low-income parents. In Japan, the length of the statutory parental leave is one year, which does not seem short, but the take-up rate is not very high even among women (64.0% in 2002).⁶ Such a low take-up rate may be attributed to the institutional inconsistency between the parental leave system and the childcare service system in Japan. They are not considered well-linked because it is not until immediately before the end of parental leave that a child can register at a day-care centre, and, as a consequence, parents tend to have difficulties in finding places where they can leave their children.

In this sense, in the countries where the role of the government is important such as Sweden and France, the policies relevant to the work-family support are well mixed.

4. Facility of reconciliation between work and family: based on a comparison of the opportunity cost of child rearing (OCCR)

We have summarized the work-family policies from the two different viewpoints in the previous section, but we did not discuss how well they have performed. In order to assess the possibilities that a parent can continue his/her career and also have a child at the same time, we examine the relation between the scale of the opportunity cost of child rearing (OCCR) and the birth rate. The OCCR indicates how much one's career is sacrificed by having a child. Such a sacrifice is more or less incurred in every developed country, but the scale is quite different among them. If the scale of the OCCR is small and also the birth rate during the child-care period is relatively high, it can be considered that parents can more easily maintain the balance between a family life and a professional life.

The OCCR is defined as an income loss due to having to reduce one's working hours for rearing a child. The opportunity cost can be measured as the difference in lifetime incomes between a woman with children and a woman without children. Therefore, the scale of the OCCR implies how easily a mother can cope with both her paid work and rearing her children in a given country.⁷ The income loss will be maximised when her working hour is equal to zero, that is, when a mother's career is completely interrupted. If such a career interruption drags on, it depreciates the human capital and results in the fall in her wage rate. In contrast with the study by OECD (2001), which focused on the employment rate for rearing a child,

Table 3. Summary indicators of work/family reconciliation policies and relevant flexible work arrangements

	Child-Care coverage for under-3s	Maternity pay entitlement	Total maternity/child-care leave	Voluntary family leave in firms	Flexi-time working	Voluntary part-time working	Employment rate for women aged 30-34
United States	1.6	-1.4	-1.6	-0.8	2.0	-0.5	72.0
Sweden	1.3	2.3	0.0	-1.9	0.6	0.2	76.7
France	0.3	0.0	1.6	0.2	-0.2	-0.3	65.6
Netherlands	-0.1	0.0	-0.4	0.3	1.0	2.5	71.5
Germany	-0.8	-0.1	1.6	1.5	0.7	0.8	68.6
United Kingdom	0.5	-0.7	-0.9	-0.2	0.5	1.1	69.4
Japan	-0.6	-0.7	-0.6	-2.1	-0.9	0.3	52.6

Source: OECD (2001), p.152

Table 4. Correlations between the economic activity rate for women aged 25-39 and the indicators in Table 3

	Child-Care coverage for under-3s	Maternity pay entitlement	Total maternity/child-care leave	Voluntary family leave in firms	Flexi-time working	Voluntary part-time working
Compulsory education	0.2	0.82	0.43	-0.18	-0.36	-0.14
Upper secondary education	0.5	0.67	0.42	0.18	0.23	-0.2
Higher education	0.44	0.45	0.24	0.45	0.53	0.19

Table 5. Parental leave policies in seven developed countries

	Duration(in weeks)	Qualified parent	Flexibility in take-up	Payment rate
United States	12	limited*	×	Unpaid
Sweden	78	Each parent		80% of prior earning
France	156	All families (transferable between parents)	×	Unpaid for first child Paid at flat rate from second child
Netherlands	13	Each parent (not transferable between parents)		Unpaid
Germany	156	All families (transferable between parents)		Paid at flat rate from second child (There is an upper
United Kingdom	13	Each parent		Unpaid
Japan	52	Very limited** (one of the parents)	×	40% of prior earning

* workers those who work in firms of at least 50 employees and have worked at least 1,250 hours in the prior year

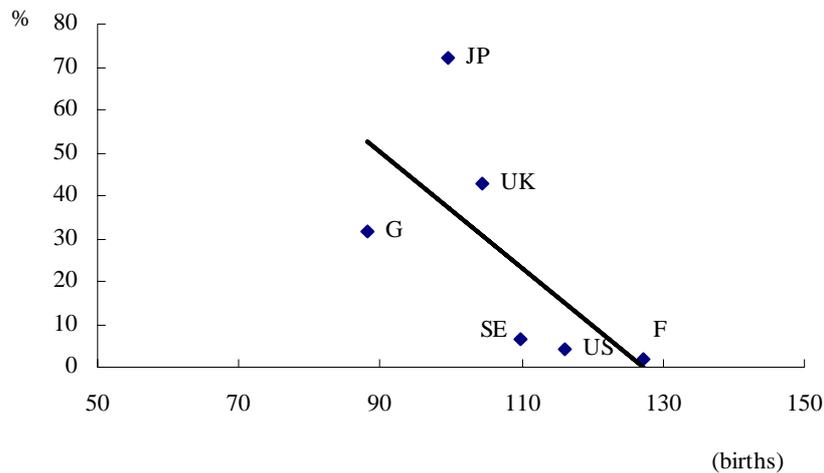
** workers those who has worked for the company longer than one year on a non-fixed term contract

we consider not only her employment status but also her career pattern that influences her wage rate, by comparing the scales of the OCCR. This is because, even if the mother's employment rate is high, the work-family policy of a country should not be regarded as successful if mothers are locked into badly-paid occupations or employment statuses.

The country with a high OCCR (opportunity cost of child-rearing) is expected to have a low fertility rate because an unmarried woman tends to delay her marriage or having a child in such a country. It relates to the fact that the rate of unmarried women has been increasing in many developed countries. Married women would also give up having an additional child if their OCCR becomes

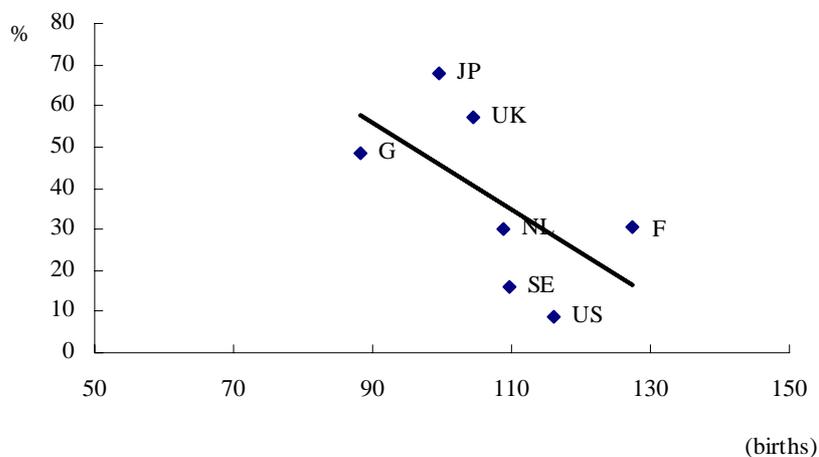
more significant. In choosing the number of their children, a couple will certainly be affected by the direct costs of having children, such as educational expenses, as well as by the indirect costs, i.e., the OCCR.⁸ However, the direct and indirect costs of children are interrelated in developed countries where the social statuses of women and their income levels have been raised to a certain extent. These countries seem to go through the following two phases. In the first phase when public childcare service is not well-developed, both the direct and indirect costs of children are significant because working and rearing a child is in a trade-off relationship. In the second phase, childcare services are developed and the fees (a part of direct costs) are reduced by governmental subsi-

Figure 2.1. Rates of the OCCR and Live birth rates* (Case of the first child)



Correlation coefficient = -0.658

Figure 2.2. Rates of the OCCR and Live birth rates (Case of the second child)



Correlation coefficient = -0.595

Figure 2.1 and 2.2 are created by the author, using the results of Bustreel and Nishimura (2003), Calhoun and Espenshade (1988), Joshi and Davies (1992a), and Dankmeyer (1996).

Table 6.1. Factors of Opportunity Costs* (Case of one child)

	Japan	Germany	U.K.	Sweden	France	U.S.
Due to lost years	31.0	27.5	27.3	37.8	0.0	0.0
Due to lost hours	69.0	39.4	39.2	34.0	100.0	100.0
Due to lower pay		33.0	28.4	28.1	0.0	0.0

Table 6.2. Factors of Opportunity Costs (Case of the second child)

	Japan	Germany	U.K.	Sweden	France	U.S.
Due to lost years	39.8	60.1	32.1	30.7	22.0	0.0
Due to lost hours	60.2	17.1	33.3	45.7	31.0	100.0
Due to lower pay		22.4	34.5	23.6	47.0	0.0

The calculation for the Netherlands is not possible because of the lack of information.

dies, which facilitates mothers' going back to the labour market. Consequently, the OCCR (indirect cost) will become smaller. Therefore, the discussion of the OCCR must be the one which includes the direct costs of children implicitly.

Figure 2 shows the relation between the OCCR and the birth rate of women aged 25-29 for each country.⁹ The OCCR is expressed as a percentage of lifetime income of a woman with children, with respect to that of a woman without children. The birth rates are the same as the figures in Table 2. The OCCR has a fairly high negative correlation of nearly - 0.7 with the birth rate of the first child. The correlation between the OCCR and the birth rate of the second child is also negative, but its absolute value is somewhat smaller than the former. Japan, the U.K. and Germany have relatively low birth rates and larger opportunity costs, whereas the U.S., France and Sweden have relatively high birth rates and smaller opportunity costs. The Netherlands, for which only the second case is available, finds itself between these two groups. We can consider that the former group is in the first phase where childcare services are not well-developed and the latter group is in the second phase with well-developed childcare services. It should be noted in Figure 2.1 that more than 50 % of the OCCR for Japan is attributed to the first child. This figure is much greater than those of the other countries of the same group. It means that in Japan a parent has a significant income loss even with one child.

We now discuss the factors causing the OCCR so

that we can find differences between the countries with large OCCR and those with small OCCR. The factors can be decomposed into three as in Table 6. The first factor is the income loss during the interruption of a career. The second is the income loss due to the reduction of working hours. And, the third is a lower wage rate after a career interruption. In Table 6, we can see the tendency that the influence of a career interruption is not very significant in the cases where the OCCR are small although this tendency is not so clear. Bustreel and Nishimura (2003) estimate the OCCR for France and Japan and conclude that avoiding a long career interruption is the best way to keep the OCCR to their minimum values.

As we have seen above, there is a strong negative correlation between the birth rates and the OCCR among developed countries. We have also seen that it was not so difficult for mothers to have balanced work-family combinations in some developed countries and yet it was still difficult in others. Given that an important factor of the OCCR is the length of the career interruption, we can conclude that the desirable work-family policy must be designed so that a career interruption would not be prolonged.

5. Conclusion

We have discussed what sorts of policies can facilitate the reconciliation between work and family better. As we saw in section 3, when the policies are implemented by the government, it can have wide-ranging impacts that

encompass low-income parents and they are also designed so that one policy can be linked up with other relevant policies. These facts are reflected in the scale of the OCCR to a certain extent. We can therefore conclude that the countries which provide the work-family policies under the governmental initiatives have smaller OCCR and relatively high birth rates. In these countries, the work-family policies perform better than in the countries where the work-family policies are provided mainly by private sectors. In Japan, where neither public nor private sectors are very helpful with working parents, mothers incur large losses in their lifetime incomes and decide to have fewer children.

The U.S. would be an only exception with a smaller scale of the OCCR in spite of lesser roles of the government. This could be related to their large supplies of childcare services provided by the private sectors. As mentioned above, childcare services are generally expensive, but the public sector supports the children from low-income families through tax deductions¹⁰, and charitable organizations also play significant supplementary roles in the U.S. Thus, the scales of public services are relatively small and limited to low-income families. On the other hand, high-income families have greater possibilities of benefiting from their workplaces.¹¹ Consequently, the work-family policies in the U.S., i.e., the public supports for low-income families and the private supports for high-income families, can be considered well-performing. On the other hand, the expensive fees of childcare services and their low qualities are still major problems for the U.S., which requires further investigations (Blau 2003).

In subsection 3.2, we evaluated the linkages between the parental leave policies and the policies of childcare services, and found that they have been well-organized in Sweden, France and Germany. However, we also observed that there are considerable income losses for French women with two children as well as for German Women. This observation, which seems rather contradicting, could be due to the long duration of parental leaves (three years). As we discussed in section 4, a long career interruption raises a serious income loss, that is, the generosity of a policy may have an adverse effect on the mothers' careers. This career interruption of the three years' duration has become an obstacle for mothers in their searches for new jobs after the parental leaves. In effect, the employment rate of French mothers with two children has declined after this legal change in 1994.¹²

In conclusion, the work-family policies implemented by the governmental initiatives are more effective than those by the private initiatives. However, the generous measures, such as too long a parental leave, are not desirable from the viewpoint of parents' career formations. It would be more important to offer enough childcare services at the ends of parental leaves, especially supporting low-income parents financially. In Japan, the supports for the reconciliation between work-family are generally inactive. In consequence, even the economic activity rate of highly educated women is low and the total fertility rate has been declining. The Japanese government has taken some measures to improve its fertility rate, mainly by expanding slightly the child allowances and setting a goal for the take up rate of the parental leaves. However, it does not seem to have given sufficient consideration to how these policies would interact with one another and what would be the total outcome. Unless a measure is not designed within the framework of total work-family policies, Japan will not be able to leave the group of the lowest-low fertility countries.

Notes

¹ Certainly, it is not only the facility of reconciliation between work and family that affects the fertility rate. There will also be several biological and sociological factors. An important one of these would be a society's tolerance toward out-of-wedlock births. In Japan, for example, the rate of out-of-wedlock birth is fairly low; the decision of having a baby is associated strongly with that of marriage, which somewhat accounts for the low fertility of this country. The possibility of keeping a balance between work and family is, however, a common problem for all the developed countries. The opportunity cost of child rearing due to the impossibility of keeping such a balance exists more or less in any developed country. In other words, the opportunity cost of child rearing is a common factor of the low fertility rates. Therefore, we focus on discussing the possibility of reconciliation between work and family life.

² This survey includes policies that were implemented not only by public sectors but also by private sectors.

³ It might also be possible to discuss the impact of the policies on fertility with the data concerned with the birth rates, depending on different educational qualifications, but such data was not available.

⁴ The U.S. does not have the policy named "Parental leave".

Their "Family leave" includes not only the leave for childcare but also the leave for nursing.

⁵ Public schools, where almost all of the children with the age of three attend, are basically free of charge.

⁶ This is the percentage of women who took up parental leaves in the total amount of women who gave births in 2002.

⁷ Of course, the income gap between a woman with children and a woman without children cannot be completely explained by the presence of children, because the preferences for work and leisure might be significantly different between them.

⁸ Becker and Lewis (1999) The data source for the OCCR is Anne Bustreel and Tomo Nishimura (2003) for France and Japan, Joshi and Davies (1992a) for the U.K., Germany and Sweden, Calhoun and Espenshade (1988) for the U.S., and Dankmayer (1996) for the Netherlands, respectively. Although these studies share a common objective, the aggregation would not provide us with a precise comparison because of their different methods of estimation and different years of data used. There are two notable differences among these studies. Firstly, while Calhoun and Espenshade (1988) estimates the average OCCR using a U.S. panel data, others estimate the OCCR of a representative woman profiled by a simulation using a cross-section data. For the method of a simulation, consult Joshi (1990). Secondly, the ways to treat a part-time employment differ among these studies. The penalty of a part-time employment is considered only for the U.K., France and Japan. On this particular point, the OCCR should be underestimated for Germany where there is a large wage gap between the full-time and the part-time employments. (Joshi and Davies 1992b, p.573) Although there are there significant differences among these studies, we believe it is still worthwhile to compare even the rough estimates of the OCCR of these countries. All these estimations are the OCCR for women with upper secondary education.

¹⁰ It should be noted that there is an upper limit in the tax deduction system. Generally, the tax deduction is considered more favourable for high-income families, but the tax deduction is especially targeted toward low-income families in the U.S.

¹¹ As mentioned above, highly educated people have greater opportunities to work at large companies which can afford to support parents.

¹² In 1995, nearly one-third of mothers with two children

received the APE (Allocation Parentale d'éducation which is childcare allowance during parental leave), and only 57% of them returned to the labour market after their parental leaves. The rate of the return was a little more than 80% before they started receiving the APE (Afsa 1999, and Fagnani 2003). Thus, this enlargement of the APE resulted in the fall of the lifetime incomes of French mothers with two children. The gap in the OCCR between mothers with one child and mothers with two children was also more significant in France, compared with the U.S. or Sweden (see Figure 2).

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