Women's Employment around Birth of the First Child in Britain, Germany, The Netherlands, Sweden and Japan

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ABSTRACT

This Paper analyses the effect of family policies on mother's employment around the birth of the first child in the 1980s and the 1990s. In order to examine the policy effect, I present more detail on and compare family policies in Britain, Germany, The Netherlands, Sweden and Japan as these countries provide us with policies that significantly differ in extent and thus (potential) effect. Of these five countries, only Sweden has had equal roles for fathers and mothers as the prime guiding principle for its family policies since the 1970s. More recent policy changes have moved Britain, Germany, The Netherlands and Japan in this direction, but the emphasis differed across these countries. The aim of this Paper is to evaluate the effect of specifically designed family policies on employment of mothers around their first childbirth.

I use household panel data sets from Britain (BHPS, 1991-1998), Germany (GSOEP, 1984-1998), The Netherlands (OSA, 1985-1998), Sweden (HUS, 1984-1998) and Japan (JPSC, 1993-1997). First, I graphically illustrate monthly employment status around childbirth of women who gave birth to the first child in the 1980s and 1990s (yearly employment status is analysed for Japan). Then, I proceed by estimating multinomial logit models for the employment choice for the five years after the first childbirth. I distinguish between the following three choices: full-time employment, part-time employment and not being employed. The results of the econometric analyses are in line with the (actual) development in the 1980s and the 1990s of the policy environment in each of these five countries. As such, estimation results lend support to the hypothesis that specifically designed family policies succeed in affecting decisions on work of first-time mothers.

NON-TECHNICAL SUMMARY

Over the last three decades, we have witnessed a decline in fertility and an increase in women's employment rate in most industrialised countries. A negative correlation between these two indicators was also observed in cross-country comparisons among the advanced countries. However, recent studies point out that this negative correlation has grown weaker since 1980 and even turned positive in the 1990s (for instance, see Ahn and Mira, 2002; Esping-Andersen, 2001; Bernhardt, 1993). One of the key factors to explain this positive correlation is the availability of affordable child-care services and other public policies designed to accommodate the needs of families with children.

This Paper focuses on the effect of family policies on mother's employment following the birth of the first child in the 1980s and the 1990s. Before examining the policy effect, I present more detail on family policies in Britain, Germany, The Netherlands, Sweden and Japan. The policies in these countries are compared as they significantly differ in extent and thus effect. Of these five countries, only Sweden has had equal roles for fathers and mothers as the prime guiding principle for its family policies since the 1970s. More recent policy changes have moved Britain, Germany, The Netherlands and Japan in this direction, albeit that the emphasis differed across these countries. The aim of this Paper thus consists in evaluating the effect of specifically designed family policies on employment of mothers around first childbirth.

I use household panel data from five countries. For Britain I use the British Household Panel Survey (BHPS) (see Taylor, 1999; Halpin, 1997); for West Germany, the German Socio-Economic Panel (GSOEP) (see Wagner, Schupp and Rendtel, 1991; Haisken-De New and Frick, 1998); for The Netherlands, the Organisatie voor Strategisch Arbeidsmarktonderzoek (OSA) (Allaart et al., 1987); for Sweden, the Hushallens ekonomiska levnadsforhallanden (HUS) (Flood, Klevmarken, and Olovsson, 1993; Klevmarken and Olovsson, 1993) and for Japan, the Japanese Panel Survey of Consumers (JPSC) (Institute for Research on Household Economics in Japan).

The empirical part of the paper starts by a graphical appraisal of the monthly employment status around childbirth of women who gave birth to the first child in the 1980s and 1990s. I also present summary statistics in order to assess the main characteristics for each of the countries under investigation. Subsequently, I estimate multinomial logit models on the employment choice for the five years after the first childbirth. I distinguish between the following three employment choices: full-time employment, part-time employment and not being employed. The results of the econometric analyses are in line with the (actual) development in the 1980s and the 1990s of the policy environment in each of these five countries. Thus, results suggest that family policies effectively succeed in influencing the employment choice of first-time mothers. It then goes without saying that policy frameworks that aim at facilitating the combination of working life and motherhood can serve as a means in combating low fertility.

1. Introduction

Over the last three decades, we have witnessed a decline in fertility and an increase in women's employment rate in most industrialised countries. A negative correlation between these two indicators was also observed in cross-country comparisons among the advanced countries. However, recent studies point out that this negative correlation has grown weaker since 1980 and even turned positive in the 1990s, while different countries are in different stages of development (for instance, see Ahn and Mira, 2002; Esping-Andersen, 1999; Bernhardt, 1993). On the one hand, Scandinavian and Anglo-Saxon countries have relatively high employment and high fertility rates, whereas on the other hand, Southern European countries, some continental European countries and Japan have low employment and low fertility rates. One of the key factors to explain this positive correlation is the availability of affordable child-care services and other public policies designed to accommodate families.

This Paper focuses on the effect of family policies on mother's employment around the birth of the first child in the 1980s and the 1990s. In order to examine the policy effect, I present more detail on and compare family policies in Britain, Germany, The Netherlands, Sweden and Japan as these countries provide us with policies that significantly differ in extent and thus effect. Of these five countries, only Sweden has had equal roles for fathers and mothers as the prime guiding principle for its family policies since the 1970s. More recent policy changes have moved Britain, Germany, The Netherlands and Japan in this direction, but the emphasis differed across these countries. The aim of this Paper thus consists in evaluating the effect of specifically designed family policies on employment of mothers around their first birth.

Previous work (Gustafsson et al., 1996; Wetzels, 2001; Gustafsson, Wetzels and Kenjoh, 2002; Gustafsson, Kenjoh and Wetzels, 2002a) studied the length of the period between the birth of the first child and the first labour market transition in Britain, Germany, The Netherlands and Sweden. Further, Gustafsson, Kenjoh and Wetzels (2002b) analysed first-time mother's labour force transitions between the following three labour force statuses: employed full-time, employed part-time and not employed.

This paper extends extant work in several directions. First, I augment the number of countries in the sample to include Japanese data. Second, the five-country comparison together with the examination of two periods, notably the 1980s and the 1990s, allows for a straightforward analysis of the effects of family policy on the employment status of first-time mothers. Indeed, the five countries and two time periods provide sufficient variation in family policy status and objectives such that effects of different emphasis can be isolated empirically. Third, I present a graphical illustration of the monthly (yearly for Japan) employment status around childbirth of women who gave birth to the first child in the 1980s and 1990s. Forth, estimation of multinomial logit models on women's employment choice among full-time employment, part-time employment and not at work after first childbirth, using monthly data (yearly data for Japan) is a further novel aspect of the paper.

The results of the econometric analyses are in line with the (actual) development in the 1980s and the 1990s of the policy environment in each of these five countries and support the notion that modern family policies go in hand with a stronger commitment to paid work among mothers. Adequate design of family policies aiming at facilitating the combination of motherhood and paid employment thus prove to be effective means in improving the labour force participation rate of first-time mothers.

I use household panel data from five countries: for Britain I use the British Household Panel Survey (BHPS) (see Taylor, 1999; Halpin, 1997); for West Germany[1], the German Socio-Economic Panel (GSOEP) (see Wagner, Schupp and Rendtel, 1991; Haisken-De New and Frick, 1998); for The Netherlands, the Organisatie voor Strategisch Arbeidsmarktonderzoek (OSA) (see Allaart et al., 1987); for Sweden, the Hushallens ekonomiska levnadsforhallanden (HUS) (see Flood, Klevmarken and Olovsson, 1997) and for Japan, the Japanese Panel Survey of Consumers (JPSC) (The Institute for Research on Household Economics in Japan).

The outline of this Paper is as follows. Section 2 reviews family policies in the five countries during the 1980s and 1990s. Section 3 describes the data, the construction of the variables and presents summary statistics on women's employment status around first childbirth in the 1980s and 1990s. Section 4 performs multinomial logit analyses of mothers' employment status for the five years after first childbirth, using monthly data (or yearly data for Japan) on employment status. Section 5 presents the conclusions and states some policy implications.

2. Parental Leave, Child Care and Related Public Policies[2]

After childbirth, a woman has to make decisions on whether she remains working at home with her newborn baby, or return to work and if so whether she will work part-time or full-time. These choices depend partly on her ability to find affordable good-quality day care for her child, partly on how much she would earn on her job if at work (net for commuting time and money costs) and partly on her preference for assuming the role of a housewife against that of a combined career and mother role. The outcome of these choices depends, to a large extent, on the institutional and cultural setting with which she is confronted. Public policies can create different (economic) incentives for this choice. This section reviews public policies in Britain, Germany, The Netherlands, Sweden and Japan from the point of view of the feasibility of combining motherhood and paid work. In the 1950s, mothers in all five countries were primarily housewives and fathers primarily breadwinners, and public policies were organised around the 'single male breadwinner' principle[3] (Goldin, 1990; Pott-Buter, 1993; Gustafsson, 1994; Sainsbury, 1994, 1996; Wetzels, 2001; Kenjoh, 2003a).

Incomes were jointly taxed, there were allowances for dependent wives and children and in most countries women derived pension rights and health insurance cover from their husband's entitlements[4]. The rights were not symmetrical. The earnings of married women

[1] For West Germany, I use Sample A of the GSOEP data, which solely includes Germans living in the former West Germany.

[2] The policy review for the four European countries in this section is based on section 2 in Gustafsson, Kenjoh and Wetzels (2002b) and that for Japan is based on Kenjoh (2003a).

[3] The female labour force participation rate in Japan was 54.6 percent in 1953 (women aged 15 years and over; own computation based on Ministry of Labour of Japan (2000), Japanese figures below are based on the same source). This figure is perhaps surprisingly high compared to both the Japanese figure for 2000 of 49.3 percent as well as figures in Western countries in 1950, which were, for example, 19.5 percent in The Netherlands, 36.3 percent in the UK, 33.0 percent in the US and 35.2 percent in Sweden (OECD, 1988). However, this high rate in Japan can be explained by the fact that a large proportion of women in those days was working in agriculture, in family businesses as family workers or as self-employed workers. Indeed, the proportion of employees in the total number of female employment was only 29.5 percent in 1953. In contrast, this proportion reached 81.4 percent in 2000.

[4] Ever since the establishment of the British National Health Service in 1948, all citizens have had a right to free medical care at the point of delivery irrespective of labour market status.

were regarded as marginal family income and added to the (male) breadwinner's earnings for taxation purposes. Women had no individual unemployment insurance if their husbands were employed, since benefits were computed on family income. Many of these negative incentives for women to enter the job market have been changed, but the changes have occurred at different paces in the five countries under investigation here (Wetzels, 2001; Kenjoh, 2003a).

Only Sweden has had equal roles for men and women as the guiding principle for policy reform since 1968 (see Gustafsson, 1984). The ideology of the male breadwinner has remained in place much longer in the other countries, but recent policy changes have brought their institutional setting closer to that of Sweden.

Statutory protection for mothers and children in Germany forbids employers to put women to work until eight weeks after delivery, while the same principle applies in The Netherlands six weeks before and eight weeks after delivery. For individual women, the length of the statutory maternity leave (that is, the period during which women have a right to return to their jobs) and the level of maternity benefits are important factors in their decision on when to return to work. The European Union has ruled that statutory maternity leave cannot be less than 16 weeks. Women in the European Union thus have the right to return to their jobs after 16 weeks. In Japan, the statutory maternity leave period extends from six weeks before until eight weeks after childbirth.

There are two institutional arrangements that are crucial in determining whether mothers will stay at home with their children during the period of statutory maternity leave, whether they return to work before this period ends, or whether they not even return to work at all when the statutory maternity leave expires. The first is the availability of affordable, good-quality child care. The second is whether she can afford to stay at home as a full-time mother. In Sweden, the period of statutory maternity leave has been 18 months since 1974 and in Germany, it was extended from 10 months in 1986 to three years in 1993[5]. In The Netherlands, it is not longer than the 16 weeks required by European legislation. Since the late 1990s, British mothers are entitled to 40 weeks' maternity leave provided they have been working with the same employer for one year before the birth of the child (before 1999 the qualification period was two years). Similarly in Japan, parental leave requires an indefinite employment contract and a one-year tenure with the current employer for a mother or father to take leave up to the time when the child reaches the age of one[6]. During the parental leave period, 25 percent of pre-leave earnings were compensated by employment insurance from 1995 onwards and benefits were raised to 40 percent from 2000 onwards (see Kenjoh, 2003a).

The Swedish subsidised child-care system dates from around 1970. It was expanded considerably in the 1970s and 1980s. By 1990, legislation required local authorities to supply subsidised day care to all children whose parents wished them to have a place. In The Netherlands, the political view is that there are three parties who have interest in the child care sector, namely parents, local authorities and employers. The Dutch Child Care Act of 1991 starts from the point of view that parents, employers and government should each bear

[5] Such an increase in the job protection period is likely to have an impact on the timing for mothers to return to work in paid labour. However, it is not certain that the ultimate impact of increasing the job protection period will be negative for women's labour force participation. It may be the case that in a regime of short job protection periods more women drop out of the labour market for good, because they fail to find new jobs after having spent time in full-time caring at home. Rönsen and Sundström (1996) show that Swedish and Norwegian women have returned on average earlier to the job market when the parental leave period has been extended.

[6] This act was established in 1991 and became effective in April 1992 for firms with 30 or more employees and was extended to firms with fewer than 30 employees in April 1995.

one third of the costs of child care. Germany has a tradition of kindergartens for children aged between three and six, but few of these provide full-time child care. In Britain, there has been hardly any government involvement in the provision of day care for very young children, although local authorities have already for a long time provided a limited number of nursery places for older but still pre-school children. Only since 1999, the central government has sought to stimulate the development of day care for pre-school children in Britain. At this moment, the British child-care services for very young children rely mainly on commercial, private-sector initiatives.

In Japan, child-care services for working parents are mainly provided by authorised day nurseries[7]. Authorized day nurseries are established as child-welfare facilities providing child-care service to pre-school children whose parents are unable to care for their children during daytime because both of them are working or for some other reasons[8] (The 1947 Child Welfare Act). Day nurseries were designed under the so-called 'fixed system (*sochi* system)', where administrative offices decide and provide certain services until the amended Child Welfare Act of 1997 (effective in April 1998)[9]. Under the 'fixed system', with its limited budgets and facilities, lower-income families and single parents have the priority to use day nurseries over higher-income families and two-parent families, because their children face a potentially more severe lack of care. Full-time workers are also given a priority over part-time workers for the same reason. Therefore, Japanese day nurseries can only partially answer the needs of middle-class families. More in particular, there is a shortage of accommodation in day nurseries, for children under three and in large cities. Also, early morning and evening services, care for sick children, and part-time or occasional use are limited.

Child-care fees to parents are higher in The Netherlands than in Sweden and account for around 28 percent and 15 percent, respectively, of total costs in the covered sector (Dobbelsteen, Gustafsson and Wetzels, 2000). This gives Dutch parents an incentive to save on day-care time and use part of the week to look after their children in their own homes. There is also a statutory right for parents to take six months' half-time parental leave during the child's first year. Many Dutch parents do receive a parental leave benefit because collective bargaining agreements provide for such payments. In the public sector and in some other collective bargaining agreements benefits are paid at a rate of 75 percent of previous earnings.

Parental leave benefits in Germany cover a shorter period than the statutory maternity leave period and they are never computed as a percentage of pre-maternity earnings as, for instance, is the case in Sweden. In Germany, mothers receive 600 DM per month for six months unless family income during this period exceeds 100 000 DM per year. From the seventh month of the maternity leave period onwards, the benefit is paid only to mothers whose family income is less than about 32 000 DM per year. Important changes to the German parental leave system were introduced in January 2001. For the first time in Germany, fathers are now able to take parental leave. For a parent earning less than 32 000

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[7] Institutional child care in Japan is organised along two separate lines, namely kindergartens and day nurseries. Kindergartens are to be seen as an educational institution for young children from the age of three until they join primary school at age six. In that vein, kindergartens are in general only available for four hours a day. Thus, only day nurseries provide sufficient child-care service to meet the needs of working parents.

[8] Day nurseries provide full-day child-care service to pre-school children after the statutory maternity leave to children's age six, and after-school child care to young schoolchildren.

[9] By the amended Child Welfare Act of 1997, the 'fixed system' was finally changed to a user contract system where users can select and use the services based on their decision.

DM per year, the monthly benefit of 600 DM normally paid over three years can be claimed for a two-year period, in which case it brings in 900 DM per month. Furthermore, the third year of maternity leave can be saved up and parents are legally allowed to visit their child's school during working hours and stay home with a sick child until it is eight years old.

At the end of the statutory period of maternity leave, the mother has to decide whether to return to work on a part-time or full-time basis. In Sweden, one of the parents, at his or her own cost, has the right to work a reduced six-hour day in any occupation until the child is eight years of age. Thirty-hour working weeks are therefore rather popular among Swedish women. Note, however, that by international statistical standards, such working weeks count as part-time because they fall below the full-time threshold of 35 hours per week[10]. The Swedish parental leave system can be described as a 'banking system' (Sundström, 1996, cited by Wetzels, 2001: chapter 2). Since 1980, parents have been able to use the 18 months' leave to which they are entitled with considerable flexibility until the child reaches the age of eight. The options are as follows. Either the mother or the father can remain at home full-time. Alternatively, they can both stay at home part-time, with any combination of hours being claimed as parental leave. Moreover, the combination can be changed from one month to the next. That parent who claims parental leave also has the right to parental leave benefits; the rates are computed on the basis of either pre-parental leave earnings or most recent earnings, whichever is higher. The compensation rates are one month's leave each for the mother and father at 90 percent and another 10 months for either the mother or the father at 75 percent of the earnings of the one who stays at home. The extra incentive for the father to share parental leave is that his month at 90 percent of earnings is paid at 75 percent of the mother's previous earnings if she takes that month instead of him.

3. Data and Summary Statistics

The remainder of this paper analyses women's employment around birth of the first child. In this section, I will introduce the data sets, explain construction of variables and present summary statistics on women's employment status around first childbirth in the 1980s and 1990s.

3.1. Data Sources and Observation Periods

Table 1 shows the data sets and observation periods. I make use of household panel data sets from Britain (BHPS), Germany (GSOEP), The Netherlands (OSA), Sweden (HUS) and Japan (JPSC). For the four European data sets, I use all the surveys and retrospective information on employment status available from the 1980s to 1998. These data allow us to track, on a monthly basis, the labour force status (employed full-time/part-time, unemployed, unpaid work at home, full-time student, retired) of all individuals interviewed in these surveys. For Japan, I use the Japanese Panel Survey of Consumers (JPSC). This survey began following a sample of 1500 women aged 24-34 in 1993 (born in 1959-69) and another sample of 500 women aged 24-27 in 1997 (born in 1970-73). The former sample is used in this analysis. The information on women's employment status around childbirth is taken from the

[10] Recently, the OECD recommended to adopt a 30-hour working week threshold for the distinction between full-time and part-time employment (Lemaitre, Marianna and van Bastelaer, 1997). Under this definition, Swedish mothers who make use of this scheme of reduced work-time would be counted as full-time workers.

retrospective information on yearly labour force status in the 1997 wave. In the case of Japan, I thus can specify employment status around birth in annual terms, whereas for the four European countries, I can use a monthly perspective.

[Table 1 around here]

I have selected sub-samples containing only those women who gave birth to their first child during the observation period delineated in Table 1. Further, these sub-samples are restricted to women for whom information on the labour force status is available from 12 months before to 60 months after (from two years before to five years after in the case of Japan) the first birth. This provides a picture of each woman's labour market activity over a six-year period (seven-year period for Japan) around the birth of her first child.

The number of observations and the average observation period are presented in Table A.1. In some cases, a shorter period is observed, either because of attrition or because of birth taking place later in the observation period[11]. The average observation period tends to be shorter for the Dutch and Swedish data sets, which have a lower survey frequency than for the British and German data sets, of which surveys take place annually. Moreover, it also tends to be shorter for women who gave birth to the first child in the 1990s compared with those who gave birth in the 1980s, because for a woman giving birth in 1994, the British data, for example, provide information on her employment record only for the three years following the birth.

3.2. Construction of Variables[12]

Employment Status

Employment status is classified into full-time employment, part-time employment, self-employment, being on (maternity) leave, unemployment, and being out of the labour force. The definition of each employment status is not exactly the same across the five data sets, because each data set has its own division of employment statuses (see Tables A.2-A.3).

For example, the Dutch data do not distinguish between full-time and part-time on a monthly basis. Further, the British and Dutch data distinguish between self-employed and paid employed workers, whereas there is no such distinction in the Swedish and German data. Therefore, full-time and part-time employment in the latter data sets include self-employed workers, whereas in the British data set, only employees are included. Furthermore, the division between part-time and full-time for the British and German data is based on self-reports by respondents, while for the Swedish data, this is based on working hours per week. More in particular, the Swedish data have two spell files: one is on employment status (at work, on leave, unemployed, out of the labour force) and the other is on working hours per week. In this analysis, I first look at the spell file on employment status. Then, I follow women who are at work in the file on working hours and classify these workers into full-time (35 hours per week or more), long part-time (25-34 hours), and short part-time (1-24 hours) (see Table A.3).

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[11] In order to avoid decreasing the number of observations, I also include the women without complete employment information in the whole observation period. However, if women have no employment information during the period from one month to twelve months after first birth, I exclude them from the sample.

[12] I refer to Wetzels (2001: Chapter 3) for more detail on the creation of the data sets on fertility and the work status for the four European countries. I am grateful to Cécile Wetzels for her assistance in the construction of the data.

The Japanese data give information on the respondents' main employment status on a yearly basis. There are no categories for 'on leave' and 'unemployed' (Table A.2). Moreover, employees are classified as being full-time regular and as being non-regular workers including part-timers based on the Japanese employment practice, rather than on the distinction between full-time and part-time employment in function of working hours.

Education

Information on women's education is also essential in the following analyses, because women's labour force participation behaviour is very likely to be affected by their pre-maternal human capital accumulation. In order to create comparable educational variables across countries, I take the highest educational level attained by each of the women and calculate its standard years of schooling. Based on the standard years of schooling, education is split into three levels: high education (longer than 14 years), medium education (between 12 and 14 years) and low education (shorter than 12 years). For more detail on the creation of these educational variables, we can refer to Gustafsson, Kenjoh and Wetzels (2002c).

Educational classification for Japan is somewhat different from that for the other countries, considering the distribution of education of women in the Japanese sample. High education corresponds to university graduation or graduate school, which requires at least 16 years of schooling. Medium education includes junior college or technical college graduation, which needs at least one year of schooling after graduation from high school. Low education means high school or less than high school, which needs 12 years or less of schooling.

3.3. Summary Statistics on the Employment Status of Women around Birth of the First Child

Figures 1.1 - 5.2 depict women's employment status around birth of the first child in the five countries. For each country, there are two graphs: one for mothers who gave birth to the first child in the 1980s and for mothers who gave birth in the 1990s[13]. In order also to investigate upon the women's situation which is not affected by the pregnancy, I look at the employment status of women from twelve months before the childbirth for the four European countries, for which monthly labour force information is available. For Japan, two years before the childbirth is to be taken as the starting point as some of the women are already pregnant one survey year before the year of the birth. In the graphs, month 0 (year 0 for Japan) refers to the month (year for Japan) in which first birth took place, month -12 (year –1 for Japan) is one year before the data of birth and in month 12 (year 1 for Japan) the child is one year old. Month 0 (year 0 for Japan) therefore refers to different calendar times for different women.

The figures show that women's employment status changes significantly around first childbirth. Moreover, in these figures, the following patterns are commonly observed. The employment rate of women was at or above 80 percent in month –12 and it decreased sharply around a few months before childbirth. After childbirth, it increases gradually, although it never reaches the level before pregnancy. Further, the composition of employment has also changed considerably around childbirth; namely, before first childbirth, the majority of women works full-time, but after childbirth, a significant proportion of mothers works part-time. Moving on to the difference among the countries, for example, 60 months after childbirth, mother's employment rate was higher in Swedish than that in the

[13] In the following, 'in the 1980s' refers to the first birth took place in the 1980s and 'in the 1990s' refers to the first birth occurred in the 1990s.

other four countries both in the 1980s and 1990s. In these countries, the employment rate was lower than 50 percent in the 1980s. However, in the 1990s, it increased sharply in Britain and The Netherlands, while it decreased in West Germany and remained low in Japan. I will now discuss the patterns for each country in more detail.

[Figures 1.1-5.2 around here]

In Britain (Figures 1.1 and 1.2), the proportion of women being on leave and being employment, especially in full-time employment, after childbirth sharply increased from the 1980 to the 1990s. Interestingly, the sum of the proportions of mothers being on maternity leave, being employed full-time, part-time or self-employed remains virtually constant over the five years following first childbirth. This observation may suggest polarization of British mothers between those who take maternity leave and work immediately after the leave and those who quit their jobs just before childbirth and do not re-enter paid work for the five years after having the child.

In Germany (Figures 2.1 and 2.2), women's employment rate in month 0 becomes extremely low and the proportion of women who took maternity leave was much higher than in Britain, especially for those who gave birth to the first child in the 1990s. Therefore, German mothers intensively use the statutory right to (long) maternity leave. In month 12, 40 percent of mothers worked in the 1980s, whereas only 20 percent of them worked in the 1990s. This change is in accordance with what could be expected from the extension of the job protection period from the mid-1980s to the mid-1990s. In addition, in the 1990s, the sum of the proportions of women being on maternity leave and being employed full-time or part-time has increased from the period before the childbirth to the period of several months after the childbirth. This is also the result from the German maternity leave legislation that requires no employment record before childbirth for taking relatively long maternity leave.

The employment of Swedish mothers after the birth of the first child shows little change from the 1980s to the 1990s (Figures 3.1 and 3.2). Both in the 1980s and 1990s, around 70 percent of the mothers were at work in month 60, which was the highest percentage in the five countries studied here[14]. This high employment rate of mothers from the 1980s onwards is in line with the fact that the Swedish family friendly policy, which both women and men enable to combine paid work and raising children was already well-established by the mid-1980s. Additionally, the following changes are found from the 1980s to the 1990s. The proportion of women who took leave after the first childbirth increased slightly. Moreover, the proportion of unemployed women became higher in the 1990s than 1980s, reflecting increased unemployment in the mid-1990s. Note that a major shift took place within the type of part-time employment causing more women to opt for shorter working weeks from the 1980s to the 1990s.

In The Netherlands, women's employment rate after childbirth increased dramatically from the 1980s to the 1990s (Figures 4.1 and 4.2). For instance, in month 60, the employment rate was about 40 percent in the 1980s, but increased to 60 percent in the 1990s. Unfortunately, there is no information on the division between part-time and full-time

[14] Gustafsson, Kenjoh and Wetzels (2002b), which study first-time mother's labour force transitions around the childbirth using the HUS data, gives a higher employment rate of mothers in month 60 in Sweden compared to this paper. The difference in results is due to the fact that the latter focuses on whether women are at work (or actually working) or not, whereas the former focuses on whether they are employed or not. To construct the variable on employment status, the former uses only the spell file on working hours. Thus, women being on leave are counted as being employed as long as they reported their working weeks.

employment on a monthly basis in the Dutch data set (OSA)[15]. However, it is reasonable to assume that most of the employed women with young children are working part time in The Netherlands. For instance, in the 1998 OSA, among 178 female employees with children younger than six years old, 158 women (89 percent) worked part time, i.e. working less than 35 hours per week (own computation based on OSA 1998). The large increase in the employment rate from the 1980s to the 1990s can be explained by the wider acceptance of working mothers and the revolution of part-time employment in the 1990s. In The Netherlands, the status of part-time employees improved significantly in the 1990s and finally the 2000 Act on Adjustment of Working Hours assures the right to employees in firms with more than ten employees to shorten or increase work hours on request if they have been employed for at least one year. This is the most advanced treatment of part-time employment in the OECD countries. Moreover, hourly wages of part-time workers are as high as those of full-time workers for both men and women, holding other characteristics of workers constant (see Gustafsson, Kenjoh and Wetzels, 2001; Visser, 1999).

In Japan, as in the other countries, 80 percent of women work before pregnancy (in year –2) and most of them are full-time regular workers (Figures 5.1 and 5.2). In year 0, the proportion of regular workers was only 20 percent and the employment rate including the other forms of employment was still 30 percent. As children grow, the proportion of non-regular workers increased. Nevertheless, only 40 percent of women are in employment in year 5. This, together with German figures in the 1990s, is the lowest level in the five countries considered here. In addition, little change has been observed in the 1990s except for the increase in part-time employment from the 1980s to the 1990s under the severe economic conditions in the 1990s.

These results on employment of mothers around childbirth in the five countries under consideration already hint at the conclusion that family friendly policies can be effective in allowing women to combine work and having a child. I pursue analysis more in depth in the next section through multinomial estimation approaches.

4. First-time Mothers' Employment Choice after Childbirth

This section analyses women's employment choices in the five years after the birth of the first child. The main question of the analyses is whether labour force participation behaviour of first-time mothers with the same human capital is different from or similar to each other in the five countries under different family policies in the 1980s and 1990s. I estimate multinomial logit models of employment choices of first-time mothers, using the monthly data for the four European countries and yearly data for Japan. For Britain, Germany, and Sweden, employment statuses are classified into full-time employment, part-time employment and not at work (including being on leave, unemployed and out of the labour force). For Japan, an additional category of 'self-employed or family workers'[16] is added as an option, since a significant proportion of

[15] . In addition, the Dutch data do not distinguish between 'being at work' and 'being on leave'. Therefore, the dip in the employment rate around month 0 is not as sharp as in the British, German and Swedish data.

[16] In the following, I often refer for brevity to this category as family workers.

women work in this employment status as can be seen from Figures 5.1 and 5.2[17]. Thus, it is assumed that Japanese mothers can choose one of the following employment statuses: being employed as full-time regular workers, as non-regular workers (part-time and temporary workers), as family workers, and not being employed. For The Netherlands, employment status distinguishes between being employed and not being employed.

4.1. The Statistical Model

After first childbirth, individual women are assumed to choose one employment status out of *J* choices (from two to four choices depending on the country due to data availability) in month *t* (year *t* for Japan). The probability that an individual i makes choice j at time *t* can be written as follows (Greene, 2003: 719-723).

$$\Pr(S_{it} = j) = \frac{\exp(X_{it}\beta_j)}{\sum_k \exp(X_{it}\beta_k)}. \; j = 1, .. , J.$$

where X_{it} denotes a vector of individual characteristics. If $\beta_1 = 0$ is set for normalisation, the probability of a woman taking employment status *j* can be re-written as follows:

$$\Pr(S_{it} = j) = \frac{\exp(X_{it}\beta_j)}{1 + \sum_k \exp(X_{it}\beta_k)} \quad for \; j = 2, .. , J.$$

$$\Pr(S_{it} = j) = \frac{1}{1 + \sum_k \exp(X_{it}\beta_k)} \quad for \; j = 1.$$

In the following, the parameter vector β_j is estimated using a maximum likelihood procedure. Since the direct interpretation of the estimated coefficients is difficult, the results are reported in the form of the exponential value of the coefficients, $\exp(\beta_j)$, which is the relative risk ratio (RRR) for a one-unit change in the corresponding variable. The RRR is the relative probability of choosing status *j (S=j; j=2,..,J)* with respect to the base or reference category *(S=1)*, and is given as

$$\frac{\Pr(S_{it} = j)}{\Pr(S_{it} = 1)} = \exp(X_{it}\beta_j) \quad for \; j = 2, .. , J.$$

The reference category is 'not at work' or 'not employed' in each of the estimations for the five countries. As mentioned above, depending on the country and data availability, being employed is divided further into 'full-time employment' and 'part-time employment' (Britain, West Germany and Sweden) and 'regular workers', 'non-regular workers' and 'family workers'

[17] For the British and the Dutch data, self-employed workers are excluded from the sample because of the small number of observations.

(Japan). For The Netherlands, the data set unfortunately does not provide a distinction between full- and part-time employment.

The results of the multinomial logit analyses for Britain, Germany, Sweden and Japan and the binary logit analysis for The Netherlands are presented in Tables 2-6. The interpretation of an RRR smaller than one (larger than one) is that the variable in question decreases (increases) the relative probability of 'being in an employment status' to 'being not at work (or not employed)'. In this model, the relative risk ratio for a one-unit change in the corresponding variable is held constant for all individuals and the whole observation period. A z-value is computed as the ratio between the estimated coefficient and the estimated standard deviations. Robust variances are estimated by controlling for personal identification. Finally, descriptive statistics on the independent variables are presented in Tables A.5-A.9 of the Appendix.

4.2. Estimation Results

This subsection presents the results for the five countries against the background of the analysis of public policies in Section 2. I will discuss the effects variable by variable for all the models across the five countries (see Tables 2-6).

[Tables 2-6 around here]

The first set of variables in the tables indicates the effect of education on the probability of working in paid labour compared to being a full-time housewife after becoming a mother. Women's education is expected to have a positive effect on women's labour force participation after the birth of the first child, since higher-educated women on average earn more than lower-educated women[18]. If child-care services are available in the private market with no subsidies, affordability of child care will solely depend on the earning powers of the family. The positive effect of education is detected in The Netherlands, Britain, West Germany and Japan, albeit to a differing degree. The most prominent effect is found for The Netherlands; the probability of being in employment for high-educated women is four times as large as that for low-educated women, holding other variables constant. On the other hand, there is no statistically significant effect of education in Sweden. This can be explained by the egalitarian access to subsidised day care and paid parental leave.

The positive effect of education is stronger on full-time employment than part-time employment in Britain and, to lesser extent, in Germany. However, in Japan, whereas better educated women are more likely to work in full-time regular employment, they are less likely to work in non-regular employment such as part-time and temporary employment. This peculiar result on non-regular work can be explained by the fact that part-time employment provides significantly lower wages and other disadvantageous labour conditions compared to full-time regular employment in Japan (see Houseman and Osawa 2000; Kenjoh, 2003b). Therefore, mothers with high educational levels have almost no incentive to work part-time.

Mother's age at first childbirth and its square enter the regressions in order to examine the effect of human capital accumulation at first birth (see Table A.4 for the means of mother's

[18] The effect of an increase in women's wage rate on their labour supply theoretically depends on the size of the negative income effect and the positive substitution effect. However, the bulk of empirical research on the female labour supply in North-America and Europe demonstrates that the positive substitution effect dominates the negative income effect, resulting in a positive gross effect of women's wage (see, for instance, Killingsworth, 1983; Killingsworth and Heckman, 1986).

age at first birth according to educational levels and whether the birth occurred in the 1980s or in the 1990s). The hypothesis is that higher age implies the acquisition of a larger amount of human capital that steps up the likelihood of full-time or part-time employment. Similar to the effect of education, mother's age at first birth has a positive effect on being employed in The Netherlands, Britain and full-time employment in Germany. In these countries, older mothers thus are more attached to the labour market than younger mothers. In Sweden, the mothers' age has no statistically significant effect as was the case for the educational variables. In Japan, the coefficient of this variable for non-regular work again shows an effect opposite to what could haven been expected. That is, older mothers are less likely to work as non-regular workers than younger mothers which can be explained by Japanese labour market characteristics as argued earlier.

The next variable captures the development over time by comparing employment status of mothers who had their first child in the 1990s with that of mothers in the 1980s. In order to be able to interpret this variable as a proxy for the effect of policy changes from the 1980s to the 1990s, I control for the labour market situation by including the monthly unemployment rate (the yearly unemployment rate for Japan). On the one hand, the number of British and Dutch mothers working in paid employment in the 1990s nearly doubled compared to the 1980s, holding other variables constant. On the other hand, German mothers in the 1990s stayed at home more after childbirth than in the 1980s, which is in line with the expansion of the maternity leave period from the mid-1980s to the mid-1990s. In Sweden, there was no significant change between the 1980s and the 1990s. In this country, the relevant policies had been in effect since the 1970s with paid parental leaves shared between fathers and mothers during the child's first year, subsidised day care for pre-school children, full-day schools that accommodate parents' working hours and separate individual taxation of earnings that stimulates shared breadwinnership. In Japan, this variable is only significant for non-regular employment. Mothers who gave birth to the first child in the 1990 are nearly three times as likely to be non-regular workers compared to those who gave birth in the 1980s. These findings for the five countries under investigation strongly corroborate my starting hypothesis that adequately designed public policies are an effective means to increase labour force participation of new mothers.

The age of the first child has a positive effect on employment for mothers after birth except for The Netherlands. As the child grows older, women are more likely to work in paid labour. The effect of this variable was the largest in Sweden, followed by Germany, Britain, and Japan. In Sweden, where the most generous and flexible parental leave system is offered to parents, a larger proportion of women return to paid work as the child becomes older. In contrast, in The Netherlands, there is no effect of this variable, which indicates a clear distinction between workers and non-workers. Considering the above results on the strong influence of education and mother's age at first childbirth, it is typical that Dutch mothers with larger human capital, namely better-educated and older mothers, have been working continuously in the labour market for five years after childbirth, whereas those with smaller human capital have been staying at home in this period.

Moreover, the effect of the age of the first child is slightly stronger for working part-time than for working full-time. In other words, during the first five years after childbirth, mothers (re-)enter the labour market more often as part-time workers than as full-time workers. This is a reasonable fact, since part-time work is more easily compatible to care for children. The difference in the size of the effect between full-time and part-time employment is particularly large in Japan. That is, most of the mothers who re-enter paid work after giving birth are not full-time regular workers, but non-regular workers such as part-time and temporary workers.

This can be also attributed to the fact that the availability of full-time regular jobs is limited for potential re-entrants with children under Japanese employment practices.

I enter a variable to control for the presence of the second child in the household[19]. This variable is expected to have a negative effect on mother's employment, since having another very young child raises mother's time cost at home. If she works in the labour market, additional child care would be required. This expectation is confirmed in the countries studied here except in The Netherlands. The negative effect is particularly strong in Sweden and Germany, where longer job protection is available after childbirth so that women are likely to take parental leave after giving birth to the second child. Having the second child decreases the probability of being in employment more for full-time employment than for part-time work in Britain, Germany and Sweden. This finding suggests that part-time employment is more compatible with caring two children than full-time employment. On the contrary, in Japan, the negative effect is stronger on non-regular employment than regular employment, which again indicates the peculiarity of part-time employment in Japan.

In the estimations for Japan, a (time-variant) variable of living with parents or in-laws is included, since many grown-up people are still living with their parents[20]. A positive effect of this variable on married women's labour force participation, especially on full-time employment, is repeatedly observed in previous studies on Japan (see, for example, Ogawa and Ermisch, 1996; Shimada and Higuchi, 1985). This is due to the fact that under less developed public policies for mothers to combine market work and family responsibility, the role of grandparents in child care, especially of the grandmothers has been traditionally very important. In my data set, 40 percent of mothers are living with their parents or in-laws (see Table A.9). The expected positive effect on mothers' employment is confirmed in Table 6. Women living with their parents or in-laws are four times more likely to be regular workers or family workers compared to those who do not live with their parents or in-laws.

4.3. Predicted Probability of Employment of New Mothers

In order to further clarify the difference in employment choices of first-time mothers according to educational levels and whether the child was born in the 1980s or the 1990s, the predicted probability of taking employment is calculated from the results of the multinomial logit analyses (binary logit analysis for the Dutch data). The probability is computed for a hypothetical woman who is 27 years of age at the birth of the first child and whose child is 36 months old (three years old for Japan) and who does not have a second child. The unemployment rate is set to the mean for each country. Additionally, for Japan I assume that the woman does not live with her parents or in-laws.

Table 7 presents the predicted probabilities. The table reveals that the probability of being in employment is higher in Sweden than in the other countries, especially in the 1980s. For mothers in the 1990s, this probability increased sharply in Britain and The Netherlands. In contrast, the probability has decreased in Germany and Sweden and only increased to a limited extent in Japan. Again, this points to the beneficial effects of supporting policy

[19] I also experimented by letting this variable take on the value one already a few months prior to the birth of the second child since women are likely to withdraw from paid work already (some time) before childbirth. The results, however, were almost the same results as those presented in Tables 2-6.

[20] In the Japanese data set, JPSC, there is a detailed question on living arrangements with parents or in-laws. The dummy variable of living with parents or in-laws equals one in case that respondents reported that they lived in the same household as their parents or in-laws or lived on the same building site but in a separate building. This information has been available every year since the first wave of 1993. For years before 1993, the value for 1993 is assigned.

designs. The decrease in Germany reflects the extension of statutory parental leave. In Sweden, policy remained advantageous and the decrease is likely to be due to the increase in the general level of unemployment.

[Table 7 around here]

Table 7 further shows the importance of part-time employment as an employment status for mothers during the five years following first birth. In Germany, Britain and Sweden, the probability of being in part-time employment is 30-50 percent for women who gave birth to the first child both in the 1980s and 1990s whatever the educational level. In Sweden, it is likely for mothers to make use of the parent's right to shorten working hours to 30 hours as regular workers. Moreover, in The Netherlands, it is inferred that a majority of mothers work in part-time employment, although no direct information on the distinction between part-time and full-time employment is available in the data. However, in Japan, the probability of being a non-regular worker (part-time or temporary worker) is not as high as in the other countries. The probability is particularly low for women with the highest educational level. Under the limited availability of day care for children under age three and the less generous and inflexible parental leave arrangements, the low employment rate of Japanese mothers can also be attributed to the lack of part-time employment with reasonable pay.

In addition, the difference in probability of employment according to mother's educational levels is negligible in Japan. However, this does not imply that highly educated women's labour force participation behaviour is the same as that of lower-educated women. As shown in the table, this can be explained by the mixed result that the probability of a highly educated woman working as a regular employee is high, but that of working as a non-regular employee is very low compared to a woman with a lower educational level.

5. Conclusions

This Paper analyses women's employment around the birth of the first child in Britain, Germany, The Netherlands, Sweden and Japan. The international comparative approach makes it possible to ascertain whether public policies have an effect on labour force participation of mothers who gave birth to their first child in the 1980s and 1990s. I argue that the length of parental leave, the level of the benefit paid during the leave, the flexibility of leave arrangements and the availability of affordable child care all have an impact on the employment status of new mothers. Sweden is the only country of the five studied here that has had equal roles for fathers and mothers as a guiding principle in family policies already since the 1970s. Recently, these policies in the other countries have moved into the direction of Sweden. However, actual policies developed in each country have had a different emphasis as described in the policy review. In this Paper, I relate the family policies to mother's employment around the birth of the first child.

I use household panel data sets from Britain (BHPS, 1991-1998), Germany (GSOEP, 1984-1998), The Netherlands (OSA, 1985-1998), Sweden (HUS, 1984-1998) and Japan (JPSC, 1993-1997). Graphs show the distribution of women among different labour market statuses (full-time employment, part-time employment, on leave, unemployment and out of the labour force) from twelve months before to sixty months after first childbirth. The employment pattern of Swedish mothers that gave birth to their first child in the 1980s was very different from that in the other countries. In month 60 after birth, for instance, 70

percent of Swedish mothers were (back) at work, whereas less than half of the mothers were employed in each of the other four countries. For mothers in the 1990s, the employment rate in Sweden remained the highest within these five countries. However, The Netherlands and Britain have experienced a drastic increase in the employment rate of new mothers. In contrast, in Germany, mothers' employment rate has decreased, reflecting the expansion of the statutory maternity leave period from the mid-1980s to the 1990s and in Japan it has remained stable. The graphical appraisal thus already provides a strong indication that specifically designed family policies could effectively step up labour force participation of new mothers.

In the econometrical part of the Paper, I perform multinomial logit analyses (a binary logit analysis for The Netherlands) of the employment choice of new mothers during the five years following the birth of the first child. The human capital variables of education and the mother's age at first birth have the expected positive effect on employment, especially on full-time employment. These effects are stronger in The Netherlands and Britain, where child-care services largely rely on market provisions that thus requires a higher income level. In contrast, the Swedish mothers' employment pattern shows little difference according to educational levels as a result of the egalitarian access to day care and the advantageous parental leave system. In all countries except for The Netherlands, as the first child grows older, women are more likely to enter the labour market as part-time workers rather than full-time workers.

The role and influence of family policies enters the regression through the inclusion of the information whether or not the first child was born in the 1990s. Birth in the 1990s significantly improves labour market participation in The Netherlands and Britain as could be expected from the policy change driven by the acceptance of working mothers, the revolution of part-time employment in The Netherlands and the expansion of market-oriented child care and maternity leave in Britain. In Sweden, the effect of this variable is not significant in line with the fact that generous family policy was already in place earlier, namely from the 1970s onwards. This variable is also not significant in Japan, but in the latter country the reason is completely the opposite to that in the Swedish case. The nation's serious concern about low fertility led to a broadening of the scope of family policy. However, the improvement of family policies proved far less effective due to, for instance, the remaining lack of care for very young children. The extension of the maternity leave period in West Germany can be seen as the driving force behind the negative effect detected for that country as women, unlike before, now opt for maternity leave.

The econometric analyses also point to the importance of part-time employment as an employment status of mothers during the first five years in the four European countries. However, in Japan, the probability of being a non-regular worker (part-time or temporary worker) is relatively low, particularly for highly educated mothers. Under the limited availability of day care for children under age three, and the less generous and inflexible parental leave system, the low employment rate of mothers in Japan can also be attributed to the lack of part-time employment with appropriate quality. This is akin to the explanation of the low labour force participation rate of mothers in the Southern European countries such as Italy, Spain and Greece as put forward in, for instance, Del Boca and Lacatelli (2002).

The results of this Paper are thus consistent with the idea that modern family policies give rise to a stronger commitment to paid work among mothers. The design of family policies that facilitate the combination of motherhood and paid employment thus prove to be effective means in increasing the participation rate of first-time mothers. The results also indicate that the availability and stimulation of part-time employment will provide another

strong incentive for new mothers to regain active employment. It is very likely that the increased ability to combine motherhood with paid full- or part-time employment will encourage more women to have children. Thus, adoption of specifically designed family policies may be beneficial to stop the decline in fertility in Europe and Japan.

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Table 1. Data Sources and Observation Periods.

	Britain	West Germany	Netherlands	Sweden	Japan
Data Source	BHPS	GSOEP, Germans in former West Germany (Sample A)	OSA	HUS	JPSC
Years of surveys	1991-1998 (Annually)	1984-1998 (Annually)	1985, 1986-1998 (Bi-annually)	1984, 1986, 1988, 1991, 1993, 1996, 1998	1993-1997 (Annually)
Retrospective information on employment	1980-1990	-	1980-1985	-	Yearly employment status since woman's age 18
Observation period					
First birth	Jan 1981-Dec 1996	Jan 1984-Dec 1996	Jan 1981-Dec 1996	Jan 1984-Dec 1996	1980-1997 □□□□□□□□(Cohort born 1959-1969)
Employment status	Jan 1980-Dec 1997	Jan 1983-Dec 1997	Jan 1980-Dec 1998	Jan 1984-Dec 1998	Woman's age 18-1997

Note: BHPS: the British Household Panel Survey (Taylor, 1999; Halpin, 1997). GSOEP: the German Socioeconomic Panel (Wagner, Schupp, and Rendtel, 1991; Haisken-De New and Frick, 1998). OSA: the Organisatie voor Strategisch Arbeidsmarktonderzoek (Allaart et al., 1987). HUS: the Hushallens ekonomiska levnadsforhallanden (Flood, Klevmarken and Olovsson, 1997). JPSC: Japanese Panel Survey of Consumers (The Institute for Research on Household Economics).

Table 2. Multinomial Logit Model of Mothers' Employment Status from the Month of Birth of the First Child to 60 Months after the Birth in Britain ('Not at work' is the reference category).

	Full-time		Part-time	
	RRR	Z-value	RRR	Z-value
Education medium	1.66	2.5**	1.51	2.5**
Education high	2.20	4.4***	1.58	2.7***
Mother's age at first birth	1.28	2.2**	1.69	3.8***
Mother's age at first birth, squared	1.00	-1.5	0.99	-3.5***
First child born in 1990s	1.84	4.0***	1.58	3.4***
Age of first child	1.30	7.7***	1.49	13.2***
Presence of second child	0.29	-7.3***	0.50	-5.3***
Unemployment rate	0.95	-1.9*	1.00	0.2
Number of obs. (woman-months)	59045			
Number of women	1128			
Wald chi² (16)	341			
Prob > chi²	0.00			
Pseudo R²	0.077			
Log likelihood	-48812	□□	□	□□

*** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Source: Author's own computations based on BHPS 1991-1998.

Note: Robust variance estimates are calculated by controlling for personal identification. Self-employed workers are not included in the sample. Education high: obtained highest qualification requires 15 years or more of schooling; Medium: between 12 years and 14 years of schooling; Low: less than 12 years of schooling.

Table 3. Multinomial Logit Model of Mothers' Employment Status from the Month of Birth of the First Child to 60 Months after the Birth in West Germany ('Not at work' is the reference category).

	Full-time		Part-time	
	RRR	Z-value	RRR	Z-value
Education medium	1.00	0.0	0.91	-0.3
Education high	1.78	1.9*	1.54	2.0**
Mother's age at first birth	1.50	1.9*	1.27	1.4
Mother's age at first birth, squared	0.99	-1.9*	1.00	-1.4
First child born in 1990s	0.39	-3.8***	0.73	-1.9*
Age of first child	1.51	7.8***	1.72	14.6***
Presence of second child	0.18	-5.3***	0.22	-8.1***
Unemployment rate	1.13	1.5	0.93	-1.5
Number of obs. (woman-months)	31754			
Number of women				
Wald chi^2 (16)	250			
Prob > chi^2	0.00			
Pseudo R^2	0.080			
Log likelihood	-24253			

*** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Source: Author's own computations based on GSOEP 1984-1998, Sample A=Germans in the former West Germany.

Note: Robust variance estimates are calculated by controlling for personal identification. Education high: obtained highest qualification requires 15 years or more of schooling; Medium: between 12 years and 14 years of schooling; Low: less than 12 years of schooling.

Table 4. Multinomial Logit Model of Mothers' Employment Status from the Month of Birth of the First Child to 60 Months after the Birth in Sweden ('Not at work' is the reference category).

	Full-time		Part-time	
	RRR	Z-value	RRR	Z-value
Education medium	1.12	0.3	0.69	-1.5
Education high	1.34	0.9	0.79	-1.0
Mother's age at first birth	0.68	-1.6	0.86	-0.7
Mother's age at first birth, squared	1.01	1.8*	1.00	0.8
First child born in 1990s	0.91	-0.2	0.77	-0.7
Age of first child	2.14	7.1***	2.17	9.6***
Presence of second child	0.20	-4.3***	0.25	-5.7***
Unemployment rate	0.98	-0.4	1.01	0.2
Number of obs. (woman-months)	10086			
Number of women	259			
Wald chi^2 (16)	144			
Prob > chi^2	0.00			
Pseudo R^2	0.094			
Log likelihood	-9000			

*** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Source: Author's own computations based on HUS 1984-1998.

Note: Robust variance estimates are calculated by controlling for personal identification. Education high: obtained highest qualification requires 15 years or more of schooling; Medium: between 12 years and 14 years of schooling; Low: less than 12 years of schooling.

Table 5. Binary Logit Model of Mothers' Employment Status from the Month of Birth of the First Child to 60 Months after the Birth in The Netherlands ('Not employed' is the reference category).

	Employed	
	Odds ratio	Z-value
Education medium	1.80	3.4***
Education high	4.11	5.7***
Mother's age at first birth	1.50	2.2**
Mother's age at first birth, squared	0.99	-1.9*
First child born in 1990s	1.86	2.9***
Age of first child	1.05	1.3
Presence of second child	0.80	-1.3
Unemployment rate	0.89	-1.9*
Number of obs. (woman-months)	24679	
Number of women	569	
Wald chi^2 (8)	97	
Prob > chi^2	0.00	
Pseudo R^2	0.097	
Log likelihood	-15305	

*** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Source: Author's own computations based on OSA 1985-1998.

Note: Robust variance estimates are calculated by controlling for personal identification. Education high: obtained highest qualification requires 15 years or more of schooling; Medium: between 12 years and 14 years of schooling; Low: less than 12 years of schooling.

Table 6. Multinomial Logit Model of Mothers' Employment Status from the Year of Birth of the First Child to Five Years after the Birth in Japan ('Not employed' is the reference category).

	Regular		Non-regular		Family workers	
	RRR	Z	RRR	Z	RRR	Z
Education medium	1.43	1.8*	1.05	0.3	0.82	-0.8
Education high	3.27	4.0***	0.38	-1.7*	1.02	0.0
Mother's age at first birth	0.71	-1.2	0.42	-3.0***	1.90	1.4
Mother's age at first birth, squared	1.01	1.3	1.01	2.6***	0.99	-1.4
First child born in 1990s	0.73	-1.4	2.59	4.1***	0.79	-0.8
Age of first child	1.12	2.9***	1.74	12.3***	1.23	4.6***
Presence of second child	0.51	-3.8***	0.25	-7.7***	0.79	-1.2
Unemployment rate	0.82	-1.3	0.66	-2.4**	0.91	-0.5
Living with parents or in-laws	3.87	7.3***	1.53	2.4**	4.21	6.9***
Number of obs. (woman-years)	4818					
Number of women	913					
Wald chi^2 (27)	361					
Prob > chi^2	0.00					
Pseudo R^2	0.090					
Log likelihood	-4589					

*** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Source: Author's own computations based on JSPC 1993-1997.

Note: Robust variance estimates are calculated by controlling for personal identification. Education high: obtained highest qualification requires 16 years or more of schooling (four year university graduates or above); Medium: between 13 years and 15 years of schooling (Junior college or vocational school graduates); Low: less than 13 years of schooling (High school graduates or less than high school).

Table 7. Predicted Probability of Employment Status of Mothers according to Educational Levels and whether the Child was Born in the 1980s or the 1990s.

□	1980s			1990s		
□	Low	Medium	High	Low	Medium	High
Britain						
Full-time	0.17	0.23	0.28	0.24	0.31	0.36
Part-time	0.25	0.31	0.30	0.31	0.35	0.33
Not at work	0.58	0.47	0.43	0.45	0.34	0.30
West Germany						
Full-time	0.19	0.20	0.25	0.10	0.10	0.13
Part-time	0.36	0.34	0.41	0.33	0.31	0.41
Not at work	0.45	0.47	0.34	0.57	0.60	0.46
The Netherlands						
Employed	0.31	0.45	0.65	0.46	0.61	0.78
Not employed	0.69	0.55	0.35	0.54	0.39	0.22
Sweden						
Full-time	0.17	0.23	0.25	0.19	0.24	0.27
Part-time	0.53	0.43	0.44	0.47	0.37	0.39
Not at work	0.29	0.34	0.31	0.34	0.38	0.35
Japan	□	□	□	□	□	□
Regular	0.11	0.15	0.30	0.07	0.10	0.23
Non-regular	0.11	0.11	0.03	0.25	0.25	0.09
Self-employed	0.09	0.07	0.07	0.06	0.05	0.06
Not employed	0.70	0.67	0.59	0.62	0.60	0.62

Source: Author's own computations based on BHPS 1991-1998, GSOEP 1984-1998, OSA 1985-1998, HUS 1984-1998 and JPSC 1993-1997.

Note: A hypothetical woman who was 27 years old at the birth of the first child when the child is 36 months (three years for Japan) old and who does not have a second child. Unemployment rates are set at the sample average in each country. For Japan, the woman does not live with her parents or in-laws.

Table A.1. Number of Observations in the Sample according to Educational Levels and whether the Birth occurred in the 1980s or 1990s (from 12 months before until 60 months after first birth*).

	Number of woman-months**				Number of women				Average observation period per woman***
	Educational level				Educational level				
	Low	Medium	High	All	Low	Medium	High	All	
Britain									
1980s	33,085	7,047	7,729	47,861	465	101	110	676	70.8
1990s	13,323	4,685	7,445	25,453	235	81	136	452	56.3
Total	46,408	11,732	15,174	73,314	700	182	246	1,128	65.0
West Germany									
1980s	15,191	2,660	2,471	20,322	224	38	39	301	67.5
1990s	13,749	1,668	3,418	18,835	241	30	60	331	56.9
Total	28,940	4,328	5,889	39,157	465	68	99	632	62.0
Sweden									
1980s	2,253	1,630	1,159	5,042	52	30	22	104	48.5
1990s	2,822	1,489	2,218	6,529	68	36	51	155	42.1
Total	5,075	3,119	3,377	11,571	120	66	73	259	44.7
The Netherlands									
1980s	7,998	8,141	2,527	18,666	132	131	45	308	60.6
1990s	4,261	6,002	2,183	12,446	87	126	48	261	47.7
Total	12,259	14,143	4,710	31,112	219	257	93	569	54.7
Japan									
1980s	2,208	1,223	184	3,615	279	153	23	455	6.9**
1990s	1,552	1,149	370	3,071	224	172	62	458	5.7**
Total	3,760	2,372	554	6,686	503	325	85	913	6.3**

Source: Author's own computations based on BHPS 1991-1998, GSOEP 1984-1998, OSA 1985-1998, HUS 1984-1998 and JPSC 1993-1997.

* For Japan, two years before first birth to five years after the birth.

** Number of woman-years for Japan.

*** Average observation period per woman is calculated as follows: {number of woman-months (woman-years for Japan)/ number of women} – 1. The unit of the observation period is one month for the four European countries and one year for Japan.

Table A.2. Description of the Employment Status for Britain, Germany, The Netherlands and Japan.

Country	Classification in the data sets	Classification in the original data source
Britain	Full-time employment	Full-time (employees)
	Part-time employment	Part-time (employees)
	Self-employed	Self-employed
	On maternity leave	On maternity leave
	Unemployed	Unemployment
	Out of the labour force (OLF)	Retired
		Family care
		Full-time student
		Long time sick or disabled
	(Excluded)	Undetermined full-time/part-time
Germany	Full-time employment	Full-time employment
	Part-time employment	Part-time employment
		Short work
	On maternity leave	On maternity leave
	Unemployed	Unemployment
	Out of the labour force (OLF)	Vocational training
		School
		Housewife
		Other
Netherlands	Gainfully employment	Different job with the same employer
		Gainfully employed
	Self-employed	Self-employed
		Family worker
	Unemployed	No job, looking for a job
	Out of the labour force (OLF)	No job, not looking for a job
		(full-time student)
Japan	Regular workers	Regular workers (*joukin*)
	Non-regular workers	Part-time workers
		Temporary workers, others
	Self-employed and family workers	Self-employed
		Home-based piece-rate workers
		Family workers
	Not gainfully employed	Students
□	□	Without an occupation

Source: BHPS 1991-1998, GSOEP 1984-1998, OSA 1985-1998, and JPSC 1993-1997.

Table A.3. Data Description on Employment Status for Sweden

	Spell file on employment status								
	Gainfully employed		Vacation, work leave, sick leave etc.		Unemployed		Not gainfully employed*		
		N		N		N		N	Total
Spell file on working hours per week									
More than 44	FT (35+)	105	On leave	34	Unemployed	0	OLF	30	169
35-44	FT (35+)	2352	On leave	602	Unemployed	96	OLF	121	3171
25-34	PT (25-34)	1725	On leave	532	Unemployed	64	OLF	70	2391
15-24	PT (1-24)	836	On leave	149	Unemployed	23	OLF	16	1024
Fewer than 15	PT (1-24)	742	On leave	407	Unemployed	65	OLF	143	1357
Not gainfully employed	(Excluded)	(11)	On leave	1440	Unemployed	97	OLF	389	1937
Missing information	(Excluded)	(273)	On leave	722	Unemployed	356	OLF	455	1806
Total		6044		3886		701		1224	11855
Total (only observations used in the data set)		5760		3886		701		1224	11571

Source: Author's own computations based on HUS 1984-1998.

*: Schooling, house-keeping, retired.

Table A.4. Mean age of Mothers at First Birth according to Educational Levels and whether Birth occurred in the 1980s or in the 1990s.

	1980s				1990s			
	Low	Medium	High	All	Low	Medium	High	All
Britain								
Mean	24.1	25.4	28.2	25.0	25.4	26.8	28.9	26.7
Std. Dev.	4.8	4.5	4.6	4.9	5.4	4.3	4.6	5.2
N	465	101	110	676	235	81	136	452
West Germany								
Mean	25.3	28.2	28.6	26.1	26.5	29.0	30.1	27.4
Std. Dev.	4.5	3.9	3.0	4.4	4.1	3.9	3.4	4.2
N	224	38	39	301	241	30	60	331
Sweden								
Mean	25.3	26.2	28.7	26.3	26.9	26.9	29.8	27.9
Std. Dev.	4.3	4.6	3.4	4.4	5.3	4.0	4.3	4.9
N	52	30	22	104	68	36	51	155
The Netherlands								
Mean	25.8	26.4	28.9	26.5	26.8	28.3	30.4	28.2
Std. Dev.	4.5	3.4	3.0	4.0	3.9	3.7	4.0	4.0
N	132	131	45	308	87	126	48	261
Japan								
Mean	23.4	25.3	26.3	24.2	26.9	28.2	29.3	27.7
Std. Dev.	2.5	2.2	1.6	2.6	3.0	3.0	2.5	3.1
N	279	153	23	455	224	172	62	458

Source: Author's own computations based on BHPS 1991-1998, GSOEP 1984-1998, OSA 1985-1998, HUS 1984-1998 and JPSC 1993-1997.

Table A.5. Means of Independent Variables for Table 2 (Britain).

□	Full-time	Part-time	Not at work	Total
Education low (base)	0.48	0.58	0.70	0.64
Education medium	0.18	0.20	0.14	0.16
Education high	0.34	0.23	0.16	0.20
Mother's age at first birth, in years	27.7	25.7	24.8	25.5
First child born in 1980s (base)	0.51	0.61	0.71	0.66
First child born in 1990s	0.49	0.39	0.29	0.34
Age of first child, in years	2.31	2.76	2.24	2.35
Non-presence of second child (base)	0.81	0.66	0.66	0.68
Presence of second child	0.19	0.34	0.34	0.32
Unemployment rate, monthly	8.09	8.35	8.55	8.44
Number of observations	9666	11308	38071	59045

Source: Author's own computations based on BHPS 1991-1998.

Table A.6. Means of Independent Variables for Table 3 (West Germany).

□	Full-time	Part-time	Not at work	Total
Education low (base)	0.69	0.72	0.75	0.74
Education medium	0.12	0.11	0.11	0.11
Education high	0.19	0.17	0.14	0.15
Mother's age at first birth, in years	26.8	26.7	26.7	26.7
First child born in 1980s (base)	0.66	0.59	0.49	0.53
First child born in 1990s	0.34	0.41	0.51	0.47
Age of first child, in years	2.49	2.79	2.08	2.29
Non-presence of second child (base)	0.87	0.82	0.72	0.76
Presence of second child	0.13	0.18	0.28	0.24
Unemployment rate, monthly	7.53	7.41	7.58	7.54
Number of observations	3073	7286	21395	31754

Source: Author's own computations based on GSOEP 1984-1998.

Table A.7. Means of Independent Variables for Table 4 (Sweden).

□	Full-time	Part-time	Not at work	Total
Education low (base)	0.37	0.49	0.43	0.44
Education medium	0.28	0.24	0.28	0.27
Education high	0.35	0.27	0.29	0.29
Mother's age at first birth, in years	28.4	27.5	27.0	27.4
First child born in 1980s (base)	0.46	0.47	0.41	0.44
First child born in 1990s	0.54	0.53	0.59	0.56
Age of first child, months/12	2.77	2.91	2.01	2.40
Non-presence of second child (base)	0.70	0.63	0.63	0.64
Presence of second child	0.30	0.37	0.37	0.36
Unemployment rate, in years	6.51	6.61	6.48	6.53
Number of observations	1593	3038	5455	10086

Source: Author's own computations based on HUS 1984-1998.

Table A.8. Means of Independent Variables for Table 5 (The Netherlands).

□	Employed	Not employed	Total
Education low (base)	0.28	0.49	0.40
Education medium	0.49	0.43	0.45
Education high	0.23	0.08	0.15
Mother's age at first birth, in years	28.0	26.4	27.1
First child born in 1980s (base)	0.49	0.71	0.61
First child born in 1990s	0.51	0.29	0.39
Age of first child, in years	2.14	2.16	2.15
Non-presence of second child	0.72	0.71	0.71
Presence of second child	0.28	0.29	0.29
Unemployment rate, monthly	6.57	7.04	6.83
Number of observations	10941	13738	24679

Source: Author's own computations based on OSA 1985-1998.

Table A.9. Means of Independent Variables for Table 6 (Japan).

	Regular	Non-regular	Family workers	Not employed	Total
Education low (base)	0.46	0.64	0.62	0.57	0.56
Education medium	0.39	0.33	0.32	0.36	0.36
Education high	0.15	0.02	0.07	0.07	0.08
Mother's age at first birth, in years	25.9	24.8	25.5	25.6	25.6
First child born in 1980s (base)	0.61	0.50	0.64	0.54	0.56
First child born in 1990s	0.39	0.50	0.36	0.46	0.44
Age of first child, in years	2.2	3.0	2.7	2.2	2.3
Non-presence of second child (base)	0.66	0.65	0.50	0.57	0.59
Presence of second child	0.34	0.35	0.50	0.43	0.41
Unemployment rate	2.60	2.68	2.61	2.66	2.65
Living without parents or in-laws (base)	0.38	0.61	0.34	0.69	0.60
Living with parents or in-laws	0.62	0.39	0.66	0.31	0.40
Number of observations	744	547	458	3069	4818

Source: Author's own computations based on JPSC 1993-1997.

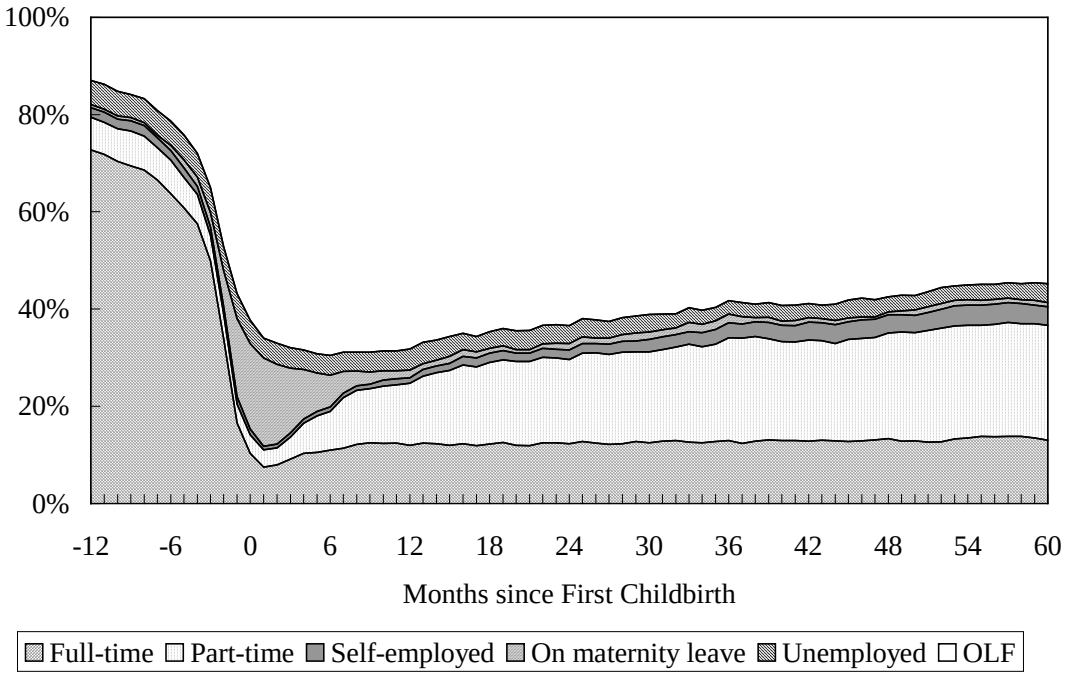

Figure 1.1. Monthly Employment Status in Britain, 1980s.

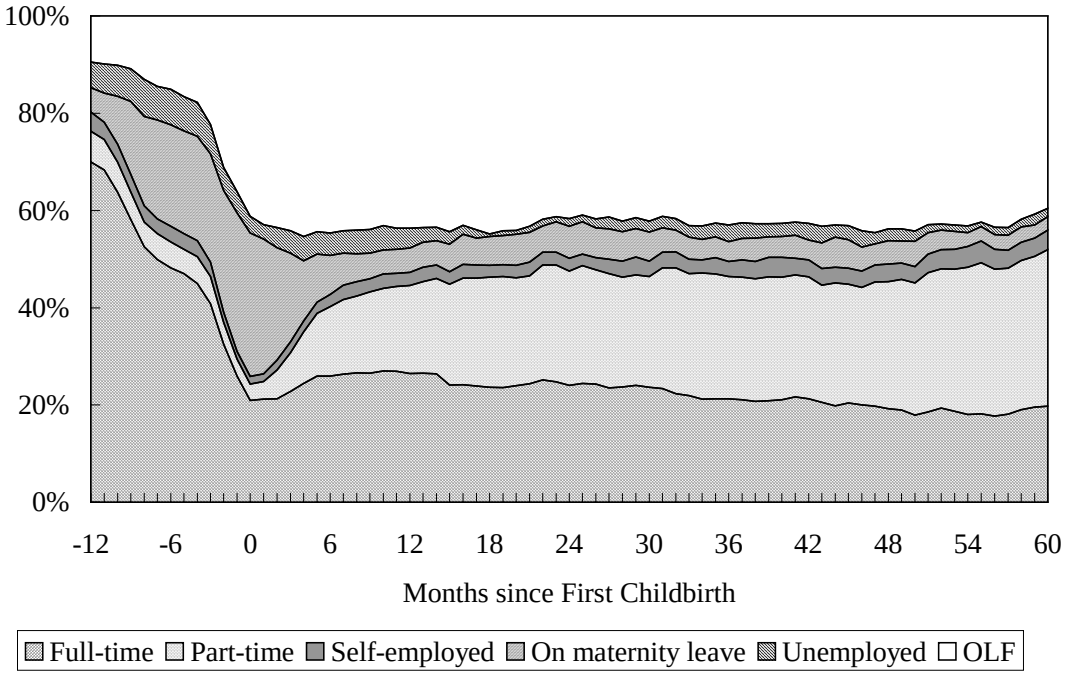

Figure 1.2. Monthly Employment Status in Britain, 1990s.

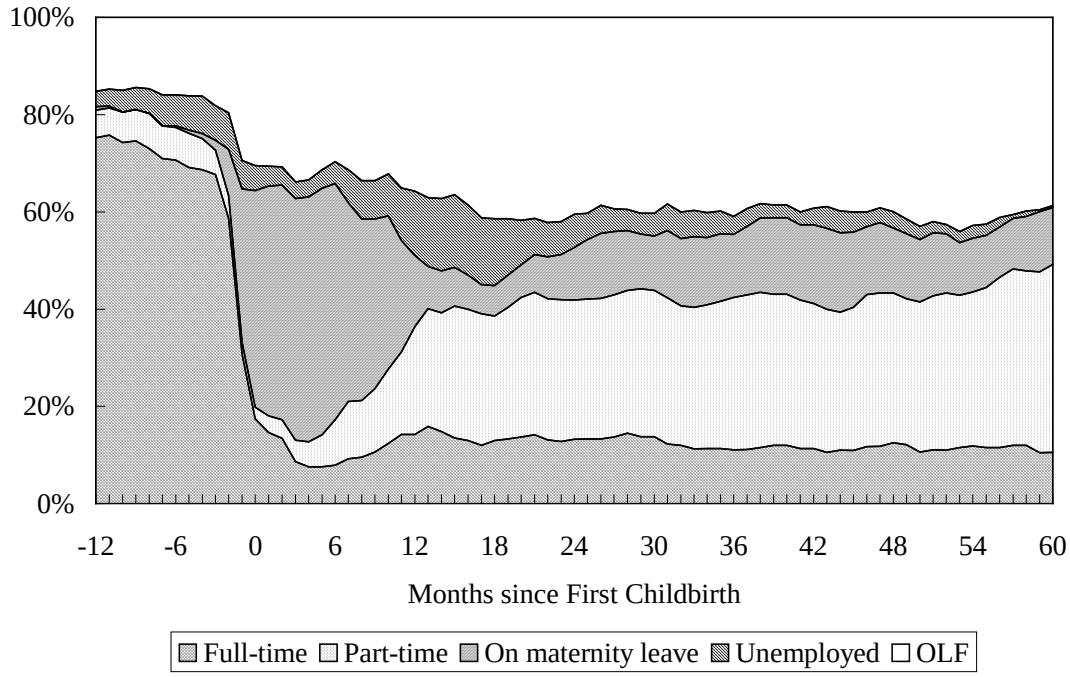

Figure 2.1. Monthly Employment Status in West Germany, 1980s.

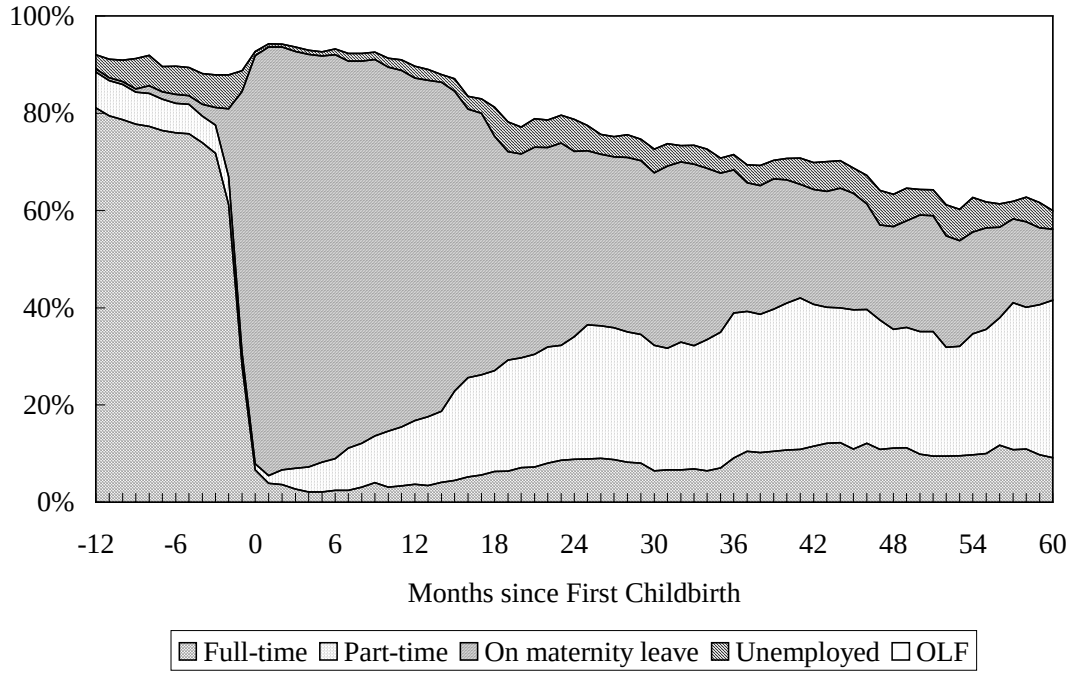

Figure 2.2. Monthly Employment Status in West Germany, 1990s.

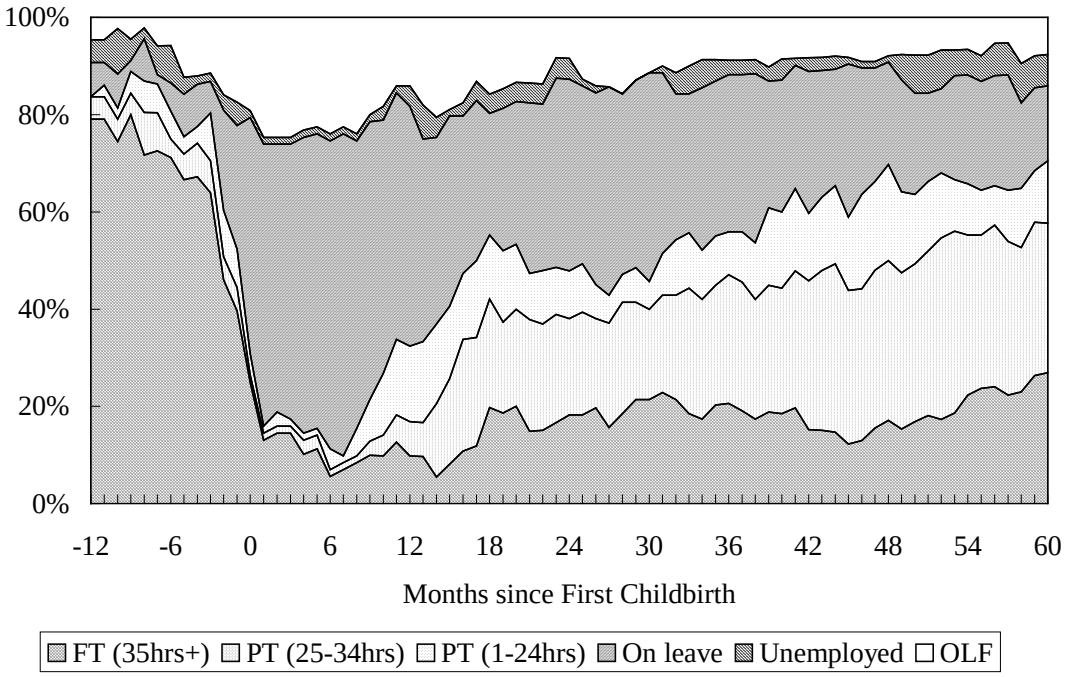

Figure 3.1. Monthly Employment Status in Sweden, 1980s.

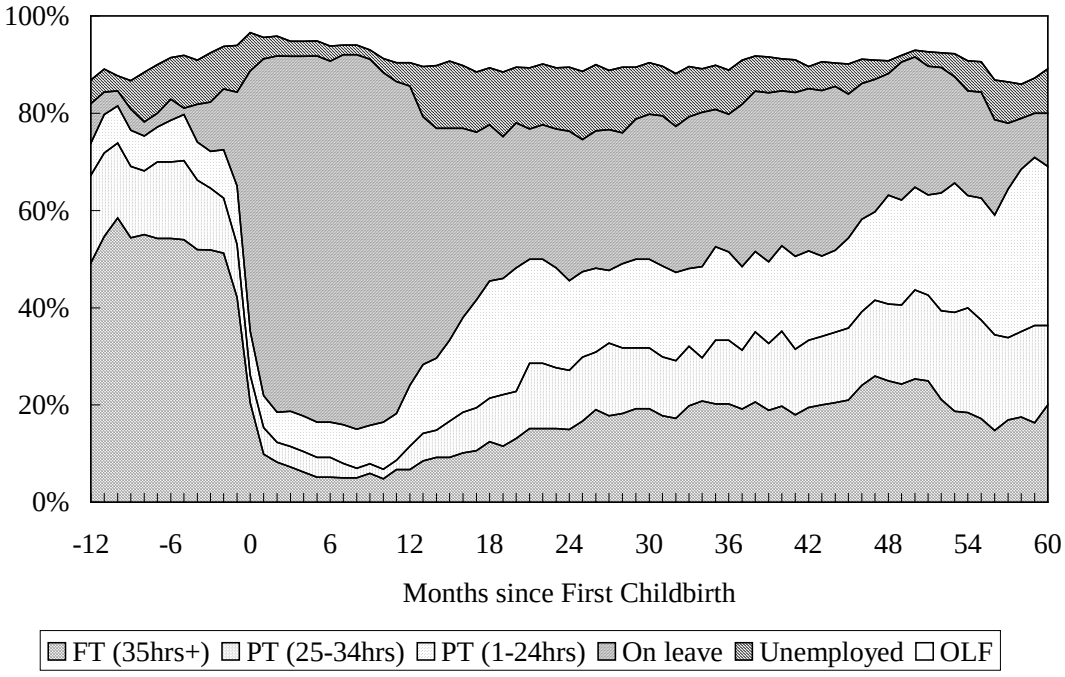

Figure 3.2. Monthly Employment Status in Sweden, 1990s.

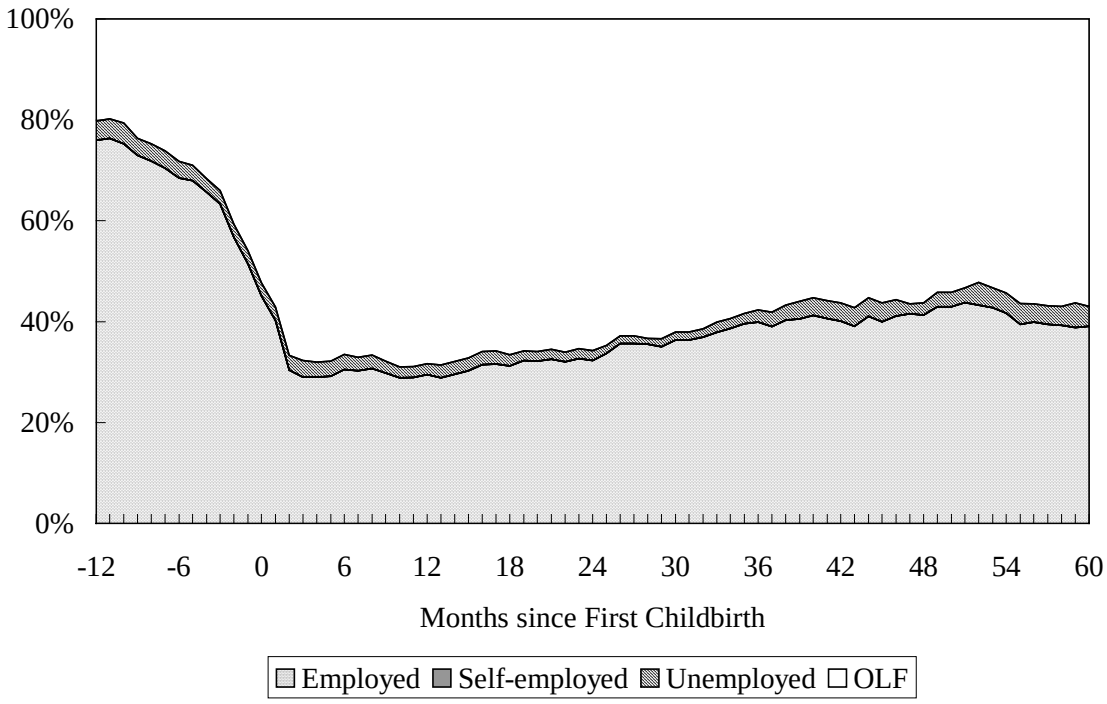

Figure 4.1. Monthly Employment Status in The Netherlands, 1980s.

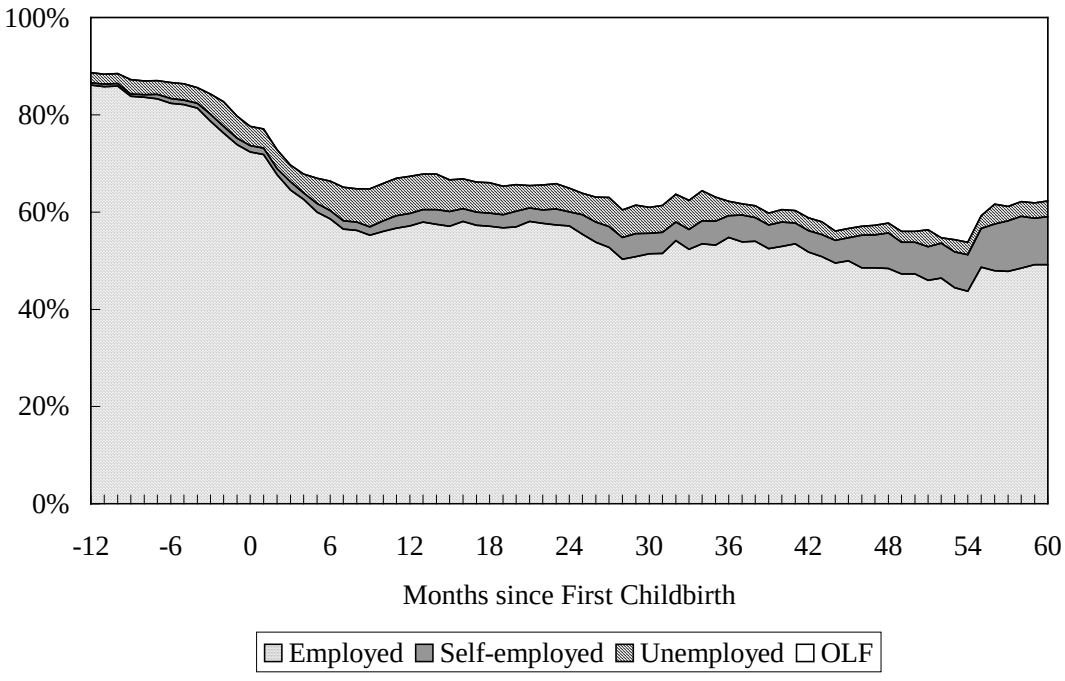

Figure 4.2. Monthly Employment Status in The Netherlands, 1990s.

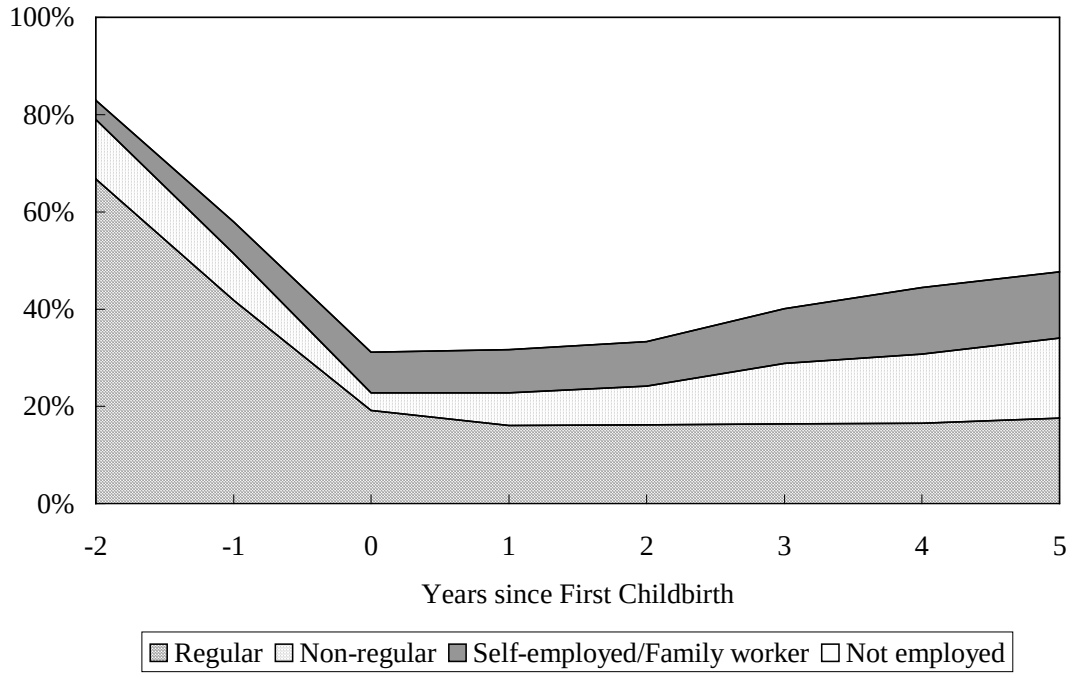

Figure 5.1. Yearly Employment Status in Japan, 1980s.

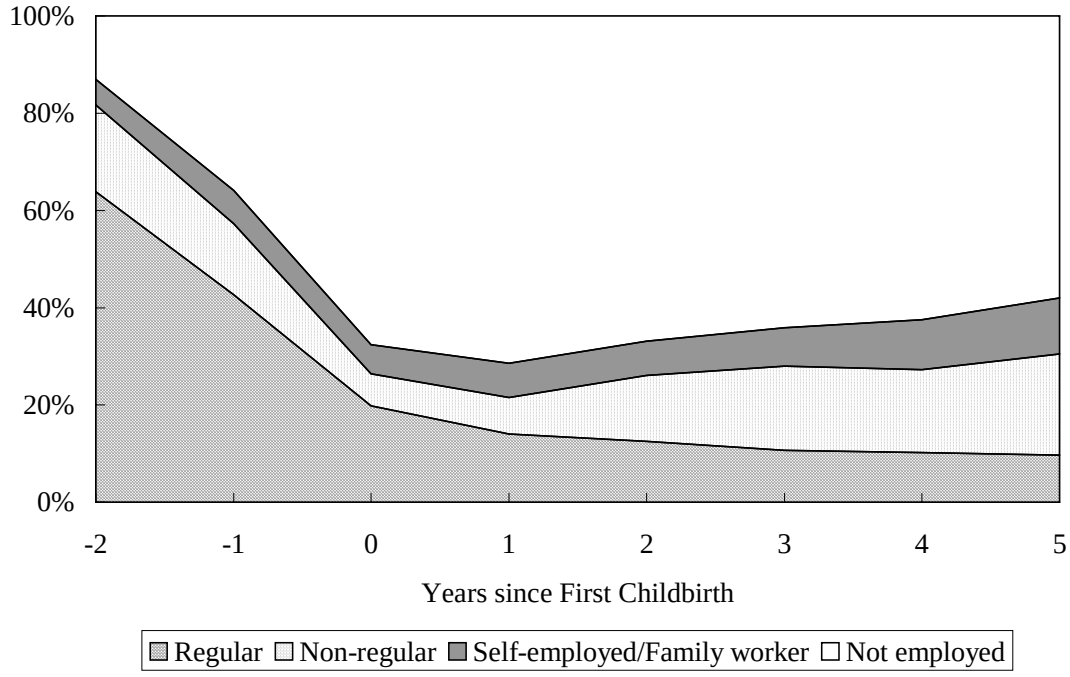

Figure 5.2. Yearly Employment Status in Japan, 1990s.