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Women's labor force transitions in connection with childbirth: A panel data comparison between Germany, Sweden and Great Britain

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Abstract. In this paper we make use of the panel aspects of the German GSOEP, the Swedish HUS and the British BHPS data. In these data sets we known month and year of childbirth and the month to month labor force status of the mother also before giving birth. This permits analysis of labor force transitions triggered by child births of different birth orders. From macro data Swedish women are known to have the highest labor force participation. The difference in total labor force participation of women is totally a result of fewer mothers entering the labor force and entering later in Germany and Great Britain than in Sweden. This paper shows that before birth of first child there is no such difference. We find that German and British women have even higher full-time labor force participation than Swedish women 12 months before the birth of the first child. The difference is more pronounced for second and third births than for first births. We suggest that these differences are caused by different family policy regimes where Germany can be characterized as a breadwinner regime and Sweden a regime oriented towards equal role sharing of father and mother. Our results on determinants of being in the labor force both after and before the birth of a child as well as determinants of the tempo of entering the labor force after birth shows that women's own human capital is important both in Germany and Great Britain, whereas in Sweden also less educated women have entered the labor force by the time the child is 2 years old.

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1. Introduction

It is well known that labor force participation of German women is substantially lower than in Sweden. Particularly large is the difference between mothers of pre-school children. In 1987 in Germany 54% of all women participated in the labor force and 35% of mothers with pre-school children. The corresponding figures for Sweden were 81% among all women and 85% among mothers with pre-school children (Gustafsson and Bruyn-Hundt 1991). In 1992 73% of British women worked in the market (OPCS 1993). Although the participation rate of British women had increased to a high level compared to the German female participation rate, the percentage of economically active women with children under 5 years had only risen to around 50%, which is far below the participation rate of Swedish mothers with pre-school children. Joshi and Hinde (1993) show that employment of British mothers with children under three years had increased from 18% in 1980 to 33% in 1988. Full-time work amongst British mothers has increased since the 1980's and the interval between leaving employment to become a mother and any subsequent return has become shorter (Dex 1984; Martin and Roberts 1984; Joshi and Hinde 1993; McRae 1991; Joshi et al. 1995).

The purpose of this paper is to analyze labor force transitions around childbirth and the extent to which these lower labor force participation rates of mothers are explained by policies in connection with childbirth. Women will choose to remain working at home or to enter market work depending on the net benefits in a broad sense from choosing one of the alternatives. A number of factors influence this choice such as the tax and benefit system (Blundell 1993; B. Gustafsson and Klevmarken 1993; Zimmermann 1993), whether taxes are jointly or individually assessed (Gustafsson 1992; Gustafsson and Bruyn-Hundt 1991; Nelson 1991), day care subsidies and availability of good quality child care (Gustafsson and Stafford 1992; Leibowitz et al. 1992) and the duration and replacement ratio of parental or maternity leaves (Sundström and Stafford 1992), the organization of the school day and after school care, the availability of (part-time) jobs and regulation as regards leave for caring for sick children. In all these respects Sweden has chosen a policy mix that benefits the two-earner family according to an ideology of individual responsibility and equal role sharing which began in the 1930s and 1940s inspired by the 1934 book by Alva and Gunnar Myrdal on the Population Crisis (Gustafsson 1994). Instead Germany has chosen policies that benefit the one earner family according to the breadwinner ideology (Sainsbury (ed) 1994; Gustafsson 1984, 1994; Gustafsson and Stafford 1994, 1995). The type of welfare state ideology also influences policy choice. There is a choice to be made between creating jobs in the public sector and thereby increasing labor demand for women or paying unemployment benefits in a more passive way as Esping-Andersen (1990) convincingly shows. Germany is the prototype of the conservative corporatist welfare state

and Sweden is the prototype of the institutional universal social democrat welfare state. A third type of welfare state is characterized as the liberal or residual welfare state with the United States as the prototype. Great Britain to a large extent falls into this category. In comparison to both Sweden and Germany very little government support to families with children exists and having children is seen as a private concern of the parents.

The outline of the paper is as follows. First we describe the data sets; secondly we explain and contrast the relevant policies in Germany, Sweden and Great Britain in order to find hypotheses for analyzing the differences in labor force behavior across the three countries and within them. The major part of the paper is an empirical analysis. We analyze the labor market status of the future mothers before entering motherhood. Then we analyze the flows into and out of the labor force by considering the situation 3 months before birth and 24 months after birth. Women who were employed both 3 months before and 24 months after birth may have different, more career-oriented characteristics than women who were home makers both 3 months before and 24 months after birth. We analyze the determinants of being a career mother. Then we turn to the timing of entering market work and analyze the characteristics of early and late returners. Finally we offer some concluding comments.

2. Data sets

We make use of the panel aspects of the German socio-economic panel (GSOEP) using every annual wave from 1984 to 1992 (Wagner et al. 1991), the Swedish household panel (HUS) using the waves 1984, 1986, 1988 and 1991 and the monthly spell data between waves (Klevmarken and Olovsson 1993) and the British Household Panel Study (BHPS) using the first three waves (1991–1993) and the retrospective data on births, employment and marriage provided by the second wave (Taylor 1992). We have used the record of births since 1980. For Sweden the month to month report on labor force status starts on January 1, 1984 whereas the West German data also cover the year of 1983. The month to month labor force status information is retrospective in all data sets covering the previous year for Germany and the two and three years between surveys for Sweden, but for Britain respondents have had to cover a 10 year period retrospectively. In her analysis of the quality of retrospective data, Dex 1991, concludes that a broad summary of employment history can be collected with a reasonable degree of accuracy. She cites a study (Freedman et al. 1988) which shows that in 1985 83% of respondents confirmed their labor force status for a month of 1980.

In addition to the month to month information on labor force status, the surveys give information on education, years of previous labor force experience, wages of the interviewed persons and their husbands and whether they were legally married or not. We also know how many children the woman had before the birth or births included in our observation periods. For the births within our observation periods (1984–1991 for Sweden, 1983–1992 for Germany and 1980–1992 for Great Britain), we know month and year of birth. Some births that we observe are first births, others second births etc. This is important because we may expect different labor force

behavior before first birth than before second birth, and behavior after a birth may also differ according to birth order.

The German data consists of three different data sets: 1) ethnic Germans and immigrants in West Germany, except 2) Greek, Italian, Spanish, Turkish and Yugoslavian immigrants who are in the second dataset and 3) East Germans. The East German panel data was first collected very shortly after reunification in 1990, which is an admirable achievement of the DIW research team who run the GSOEP. For German women in West Germany, we observe 465 first births, 327 second births and 121 third births. In the Swedish data we observed 91 first births, 105 second births and 55 third births. In the British data we observe 949 first births, 610 second births and 176 third births. We have chosen not to analyze births of higher order.

The panel data set makes it possible to identify the women who gave birth to their first child during the years covered by the data and then to use the month to month information to find their labor force status before birth. For women who gave birth shortly after the beginning of the data collection we may know their labor force status 3 months before birth but not 12 months before birth. This explains the larger number of observations on 3 months before birth than on 12 months before birth.

3. The breadwinner ideology against individual and equal role sharing

The most important differences between Sweden, Great Britain and Germany as regards policies that affect women's work can be summarized with a reference to Sainsbury (1994) reproduced in Table 1. Whereas there are elements of the breadwinner model and the individual model in all countries, it is safe to say that the breadwinner model is more evident in Germany than

Table 1. Dimensions of variation of the breadwinner and the individual models of social policy

Dimension	Breadwinner model	Individual model
Familial ideology	Strict division of labour Husband = earner Wife = carer	Shared roles Husband = earner/carer Wife = earner/carer
Entitlement Basis of entitlement	Differentiated among spouses Breadwinner	Uniform Other
Recipient of benefits	Head of household	Individual
Unit of benefit	Household or family	Individual
Unit of contributions	Household	Individual
Taxation	Joint taxation Deductions for dependents	Separate taxation Equal tax relief
Employment and wage policies	Priority to men	Aimed at both sexes
Sphere of care	Primarily private	Strong state involvement
Caring work	Unpaid	Paid component

Source: Sainsbury (1994).

in the other two countries, and the individual model is the more evident in Sweden. Great Britain recently adopted a system of individual taxation and has limited social security rights for married women since the benefits depend on husband's income (Sainsbury 1994). This places Great Britain between Germany and Sweden on the breadwinner axis of Table 1. But the most important difference between Great Britain and the other two countries is that benefits are smaller.

In Table 2 we summarize social policies relevant to the timing of work for recent mothers in Germany, Great Britain and Sweden. The German tax system gives a "marriage benefit" to all couples except those couples where husband and wife earn equal incomes, whereas the Swedish tax system has totally individual tax scales since 1971, which do not pay any attention to the number of dependents. As a result, the small incomes of part-time working wives are taxed at lower tax rates than the large incomes of full-time working husbands in Sweden, whereas in Germany the small incomes of part-time working wives are added to the large incomes of full-time working husbands and taxed at his marginal tax rate. Gustafsson and Bruyn-Hundt (1991) analyze these effects empirically for 1984 and find that the contribution to family income of the wife's earnings is smaller after tax (12%) than it is before tax (15%) in Germany, but in Sweden the opposite is true, the corresponding figures being 31% and 29%. This aspect of the tax systems implies that Swedish wives have more economic incentive to increase work hours relative to their husbands than German wives, and a part-time job contributes relatively more to family income.[1]

In Great Britain there are two basic deductions, one transferable and one not transferable. The transferable Zero Rate Allowance (ZRA) together with steep progressive tax rates create a disincentive for British women to work and this effect is larger the larger the amount of ZRA, but the separate tax system once in the labor market creates an incentive for women to work longer paid hours. The relatively large personal non-transferable ZRA generates an incentive for married women to work part time. For German and British employers social security payments are dependent on earnings per week. In Sweden all contributions have to be paid by the employers as a flat rate on the sum of wages. The Swedish wage bill tax is therefore neutral between hours of work, but also larger, which creates a larger wedge between supply price and demand price of labor.

One implication of the breadwinner model of public policies in Germany is that there is very little full-day child care, although in 1990 65% of German children from age 3 to age 6 occupied a space at the local government subsidized good quality kindergarten which is part-day (Zimmermann 1993). Also the school day is organized in such a way that it is assumed that a parent will help with the heavy school home-work that German children are supposed to carry out in the afternoon.

The Swedish mother on the other hand who wants to combine work and family is assisted by a number of provisions. In 1988 roughly 90% of Swedish children under the age of one were exclusively cared for by their parents who were on paid parental leave (SCB 1989). For older pre-school children, 1 to 6 years old, the per cent cared for exclusively by parents fell to 30%, which is larger than labor force participation rates of mothers, 85% in 1990, indicates. Some parents apparently shared caring while working or studying on

Table 2. Social policies relevant to timing of work for recent mothers in Germany, United Kingdom and Sweden

	West Germany	United Kingdom	Sweden
Taxation	Joint, splitting tariff since 1948 basic allowance per adult 1986: DM 4536, 1992: DM 5616 pa;	Individual taxation since 1991 2 Zero rated allowances, personal (1994: £ 3445 pa[b]); married couples allowance (1994: £ 1720 pa[b])	Individual taxation since 1971 basic allowance: 1995: 10000 SEK;
	Child tax allowances: 1986: DM 2484, 1992: DM 4104[a]; plan DM 6264 per child pa[b]	No allowances for children[c]	No allowances for children[d]
Basic allowance transferable to spouse?	Yes	Married couples: yes; personal: no	No
Social security payments: are part-timers attractive for employers?	Employer pays full amount if earnings pm < DM 610 (1990) else half-half employee-employer[c]	Employer and emplyee don't pay if earnings pw < £ 52 (1990); else half-half employee-employer[c]	All contributions paid by the employer as flat rate on sum of wages[c]
Maternity leave, parental leave	Erziehungsgeld: DM 600 pm for 10 (1986), 12 ('88), 18 ('90), 24 months ('92); from 7th month means tested against family income[a]; 1993: until child is 3 to be shared between mother and father. Parent on leave can work for an employer < 20 h/w[b]; paid occasional care: 10–25 days per parent depending on number of children until child is 12[b]; % mothers receiving Erziehungsgeld from the child's 7th month unknown.	Till 1986: Maternity grant (£ 25) and maternity allowance; since 1986 90% of salary 6 weeks, then flat rate of £ 30 for 12 weeks.[f] Employers offer improved schemes; early 1980's: 20% of pregnant female workers entitled[m]; 60% in 1988[g]	15 months since 1989 90% of earnings before birth paid to share between mother and father (since 1996 75%); 6 h work day with pay reduction until youngest child is 8; paid occasional care max 120 days pa per child until child is 12[d]
Job protection period	24 months[h]	6.7 month (29 weeks after birth)	18 months[d]
Eligibility criteria	No	Insurance period 2 years: > 16 h pw or 5 years: 8 h pw > part-time-work < 16 h pw[f]; since 1995 no hours conditions.	No
Guarantee to same job	No	No	No

Child benefits	Kindergeld paid to carer until child is 16[e]: flat rate pm per child, 1980–90: DM 50 for 1st; positively child order dependent, but constant after 4th DM 240. Payments decline with income but minimum DM 70 for 1st and DM 140 for subsequent children (1990). Kindergeldzuschlag for those who do not receive sufficient benefits from the child tax allowance, income dependent with upper bound.[a] 1996: DM 200 pm for 1st and 2nd child and DM 300 pm for others[b]	Flat rate per child paid to the mother. In 1994: £ 10 pw for the eldest or only child; £ 8 pw for subsequent children[b]	Cash child benefits paid to the mother until child is 16. 1989 child allowance pa: 9000 SEK[i]
Childcare public/private costs for the parent(s) facilities: time, age of children	1990: 1.4% of age 0–3 in Kinderkrippen; 37% of age 3, 64.4% of age 3.6 in Kindergartencare. 9% of places in child care centers full-time[a]	1986: 2% of children 0–3 in subsidized day care.[j] 44% of age 3–4 in nursery schools; half part-time. 40–50% in play groups for 5–6 h pw[f]. Registered child care covered 20% of children age 0–5[l] nursery schools, playgroups and registered child minders mostly private.	1994: 51% of age 0–6 in subsidized daycare. 39% of which in day care centers. 12% of which with subsidized host mothers. Pre school integrated in day care centers but extra available for children not in day care[k]
Organization of schoolday	School starts at age 6. Schoolday about 5 h a day; over at 1 p.m., differs between schools[a]	School starts at age 5, approx. 9 a.m.–3 p.m. Children of age 4–5 submitted to infant classes in primary schools on local availability of places. Children of age 3: Locally caring policy of full-time/part-time nursery education.	School starts at age 7. Uniform, all school work at school, children cared for during lunch.[d] Since 1994 parents can choose to send their children from age 6. In 1994 50% of children 7–10 are in subsidized after school care[k].

pa = per annum; pm = per month; pw = per week.
[a] Zimmermann (1993); [b] Ditch et al. (1995); [c] Vermeulen et al. (1995); [d] Gustafsson and Stafford (1995); [e] Übersicht über die Soziale Sicherheit (1991); [f] Dex et al. (1993); [g] McRae (1991); [h] Ostner (1993); [i] Aronsson and Walker (1995); [j] Moss (1988, 1990); [k] Socialstyrelsen (1995); [l] Cohen and Clarke 1986:77; [m] Brown and Small (1991), Daniel (1990).

non-overlapping schedules. Parents' fees for public day care (mostly income dependent) averaged less than 10% of total costs for the whole period 1975–1990.

In contrast with Sweden, child care policies in Great Britain emphasize private responsibility on an increasing scale during the 1980s. Apart from pre-primary education, public provision of day care is extremely limited. While the state has been involved in supervision (e.g. the administration and inspection of care by child minders) and a limited delivery of services like a few day care nurseries and a few nursery schools, child care has not been supported through public expenditures. On the contrary child care services provided by employers were liable to taxation up to 1990 (OECD 1990a:139). Mothers who are on state benefits make free use of a space and have priority to publically provided day care, along with lone parents, while working mothers have no priority. As a result British, like German mothers, have been compelled to rely on ad hoc arrangements and the informal sector is dominant in this respect (Sainsbury 1996). By contrast only 6% of Swedish mothers in 1988 relied on unpaid care provided by friends and relatives (SCB 1989a, p. 7).

Paid parental leaves in Sweden replaced 90% of lost earnings until 1996 when it was lowered to 75% and is calculated on the basis of earnings before childbirth. A Swedish woman therefore has an incentive to have a job first and a child next, and to return to work between births unless she has a second child before the first child is 30 months old, in which case earnings before the birth of the first child is allowed as a basis (since 1986). Unlike Swedish paid parental leave, German parental leave subsidy is not related to previous earnings. However parental leave subsidy from the 7th month becomes means tested against family income (Ostner 1993, p. 102). The family policies in the former GDR in many respects resembled those of Sweden. There were in the period 1949–1965 a network of child care centres, kindergartens and facilities for free school lunches created (Zimmermann 1993, p. 215). Under pressure from low birth rates provisions were extended to enable East German women to combine work and family. Paid maternity leave with full net salary was extended to twenty weeks in the period 1972–1989 and in 1980 the proportions of children with a space in the child care centres was 61% (Zimmermann 1993, p. 216). However, reunification, which implies that institutions will change to West German standards, resulted in closing of the day care centres in former GDR, a dramatic increase in unemployment for both men and women, decreasing labor force participation rates for women and a drop in fertility from close to two children per woman to well below one child per woman. This placed East Germany considerably below the fertility rates in the former FRG, which are already low by international standards (Zimmermann 1993, p. 238).

In conclusion, we see that Sweden and Germany are on opposite sides: Swedish public policies offer facilities and subsidies to encourage the combination of work and family, while Germany is bread-winner oriented offering tax-benefits to one earner/one carer couples, long maternity leave period with low pay, part-time child care facilities and part-time school day. The UK views the costs of children as a private business of parents (similar to the United States). Individual parents can enjoy better provisions than the national standards laid out in Table 2 if they work with an employer who has as a result of negotiations conceded to better provisions.

4. Labor force participation before entering motherhood

The labor force status of German, Swedish and British women 12 months and 3 months before the birth of their first child is presented in Table 3. Twelve months before birth should indicate the situation before any adjustments in connection with birth has been done and three months could possibly be the beginning of adjustments. Although the proportion participating in the labour market of first time mothers is highest in Sweden, the proportion of them being in full-time work is lower than in Germany and Great Britain. In this respect Sweden does not appear to be the work society it is usually considered to be and which is also the intention of the institutional welfare state.[2]

Of the groups considered in Table 3 only immigrant women in West Germany are full-time home makers before they have children to any large extent: 27% 12 months before birth and 41% 3 months before birth. Among all the groups of women there is a considerable decrease in full-time work between 12 months before birth to 3 months before birth. In West Germany part-time work does not increase during this period as it does in East Germany. Being on maternity leave does increase as the date of birth is nearing, and in Sweden this increase is relatively high. A rational Swedish mother to be should make sure her income is as large as possible right before birth. It is better to be on leave from a full-time job than have a part-time job. The drop in 'long part-time' and increase in 'on leave' between 3 and 12 months confirms such behavior, but the low full-time participation rate does not. In East Germany the drop from 83% full-time a year before birth of the first child to 66% three months before birth is accompanied by an increase in total unemployment and an increase in part-time work. This may be a period phenomenon caused by reunification which resulted in an increase in unemployment in the new German states of former East Germany from 10% in 1991 to 21% in 1993, and for women 28% (Zimmermann 1993). Similarly the decrease of full-time and the increase of part-time work may be explained, if part-time work has been easier to find than full-time work. In West Germany the drop in full-time work is accommodated by increases in unemployment and unpaid work at home both among German women and among immigrant women. However, among German women both in West and East Germany two thirds are in full-time work three months before the birth of the first child as against only 51.1% of the Swedish women. A rational East German woman before reunification, like the Swedish mother to be would maximize her earnings right before giving birth, but since reunification West German rules as in Table 2 apply. Since German women do not lose maternity payment by going directly from school to motherhood we had expected that many more German women than Swedish women to have their first child right after finishing their education. This result may imply that German women make the most of their working life before being mothers because they know they will soon enter into the status of home maker; Ostner (1993) descibes this as 'immobile waiting at home with a cooked meal for their family members living a patchwork and zigzag life'. In contrast Swedish women know that they are expected to go back to work again.

The lowest employment rate 3 months before first birth is found among women in Great Britain (51%) and Immigrants in West Germany (43%). Ac-

Table 3. Labor force status of women in Germany, Sweden and Great Britain 12 and 3 months before birth of first child

	West Germany				East Germany		Sweden		Great Britain	
	Germans		Immigrants							
	12 months	3 months	12 months	3 months	12 months	3 months	12 months	3 months	12 months	3 months
Full-time work[a]	75.6	67.7	48.2	40.0	83.0	66.1	56.9	51.1	73.7	47.3
Part-time work	6.3	5.2	6.1	2.7	2.1	12.9			5.1	4.0
(long 25 – 34 h/w							18.1	9.1		
short < 25 h/w)							12.5	11.4		
In education	5.6	4.1	7.3	3.8	8.5	6.5	6.9	5.7	5.2	1.4
Leave of absence, sick	–	–	–	–	–	–	4.2	14.8	1.1	9.1
parental vacation maternity[b]	3.6	3.7	1.8	3.2	0.0	1.6	–	–		
Unemployed	3.6	7.7	4.9	7.6	6.4	12.9	1.4	2.3	5.0	5.8
Unpaid work at home	4.7	9.0	27.4	41.1	0.0	0.0	0.0	2.3	9.0	31.0
Retired	0.6	0.4	0.6	0.5	0.0	0.0	–	–		
Other	0.0	2.2	3.7	1.1	0.0	0.0	0.0	3.4	0.5	1.4
n	447	465	164	185	47	62	72	88	946	943

Data: Germany GSOEP Germans and Immigrants in West Germany 1983 – 1992, East Germany 1990 – 1992; Sweden HUS 1984 – 1991; Great Britain BHPS 1992.

[a] Full-time in Germany: > 35 h/w; full-time in Britain: > 31 h/w; full-time in Sweden: > 34 h/w. Long part-time in Swedish AKU is > 19 h/w. This breakdown is not available in HUS.

[b] In Germany maternity leave is specified as a separate category, in Sweden and Great Britain leave is a mixed category.

cording to Table 3 the employment rate of British first-time mothers declines sharply between 12 and 3 months before birth from 79% to 51%. The most likely explanation is that during the observation period a high proportion of the economically active British women were not entitled to maternity leave, as McRae (1993) shows, as they left their jobs when they were pregnant but at times which were not particularly related to the statutory provisions. A large proportion of British women end up in leave of absence three months before birth but unlike mothers in Sweden and similar to immigrant women in Germany the largest proportion of British women end up in unpaid work at home three months before birth.

Because Swedish women lose benefits during parental leave if they have smaller earnings three months before birth, we had expected Swedish women to be more work-oriented right before birth than women of the other countries where benefits are unrelated to previous earnings. However this is not what we find. The tight labor market in Sweden until 1991 may have induced women into thinking that their risk of losing their job was small so that they chose to be on leave which does not lower benefits rather than at work. Physically demanding jobs also give the right to extended pregnancy leave.

5. Home makers and market career women

The purpose of this section is to examine the group of women with certain characteristics that are career-oriented in the sense that they were participating in the labor force until 3 months before birth of their child and returned to market work after the end of legal maternity leave. Ondrich et al. (1996) analyzed the subsample of those returning after the termination of the protection period. Examining labor force status 3 months before birth and 24 months after birth we can construct four groups of women: those who were employed both before and after birth denoted (ee), those who were employed before birth but not after (eh), those who were not employed before birth but employed after birth (he) and those who were not employed either before birth or after birth (hh). Because the period after birth is 24 months and the period before birth is 3 months, we may expect a larger number of observations to be censored after birth than before birth, during the 10-year period 1983–1992 for West Germany, the 8-year period for Sweden 1984–1991 and the 3-year period for East Germany 1990–1992 that we observe.[3] The choice of 24 months was to capture career-oriented women under the German provisions, which allows for 24 months job protection whereas the Swedish job protection period is 18 months. For Great Britain, this time span after childbirth may not be as useful at capturing career-oriented women, because the job security period is only 6.7 months (see Table 2 above). The results are presented in Table 4.

Consistent with findings in Table 3 above, in each successive birth order among West German women the group of continuous labor force participants (ee) decreases while the group of continuous home makers (hh) increases to well over half of the women. Among Swedish women the group of continuous career women remains about half also for the higher birth orders while the group of continuous home makers remains a minority of about 12%. After first birth the employment rate declines to 57.8 and the

Table 4. Labor market transitions of women in Germany, Sweden and Great Britain based on labor market status 3 months before and 24 months after birth according to birth order

	Employment rate				Transitions (excluding censored observations)					
	Before birth (3 months)		After birth (24 months)							
	lfp	n	lfp	n	ee	eh	he	hh	Total	n
West Germany 1983 – 1992, Germans										
First child	72.9	465	39.5	339	32.6	41.9	6.9	18.6	100.0	334
Second child	37.3	327	36.1	219	25.1	10.5	11.0	53.4	100.0	219
Third child	31.4	121	27.1	85	18.8	14.1	8.2	58.8	100.0	85
West Germany 1983 – 1992, Immigrants										
First child	42.7	185	35.1	111	24.8	16.5	11.0	47.7	100.0	109
Second child	32.6	132	28.6	91	20.0	11.1	7.8	61.1	100.0	90
Third child	31.9	72	33.3	51	26.0	8.0	6.0	60.0	100.0	50
East Germany 1990 – 1992										
First child	79.0	62	39.0	41	37.8	43.2	2.7	16.2	100.0	32
Second child	70.5	44	61.3	31	48.4	29.0	12.9	9.7	100.0	31
Third child	61.5	13	50.0	8	12.5	50.0	0.0	37.5	100.0	8
Sweden 1984 – 1993										
First child	71.6	88	57.8	83	46.7	29.3	12.0	12.0	100.0	75
Second child	57.3	103	73.0	100	49.9	7.0	25.7	17.4	100.0	87
Third child	74.1	54	70.6	51	51.0	24.5	18.4	6.1	100.0	49
Great-Britain 1980 – 1992										
First child	52.6	836	34.3	726	22.7	28.1	11.6	37.6	100.0	726
Second child	28.7	547	37.6	425	20.0	6.1	17.4	55.5	100.0	425
Third child	30.9	156	33.6	110	19.1	4.5	14.5	61.8	100.0	110

Data: Germany GSOEP Germans and Immigrants in West Germany 1983 – 1992, East Germany 1990 – 1992; Sweden HUS 1984 – 1993; Great Britain: BHPS 1992; lfp = labor force participation rate per cent, n = number of observations, e = employed, h = not employed at home, ee = employed 3 months before and 24 months after birth, eh, he and hh accordingly. Differences in the number of observations are caused by censoring in the spell data.

proportion of women in 'eh' is higher after first birth whereas the proportion 'he' is higher after second birth. This is consistent with findings of Hoem (1993) and indicates that Swedish women are making use of the "speed premium", which means that maternity pay will be based on earnings before first birth if the second child is born within 30 months after the first.

The labor force transitions in connection with child birth of East German women look much more like the Swedish than like the West German although these data are from after the reunification. This indicates that the infrastructure of East Germany had not yet totally changed into the breadwinner regime. The British low employment rates before and after birth are also reflected in the small proportion of 'ee'-mothers in Great Britain. Only 23% of the British first-time mothers were employed three months before and 24 months after first birth. The findings of other British studies suggest that our proportion of 'ee'-mothers is low (Macran et al. 1995) and that more mothers do return if an earlier month is chosen. Because of the poorer maternity leave provisions, many British women return to work earlier. The short supply of day care and the costs of care will also contribute to some mothers either not returning to work after childbirth, or to not continuing to work after they have returned. Also the transferable ZRA (see Table 2) creates disincentives for married women to work. The proportion of recent mothers in Great Britain who are not employed 24 months after the second and third birth is much higher than in Sweden.

The next step of the analysis is to find out whether women with continuous careers and women who are continuous home makers have different characteristics. Logit regressions were estimated on being an 'ee'-woman, and an 'hh'-woman. The probability of being an 'ee'-woman when considering women's own human capital and the income of her spouse are reported in Table 5. For German women in West Germany the results tell a convincing story that the human capital accumulated by the women before the birth of the child matters in determining whether she is an 'ee'-woman. The longer the education of the woman and the more labor market experience she had before birth the more likely she is to have a continuous labor force career and this is true irrespective of birth order. The breadwinner ideology would assume that wives of richer husbands do not have to work in the market so that we could expect a negative influence from husband's income on the probability of being an 'ee'-woman. Only for second births of West German women is husband's income significant and it then increases rather than decreases the likelihood of the mother being a continuous labor force participant. This suggests assortative mating in the marriage market rather than a breadwinner effect. Further we expected that women whose husbands relative to themselves had larger human capital would be less likely to be career women. In a more extended logit model we measured this by difference in years of schooling but this variable was never significant, nor was the age differential significant. Finally it may be expected that women who do not intend to have another child may have a different labor force behavior than women who expect to have another child in the near future. We entered a dummy variable for not having another child during observation period, but the variable was not significant. We performed logit regressions on being a 'hh'-woman (not shown) which mirrored the results of being an 'ee'-woman with opposite signs. The findings on the determinants of being an 'ee'-woman

Table 5. Logit regressions on the determinants of unbroken labor market career (ee 3,24) of mothers in Germany, Great Britain and Sweden according to birth order (*t*-values in parentheses)

	West Germans		Immigrants		East Germans		Great Britain		Sweden	
	First	Second	First	Second	First	Second	First	Second	First	Second
Const.	−1.670	−2.541	−4.653	−7.167	−3.659	7.641	−5.554	−4.948	−4.802	−4.855
	(−1.61)	(−1.67)	(−1.79)	(−2.61)	(−0.73)	(1.55)	(−5.72)	(−3.46)	(−1.95)	(−2.04)
Agemo	−0.061	−0.131	−0.220	0.056	−0.344	−0.693	−0.075	−0.145	0.165	0.187
	(−1.14)	(−1.76)	(−1.52)	(0.75)	(−1.02)	(−2.07)	(−0.93)	(−1.38)	(1.51)	(1.73)
Smo	0.196	0.265	0.710	0.425	0.735	0.227	0.338	0.383	0.150	0.109
	(2.93)	(3.31)	(2.84)	(1.56)	(1.83)	(0.81)	(3.30)	(2.76)	(0.99)	(−0.86)
Expmo	0.122	0.171	0.537	0.127	0.496	1.306	0.210	0.293	−0.207	−0.126
	(2.55)	(2.68)	(3.48)	(1.69)	(1.58)	(2.35)	(2.57)	(2.74)	(−1.77)	(−1.24)
Income spouse/1000	−0.144	0.247	−0.179	−0.126	0.244	0.107	[a]	[a]	−0.014	−0.099
	(−1.60)	(2.20)	(−0.62)	(−0.40)	(0.43)	(0.22)			(−0.24)	(−1.74)
n	266	188	93	73	30	28	645	383	61	73
log L	−158.1	−93.2	−29.8	−27.9	−15.9	−13.4	−217.1	−104.3	−36.1	−43.6

Data: GSOEP 1983 − 1992; BHPS 1980 − 1992; HUS 1984 − 1991, ee 3,24 = labor force participant 3 months before and 24 months after birth. Agemo, smo, expmo = age of mother, years of schooling of mother, years of labor force experience of mother at the time of survey nearest before birth of child. Inc. spouse is spouse's income before taxes at the time of survey nearest before childbirth.

[a] BHPS does not give information on income of the spouse, because it is retrospective data. Third births are not included in the logits because we have two few observations.

among immigrant women in Germany are similar to those for West German women; the woman's own human capital determines her behavior while husband's income does not influence the woman's choice for a continuous career.

Joshi et al. (1995) study the 1946 and 1958 cohorts of British women. They suggest that polarization has been occurring between low and highly educated women. Highly educated women who delayed their first birth, built up work experience before birth and were able to use the new maternity legislation and pay for child care. In their analysis, age of mother at child birth became insignificant when education and work experience were included since those who delay return are less educated and had their child at an early age. The same findings can be seen in studies by Dale and Joshi (1992), Jenkins (1994), Gregg and Wadsworth (1995). Our results in Table 5 do not reflect similar polarization, rather we find that the woman's own human capital i.e. education and labor force experience determine whether they were in market work both three months before and twenty four months after birth or not. We choose to specify the regressions in the same way for all countries although for Britain including the interaction between experience and age, and experience and education did perform better, confirming the results of the above mentioned British studies.[4]

Turning to a similar analysis for Sweden we get much less precise and insignificant results. We are inclined to believe that these results reflect real differences, which can be explained by the breadwinner ideology versus the individual equal role sharing. Swedish mothers are able to combine work and family also with fairly small amounts of human capital. German women can act according to the individual equal role sharing model only if they are well educated. If they are less educated the breadwinner ideology and institutions puts them into the home maker position.

6. The timing of entering the labor force after birth

In this section we analyze how long it takes before recent mothers enter market work for the first time after birth. We do not require that the woman remains in the labor market for an extended period.[5] Such a restriction on the data would lower the numbers because in all the groups studied there is a considerable amount of in and out movements. The figures in Table 6 are therefore not strictly comparable with the employment rate after birth 24 months as presented in Table 3 above. In Table 6 we present the cumulative proportion of recent mothers still not entering the labor market by three-monthly intervals after birth controlling for the exposure to risk. Very few mothers were at work 3 months after child birth in any of the groups we studied. Leibowitz et al. (1992) find that as many as one third of US mothers are back to market work within 3 months after the birth of their first child. Interestingly and consistent with the shorter job protection period British mothers entered a job considerably sooner after birth than women in Sweden and Germany. It takes nine months before one quarter of British mothers are in market work after the first birth but after six months already 15% are employed. In this respect Great Britain resembles the United States more than it resembles Sweden and Germany. The differences between Sweden and Ger-

Table 6. Cumulative proportion of recent mothers not entering the labor market by months since birth and birth order: Germany, Sweden, Great Britain

Months since birth	A. First birth					B. Second birth					C. Third birth				
	West Germany		East Germany	Sweden	Great Britain	West Germany		East Germany	Sweden	Great Britain	West Germany		East Germany	Sweden	Great Britain
	Germans	Immigrants				Germans	Immigrants				Germans	Immigrants			
3 months	0.95	0.97	0.98	0.95	0.96	0.96	0.98	0.95	0.96	0.94	0.99	1.00	1.00	0.98	0.96
6 momths	0.94	0.94	0.98	0.94	0.85	0.94	0.96	0.86	0.93	0.84	0.93	0.98	1.00	0.98	0.86
9 months	0.86	0.87	0.97	0.88	0.76	0.89	0.93	0.86	0.87	0.75	0.88	0.90	1.00	0.80	0.81
12 months	0.76	0.82	0.94	0.60	0.72	0.85	0.89	0.77	0.67	0.72	0.85	0.83	1.00	0.70	0.76
15 months	0.68	0.75	0.69	0.51	0.69	0.80	0.84	0.59	0.51	0.67	0.80	0.76	0.91	0.57	0.70
18 months	0.62	0.71	0.64	0.34	0.66	0.76	0.80	0.53	0.41	0.63	0.77	0.71	0.72	0.50	0.66
24 months	0.52	0.64	0.40	0.22	0.60	0.67	0.76	0.37	0.27	0.55	0.73	0.69	0.72	0.29	0.55
30 months	0.48	0.60	0.30	0.22	0.57	0.63	0.69	0.27	0.22	0.47	0.64	0.64	0.72	0.25	0.45
36 months	0.45	0.57	0.27	0.20	0.53	0.56	0.62	0.21	0.16	0.42	0.59	0.60	0.72	0.22	0.41
N	403	160	50	91	860	290	119	44	105	559	109	68	12	55	161

Data: Germany GSOEP; West Germany, Germans and Immigrants 1983 – 1992, East Germany 1990 – 1992. Data Sweden HUS 1984 – 1991, Great Britain 1980 – 1992 (retrospective data).

many are very small when comparing the proportion of mothers who are employed when the child is half a year, and it does not differ between the first and second birth. When the child is twelve months old the Swedish mothers are much more likely to be in market work than the German mothers, and this difference between the two countries becomes more pronounced as the child grows older. When the child is three years old 80% of Swedish mothers have entered the labor market compared to 55% of the German women and 43% of immigrant women in West Germany. (The East German figures suffer from the short panel.) When the child is three, the proportion of women observed in the labor market after birth is highest in Sweden at every birth order.

In Table 7 we present proportional hazard models of the duration in months before entering market work for mothers after childbirth. The results of Table 7 tell a similar story as the selection into being an 'ee'-woman. We added a variable for the interaction of age and employment experience. This variable takes account of the fact that the same amount of employment experience might have different effects at different ages. Similarly at a given age different amounts of experience might have a different impact. Among West German women, at the mean experience, the older the woman at the child's birth the later she returns, and at the mean age at childbirth the more market related human capital she accumulated before the birth of her first child the earlier she entered employment (see Appendix Table 8 for means). Income of the spouse has a significantly negative effect implying that women with richer husbands delay their entrance to the labor force. The job protection period in Germany has changed over time. Time dummies to capture those changes were never significant in contrast to the finding by Ondrich et al. (1996)[6]. Also immigrant women in West Germany return quicker if they have more human capital. The only difference between immigrants and other West German women is that years of employment experience is the most important explanatory factor when analyzing the tempo of entering the labor market after birth of immigrants, while educational level is most important for West Germans. This is irrespective of birth order.

The regression on the Swedish duration before entering work after second birth shows that education does not influence the timing of entering employment. After the second birth, a mother returns to work later the older she was at birth of her second child (at mean work experience). The positive interaction effect between age of the mother and her experience for second-time mothers in Sweden indicates that at ages above the mean, more employment experience increases the tempo of entering the labor market after birth while the opposite is true at younger ages at second birth[7]. For first births we do not find any significant results which may have to do with the fact that about 80% of Swedish women who have one child proceed to have a second child and it is profitable to have the second child soon after the first without reentering.

In contrast to the German and Swedish mothers, British mothers of 2 or 3 children are in employment sooner the older they are at childbirth. This result is consistent with other British studies which have found that career oriented women who are also highly educated delay childbirth and return quicker after giving birth when their maternity leave has expired (Macran et al. 1995; Joshi et al. 1995). The variable that controls for interaction between

Table 7. Proportional hazards of months before entering the labor force after childbirth according to birth order (*t*-values in parentheses)

	First birth			Second birth				Third birth		
	West Germany		Great Britain	West Germany		Sweden	Great Britain	West Germany		Great Britain
	Germans	Immigrants		Germans	Immigrants			Germans	Immigrants	
Age mother	−0.061	−0.011	0.007	−0.116	0.021	−0.206	0.052	−0.153	−0.030	0.109
	(−1.60)	(−0.14)	(0.38)	(−1.96)	(0.49)	(−2.52)	(2.38)	(−1.29)	(−0.44)	(3.03)
Smo	0.117	0.128	1.043	0.188	0.206	−0.013	0.013	0.148	−0.173	0.011
	(3.13)	(1.39)	(1.74)	(4.25)	(1.56)	(−0.22)	(0.43)	(1.78)	(−0.65)	(0.24)
Expmo	0.211	0.864	0.090	0.053	0.489	−0.552	0.069	0.593	0.678	0.819
	(2.59)	(3.17)	(3.02)	(0.34)	(2.22)	(−2.02)	(1.41)	(1.45)	(2.67)	(0.82)
Income spouse/1000	−0.118	−0.304	[a]	0.003	−0.130	0.009	[a]	−0.147	−0.161	[a]
	(−2.03)	(−2.16)		(0.05)	(−0.93)	(0.35)		(−0.96)	(−0.83)	
Agemo*expmo	−0.004	−0.025	−0.002	0.001	−0.014	0.018	−0.003	0.0130	−0.014	−0.005
	(−1.62)	(−2.30)	(−2.74)	(0.23)	(−1.97)	(2.29)	(−1.75)	(−0.98)	(−2.03)	(−1.21)
n	339	138	835	256	105	81	542	94	60	154

Data: GSOEP 1983 – 1992: HUS 1984 – 1991; BHPS 1980 – 1992;
Agemo, smo, expmo = age of mother, years of schooling of mother, years of labor force experience of mother at the time of survey nearest before birth of child.
Inc. spouse is spouse's income before taxes at the time of survey nearest before childbirth.
[a] BHPS does not give information on income of the spouse, because it is retrospective data.
We did not find a single significant coefficient for first and third children in the Swedish sample.
Means and standard deviations corresponding to the variables in this table appear at Appendix Table 8.

age and experience turned out to be significant for the first child, revealing a positive effect of more work experience on return to work, but the effect declines with age at motherhood.

7. Conclusions

The purpose of this paper has been to analyze and compare labor force behavior of women around child birth in Germany, Sweden and Great Britain. Whether women enter or reenter employment or not depends on the benefits of market work as against home work. There are differences between the three countries in this respect. We rely on social science research to uncover how broad political and social patterns differ between countries. These patterns place Sweden and Germany on opposite extremes of the breadwinner versus equal role sharing scale with Great Britain in between. On another dimension, the market versus state solutions, comparing our three countries places Great Britain at one extreme, relying more on the market, and Sweden at the other extreme, sponsoring in-kind benefits and subsidies toward mothers and children. On this dimension Germany lies in between. The patterns we find can largely be explained by these differences. For example, Swedish women can rely on a number of policies enabling them to combine work and family (see also Rönsen and Sundström 1996), and we also find that Swedish mothers are more likely than mothers in the other countries to have a job when their first child is 2 years old but not when the child is half a year old. This is because Swedish mothers make use of paid parental leave. In Great Britain the maternity leave is much shorter consistent with the ideas of the liberal or residual welfare state to keep benefits down. One result of this is that more British mothers have returned when the child is three months old and when the child is half a year than in the other two countries.

The German tax and benefit system, kindergarten system and the organization of the school day assume a breadwinner model and thereby assume that women remain at home with their children. The picture that emerges from the analysis of this paper is that those women who have large enough human capital do combine work and family even if their husbands' incomes are high.

We have found that German women are more likely than Swedish women to work full-time until shortly before the birth of their child although the Swedish parental leave benefits are based on earnings before birth but the German 'Erziehungsgeld' is unrelated to earnings before birth. From the analysis we can conclude that East German women continue to enter employment after child birth in the period 1990–1992 although the reunification has meant that breadwinner arrangements of the former FRG are being imposed on them and child care centres are being closed. The behavior of East German women bears more similarity to the behavior of Swedish women than to that of West German women, which is another indication that institutions or the legacy of institutions matters.

We found that more British mothers have returned when the child is half a year old than Swedish or German women. But when the child is 3 years old more Swedish than British mothers have returned irrespective of child order. The proportion of West German mothers that was observed back at work

when the second or third child is three is far lower than the British proportion. For British, like German women having accumulated human capital determines whether she is a career mother. But when analyzing the timing of entering the labor market after giving birth it turned out that different from German and Swedish mothers older British mothers return quicker than the younger mothers. Especially for the first child our results confirm the polarizing effects found in other studies that career oriented women who are also highly educated delay childbirth and return quicker after giving birth when their maternity leave has expired.

Endnotes

[1] This has been shown to be the case by simulating German taxes for Swedish couples and Swedish taxes for German couples. These simulations show that Swedish wives in 1984 would have decreased their labor force participation from 80 to 60% if they had faced the German tax system and German wives would have increased their participation from 50 to 60% if the Swedish tax system was adopted (Gustafsson 1992).

[2] Esping-Andersen (1990:28) states: "Perhaps the most salient characteristic of the social democratic regime is its fusion of welfare and work. It is at once genuinely committed to a full-employment guarantee, and entirely dependent on its attainment. On the one side, the right to work has equal status to the right of income protection. On the other side, the enormous costs of maintaining a solidaristic, universalistic, and decommodifying welfare system means that it must minimize social problems and maximize revenue income. This is obviously best done with most people working and the fewest possible living off of social transfers".

[3] The Swedish data show more observations 24 months after birth than 3 months before birth. One of the reasons is that we have two dates of beginning of the spell information for dating births and labor force transitions. The spell information starts on January 1st 1984 for births during the first 3 months we do not know labor force status three months before births. In 1986 1000 individuals were added to the data set. For women belonging to the added sample spell information begins January 1, 1986 and we do not know labor force status three months before for children born in the first three months of 1986. The German data set has an identity number for children so one can start looking for births by the birth date of the children. The Swedish data set has identity numbers only for adults so one has to start with the women at the four survey dates 1984, 1986, 1988, and 1991, look at how many children they had at the survey dates and then find the actual birth dates in the spell data using information on changes in family composition. The total number of Swedish births identified in the period 1984–1991 were 105 first births, 111 second births and 67 third births. According to Statistics Sweden (1992) the proportion of first births among all births for the eight year period 1984–1991 averaged 41.8%, second births was 35.5% and third births 16.4%, and 6.3% were births of higher orders. This gives us a distribution among the first three birth orders of 44.6, 38.0 and 17.5 to compare to the births found in the HUS data which are distributed as 37.1, 39.2 and 23.7 respectively. We have an under representation of first births and an over representation of third births but we need not worry so much about it since the analysis to follow is birth order specific. The numbers in Table 3 indicate that Swedish women and immigrant women in Germany have more third births than any other of the women.

[4] The logit regression for Great Britain including interaction terms was the following: ee1 = employed 3 months before first birth and 24 months after; agemo1 = age mother, ysmo1 = years of schooling mother; expmo1 = employment experience mother; ee1 = dependent variable (n = 645)

−28.3	+0.938 agemo1	+2.041 ysmo1	−0.258 expmo1	−0.076 agemo1·ysmo1
(−3.65)	(3.12)	(3.82)	(−1.41)	(−3.41)
+0.050		expmo1·ysmo1	−0.006	agemo1·expmo1
(3.06)			(−1.59)	

Experience has a significant positive effect when the first time British mother is highly educated. Older mothers are less influenced by their educational level than younger mothers; for them work experience is far more important.

[5] The proportion of entering the labor force and staying in the same labor market status decreases with duration, e.g. after 24 months 81% of Swedish mothers have entered the labor market in our data, but only 56.6 fulfill the requirement of also remaining in the labor force for the nine consecutive months. Similar results are found for higher orders in the Swedish and German data.

[6] The regression with the time dummies for the first birth for Germany was the following: all variables measured at birth: agemo = age mother, smo = schooling mother, exmo = employment experience mother, incspse = income of spouse, sdif = difference in schooling between mother and spouse, agedif = difference in age between mother and spouse, last child = the first child = the last observed child.

−0.085 agemo	+0.129 smo	+0.063 exmo	−0.90 incspse	+0.016 sdif
(−2.4)	(2.7)	(2.0)	(−1.4)	(0.4)

−0.016 agedif	+0.347 last child	+0.259 (after 1986&bfr 1988 = 1)
(−0.8)	(2.0)	(1.2)

+0.178 (after 1988&bfr 1990 = 1)	−0.052 (after 1990 = 1)
(0.8)	(−0.2)

[7] This analysis does not account for whether the mother indeed has another child during our observation period. A mother who has her first two children 15 months apart will be both in the column for first and second child. In principle she could be entering employment 45 months after her first birth and 30 months after her second birth.

Appendix

Table 8. Means and standard deviations (in brackets) corresponding to Table 7

	First birth			Second birth				Third birth		
	West Germany		Great Britain	West Germany		Sweden	Great Britain	West Germany		Great Britain
	Germans	Immigrants		Germans	Immigrants			Germans	Immigrants	
Agemo	26.7	22.9	24.8	28.8	25.8	29.9	26.8	30.4	28.6	27.6
	(4.7)	(4.4)	(4.9)	(4.3)	(5.1)	(4.8)	(4.7)	(3.8)	(5.6)	(4.0)
Smo	11.1	9.1	11.7	11.1	8.7	12.3	11.6	10.7	8.5	11.5
	(2.6)	(1.8)	(1.9)	(2.7)	(1.2)	(2.8)	(1.9)	(2.5)	(1.1)	(1.9)
Expmo	6.5	3.0	6.5	6.8	3.9	8.6	6.5	6.6	4.8	5.2
	(4.8)	(3.7)	(4.8)	(4.5)	(4.9)	(4.4)	(4.6)	(4.4)	(6.0)	(4.0)
Income	3.4	2.7		3.8	2.8	8.8		3.9	2.8	
spouse/1000	(2.2)	(1.2)		(1.9)	(1.3)	(3.3)		(1.9)	(1.2)	
N	339	138	835	256	105	81	542	94	60	154

Income of spouse in national currency. In 1996: 1 DM = 4.4 SEK; Agemo, smo, expmo = age of mother, years of schooling of mother, years of labor force experience of mother at the time of survey nearest before birth of child. Inc. spouse is spouse's income before taxes at the time of survey nearest before childbirth.
[a] BHPS does not give information on income of the spouse on monthly basis, because it is retrospective data.

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