Institute for Employment Research

The Research Institute of the Federal Employment Agency

IAB

IAB-Discussion Paper 13/2011

Articles on labour market issues

Do Changing Institutional Settings Matter?

Educational Attainment and Family Related Employment Interruptions in Germany

Katrin Drasch (IAB)

Do Changing Institutional Settings Matter?

Educational Attainment and Family Related Employment Interruptions in Germany

Katrin Drasch (IAB)

Contents

Abstract 4
Zusammenfassung 4
1 Introduction 5
2 Previous research on employment interruptions 7
3 Institutional changes in the German welfare state: changed conditions for younger cohorts? 8
4 Theoretical considerations and hypotheses 10
5 Data, Variables and Method 14
5.1 Data 14
5.2 Dependent and independent variables 15
5.3 Method 18
6 Results 19
7 Conclusions and Discussion 24
References 27
Recently published 32

Abstract

Cross-sectional studies show that in West Germany women with different levels of educational attainment participate differently in the labor market. In this paper, I examine one potential underlying mechanism: the re-entry of mothers in the labor market after a period of inactivity. I argue that besides societal changes the reforms of parental leave legislation could be responsible for the educational divide in mothers' employment. Hypotheses are derived from human capital theory and labor supply theory assuming a rational behavior of women. Using retrospective life-course data from the IAB study ALWA, I find evidence that women with different levels of educational attainment have different re-entry patterns also when taking the educational attainment of the partner into account. Furthermore, parental leave schemes play a crucial role for re-entries. Some evidence of an educational polarization of re-entry behavior is found after the year 2000.

Zusammenfassung

Auf Basis von Analysen mit Querschnittdaten wurde festgestellt, dass sich die Arbeitsmarktpartizipation von Frauen in Westdeutschland nach deren Bildungsgrad unterscheidet. In diesem Papier untersuche ich einen potentiellen, zugrundeliegenden Mechanismus: den Wiedereintritt von Müttern in den Arbeitsmarkt nach einer Inaktivitätsphase. Ich argumentiere, dass neben gesellschaftlichen Veränderungen die Reformen in der Gesetzgebung zu Erziehungszeiten für die bildungsspezifische Ungleichheitsentwicklung verantwortlich sein könnten. Die Ableitung der Hypothesen erfolgt aus der Humankapitaltheorie und der Arbeitsangebotstheorie. Hier wird eine rationale Handlungsweise der Frauen unterstellt. Mittels retrospektiver Lebensverlaufsdaten der IAB-ALWA Studie wird festgestellt, dass Frauen mit unterschiedlichem Bildungsniveau auch unter Berücksichtigung des Bildungsniveaus des Partners unterschiedliche Wiedereinstiegsmuster aufweisen. Schließlich spielen Regelungen zu Erziehungszeiten eine entscheidende Rolle für den Wiedereinstieg. Zudem gibt es Anzeichen für eine bildungsspezifische Polarisierung des Wiedereinstiegsverhaltens nach dem Jahr 2000.

JEL classification: C41, J18, J24

Keywords: maternal employment, parental leave legislation, discrete-time event history analysis

Acknowledgements: I am grateful to Corinna Kleinert, Martin Abraham and Dana Müller for valuable comments and suggestions and Elisabeth Winter and Marcel Haferkorn for proofreading. The usual disclaimer applies. I gratefully acknowledge financial support from the Graduate Programme of the IAB and the University of Erlangen-Nuremberg (GradAB).

1 Introduction

Female and especially mothers' labor force participation in West Germany still closely follows traditional gender roles. This leads to a prevalence of the modified breadwinner model (Bothfeld/Schmidt/Tobsch 2006): Before the birth of the first child women are usually employed full-time, but after giving birth and a subsequent period of inactivity they most likely return to a part-time position. However, labor force participation of mothers with different levels of educational attainment has changed in the past decades. Especially for low-skilled mothers a continuous decline of their volume of work can be observed over time. The proportion of part-time and marginally employed mothers increased while the proportion of full-time employed mothers decreased. The male breadwinner model is now more often exerted by low-skilled mothers, whereas mothers holding a university degree were and still are more often full-time employed. Altogether, one finds a tendency of increasing educational inequality of employment patterns of mothers (Konietzka/Kreyenfeld 2010; Kreyenfeld/Geisler 2006; Kreyenfeld et al. 2007a, b).

Female labor force participation at one point in time can be conceived as the cumulative result of individual employment careers consisting of the decision to exit employment after childbirth, the duration of the subsequent employment interruption and the re-entry behavior. These processes characterize the internal differentiation of female employment patterns (Lauterbach 1994). In addition, the overall female labor force participation rate is also influenced by the proportion of women without interruptions or changes in working time. While female labor force participation in general has been examined frequently in the past years, the internal differentiation of female employment patterns was given less attention. In particular, the underlying processes of the development of educational inequalities of employment patterns on the macro level found by Konietzka and Kreyenfeld (2010) and Kreyenfeld et al. (2007a, b) remain unclear. This is not only because the results are obtained by cross-sectional data but because several structural changes took place in the past decades that could have altered the general conditions for family related employment interruptions in the German society. Those can be divided into general conditions and changes in family policy.

Due to the educational expansion in post-war Germany, access to higher education was opened up for large parts of the population (Müller/Steinmann/Schneider 1997). On the labor market, Germany changed from an industrialized society to a knowledge society and knowledge differentials can be seen as one of the key features of social inequality (Drucker 1994; Heidenreich 2002). This has lead to an upgrading of the occupational structure (Hillmert/Jacob 2003) meaning that more and better qualified employees are needed in order to fulfill the latest requirements of technological change. Thus, the unemployment rate among the unskilled and semi-skilled employers was rising (Reinberg/Hummel 2005).

Changing family policy is another possible cause for employment re-entry differences of mothers. The diverging influence of education can be linked to changes in fam-

ily policy. This policy changed the incentives for employment interruptions differently for low and highly educated women. In Germany, like in many other European countries, several reforms of parental leave legislation have been implemented in the past 20 years. Those can be divided into two types: On the one hand, the financial compensation of family related employment interruptions was altered several times. On the other hand, and central to this paper, the potential duration of parental leave with the possibility to return to the same or a similar workplace at the former employer was gradually extended. In sum, the regulations still protect and even promote male employment and simultaneously regularize and institutionalize interrupted female employment patterns and part-time employment of mothers (Grunow/Hofmeister/Buchholz 2006). Due to these changes it becomes necessary to trace the micro processes on the individual level that might have led to a changing labor force participation of mothers with different levels of educational attainment.

From the perspective that the interplay of institutional and societal developments creates a specific set of possibilities and restrictions for female employment patterns, this paper aims at examining family related employment interruptions and employment re-entries of mothers in West Germany since the early 1980s. Moreover, it will be analyzed whether these patterns have developed differently for women with different levels of educational attainment. I use retrospective life course data from the IAB study ALWA (Working and Learning in a Changing World) (Antoni et al. 2010; Kleinert/Matthes/Jacob 2008). The following research questions are addressed: First, how does the institutional setting influence the re-entry probability and the duration of family related employment interruptions? Second, are there educational differences concerning the re-entry probability and how important is the educational attainment of the partner, if present? Third, is there an educational polarization of re-entry behavior?

This paper brings together two strands of research: An economic perspective that focuses predominantly on the causal effects of policy reforms on the return to work as well as a sociological perspective that often examines educational stratification in re-entry behavior but does not take the influence of policy reforms into account. Thus, I examine re-entry after a family related employment interruption from a life course perspective and seek to explain how re-entry is influenced by the macro-context of institutions and social polices (Mayer 2009).

The paper is structured as follows: The next section sketches the most important empirical results concerning family related employment interruptions. Subsequently, the institutional and societal changes that took place in the past three decades are briefly explained. They provide the institutional background for my analyses, as those changes presumably influenced the duration of employment interruptions as well as the re-entry probability. In the third section, a theoretical model which takes up insights from human capital theory and labor supply theory is outlined and hypotheses on interruptions and re-entry patterns are derived. In the fourth section, the data, the analyzing strategy and the variables are described. The results of the ana-

lyses are presented in the fifth section of the paper. Finally, the findings are summarized and discussed.

2 Previous research on employment interruptions

Educational attainment is assumed to be an important characteristic influencing the employment re-entry of mothers after a family related employment interruption (Aisenbrey/Evertsson/Grunow 2009; Gottschall/Bird 2003; Buchholz/Grunow 2006; Schaeper/Falk 2003). However, the research results concerning the influence of education are ambiguous: On the one hand, a positive impact of educational attainment on the re-entry probability is detected. For example, a positive effect of educational attainment on the re-entry rate for birth cohorts 1939-1941 is found, but only for West German women with a university degree compared to women without such a degree (Buchholz/Grunow 2006). On the other hand, especially when controlling for other characteristics, e.g. for the socio-economic status, for the number of children or for the affiliation to a specific birth cohort, an influence of education is often not noted any more (Klein/Braun 1995; Lauterbach 1994; Schupp 1991). In addition, directly after the legal parental leave period has expired, an effect of education is not found any more (Kurz 1998).

Cohort differences have been studied by several authors (Aisenbrey/Evertsson/ Grunow 2009; Bender/Kohlmann/Lang 2003; Grunow/Hofmeister/Buchholz 2006; Lauterbach 1994). Aisenbrey, Evertsson and Grunow (2009) examine for example disparities for different child birth cohorts and detect lower cumulative return probabilities for women who gave birth to a child between 1987 and 1992 than for women who delivered in the early 1980s. These findings indirectly point to the relevance of policy effects. To my knowledge, the only research from a sociological perspective that takes parental leave regulations into account is research from Gottschall and Bird (2003), Bird (2004) and Schaeper and Falk (2003). Most of the time, a large impact of the expiration of leave is found. These results, however, are not based on a representative sample of women.

Especially economic research shows the relevance of institutional changes for the duration of family related employment interruptions. Ondrich et al. (2003) find that the extension of the potential duration of parental leave leads to a postponed re-entry corresponding to the prolongation of the legal parental leave duration. The cumulative return probability also declines with an increase in potential leave duration (Ondrich et al. 1999). Weber (2004) reports a negative effect of extended parental leave duration on the return probability. Schönberg and Ludsteck (2007) examine the influences of the reforms in 1979, 1986 and 1992 and conclude that the postponement of re-entry is strongest for the reforms of 1979 and weakest for the reform of 1992. Long term effects on the labor force participation of mothers are not found. Concerning the reform of 2007, Bergemann and Riphahn (2009) note a positive impact on prospective returns especially for higher educated women.

Summarizing, differences in educational attainment on re-entry were studied mostly from a sociological perspective and the institutional changes examined by economists were not taken into consideration and vice versa. Empirical studies on the use of parental leave focusing on differences in educational attainment of mothers and its changes over time from a sociological perspective are non-existent so far.

3 Institutional changes in the German welfare state: changed conditions for younger cohorts?

Germany had been characterized by a strong male breadwinner ideology (Lewis 1992). This traditional gender role ideology promotes that mothers stay at home in order to raise their children while fathers are gainfully employed. In the past decades, this model has gradually eroded and been replaced by a modified male breadwinner model with a second earner (Crompton 1999). Currently, Germany is on the way towards an adult worker model that encourages all individuals to be active on the labor market (Lewis 2002). How precisely this model will develop is still unclear (Schratzenstaller 2004). Presumably, this shift was initialized by changes in labor market and family policies in the past decades. Different elements pro and contra labor market activity of mothers provide different incentives to work, so that strong elements encouraging mothers to stay at home are remaining, e.g. the joint taxation of married couples and the parental leave regulations.

Parental leaves allowing the return to the previous employer after a period of inactivity due to family obligations were introduced in West Germany in July 1979. Following the statutory maternity leave period of three months that is guaranteed since 1952, the potential parental leave period for working women was extended to six months. The next extension to a maximum period of ten months was implemented in 1986. Parental leave was further extended three times: in 1988 12 months, in June 1989 15 months, and in June 1990 18 months were introduced.

In addition, in 1992 the transfer payment duration which ran parallel was partly disconnected from the maximum duration of parental leave. However, in some federal states the third year of leave was not financially compensated while this was the case in other states. From 1993 onwards, the parental benefit depended on the total household income with an increasing income threshold the longer the leave takes. In 2001, the maximum duration of parental leave was generally shortened to 24 months but eligible women with a family income below a certain threshold had the opportunity to choose a higher payment per month for a shorter period of 12 months. Also, the system was changed to a transfer payment system. Furthermore, the maximum hours of work allowed during parental leave was raised from 19 to 30 hours. The last change of parental leave legislation has received considerable public attention and took place on January 1, 2007. This reform altered the calculation of the parenting benefit from a transfer payment into an earnings-replacement benefit (Henninger/Wimbauer/Dombrowski 2008). Table 1 gives an overview of the most important changes in German family policy in the past decades.

Table 1 Parental leave legislation in Germany

Date	Name of leave	Duration of leave with job guarantee (in months)	Duration of (means-tested) transfer payment (in months)
7/1979-12/1985	Maternity leave (Mutterschaftsurlaub)	6	6
1/1986-12/1991	Short parental leave (Erziehungsurlaub-kurz)	12 – 18 (gradual extension)	12 – 18 (gradual extension)
1/1992-12/2000	Long parental leave (Erziehungsurlaub-lang)	36	24/36 depending on federal state*
1/2001-12/2006	Reformed parental leave (Elternzeit)	36	12 / 24 (choice of the woman/family)
1/2007-present	Parental benefits (Elterngeld)	36	Earnings replacement benefit

Source: Adaptation of Bird (2003), p. 311 f. and Gottschall and Bird (2003)
* The third year was paid by in West-Germany in Baden-Wuerttemberg, Bavaria, and Rhinel-and-Palatinate

As compared to other countries the potential parental leave duration is one of the longest in Western societies and rather generous compared to other European countries or the US. The leave regulations also lead to unintended consequences like the dismissal of women shortly after their return to the former employer (Schönberg/Ludsteck 2007) and to a reduced chance to participate in job-related training (Puhani/Sonderhof 2011). Also, the impact on the labor market is twofold. On the one hand, this legislation aims at maintaining the labor force attachment of mothers. On the other hand, this legislation is viewed as an incentive for mothers to leave the labor force at all (Sonderhof 2007).

The changes in family policies in the 1980s, in particular the expansion of the parental leave schemes, were introduced as a reaction to constantly rising unemployment rates (Henninger/Wimbauer/Dombrowski 2008; Morgan/Zippel 2003). The official argument to justify these prolongations argued that more time spent with the mother were for the benefit of the child. However, with every increase of the potential parental leave duration the responsibility for caring activities was handed over to the family sphere for a longer time span, thus in most cases to the mother, contributing to the familiarization of the society (Esping-Andersen 1999). The family policy reforms that took place afterwards in the late 1990s cannot be characterized unequivocally. On the one hand they contain elements of de-familiarization (e.g. extending the hours of part-time work allowed during parental leave), but on the other hand also re-familiarization (e.g. part-time child care). Overall, it can be noticed that the free-

dom of choice between work and family and different work family arrangements has increased (Leitner/Ostner/Schratzenstaller 2004).

In the late 1990s, a paradigm shift of German labor market policy from a providing or caring welfare state to an activating welfare state took place (Dingeldey 2007; Lewis 2002). In particular, taking responsibility for one's own life instead of welfare protection was emphasized (Manske 2005). Priorities were set on labor market integration by gainful employment, a process called re-commodification (Leitner/Ostner/ Schratzenstaller 2004). For women as well as men, this means that now the primary focus is set on employability. Furthermore, this implies for women with children that motherhood and household chores are no longer regarded as a substitute for gainful employment. Instead, combining work and motherhood is emphasized. This is also reflected by the increasing efforts to implement public child care facilities for infants and kindergartners in West Germany.

Two major problems are associated with these welfare state changes. First, labor market and family policies are often contradictory (Henninger/Wimbauer/Dombrowski 2008). On the one hand, they seek to combine work and family for women. But on the other hand, they still favor the male breadwinner model. One example is the splitting procedure associated with the joint taxation of married couples that certainly discourages women to be gainfully employed (Dingeldey 2002). Second, the latest policy changes can be assumed to not affect the whole population homogeneously but are often targeted at certain subgroups of the population (Stadelmann-Steffen 2007). Because parental leave allowance is now income based, the latest reform of the German child allowance system is favoring highly skilled women and their children over low skilled women or women still in (tertiary) education. Thus, welfare state changes that contain such characteristics of stratification can be a source of social inequality. In sum, the changing institutional conditions have probably an impact on the growing educational divide in employment patterns of mothers over time (Konietzka/Kreyenfeld 2010).

4 Theoretical considerations and hypotheses

A rational choice perspective (Coleman 1986, 1990) as a theoretical framework is used integrating assumptions from human capital theory (Becker 1993) and the °dynamic labor supply theory (Leibowitz/Klerman/Waite 1992). The model is based on the assumption that actions of individuals are determined by preferences and that these actions satisfy the preferences of individuals. Changing institutional conditions influence the micro level by shaping individuals' preferences towards actions and thus, also the actual behavior of individuals (Coleman 1986). Furthermore, individual choices are constrained by certain rules (Ingram and Clay 2000) and by the normative, institutional and structural context they are embedded in (Nee and Brinton 1998; Granovetter 1985).

The labor market re-entry decision after a family related career interruption is regarded as a rational decision. Women choose the time of re-entry according to their personal restrictions to satisfy their preferences best (Coleman 1990). The prefe-

rences to re-enter employment is assumed to differ with education attainment because of diverging income prospects. The decision is also regulated by certain restrictions, e.g. the presence of a partner, which can either promote or hinder women to re-enter. In addition, the overall family context, such as the presence of other children, also becomes relevant. Parental leave legislation at a given point in time can be viewed as a rule that constraints the re-entry decision from a macro perspective.

Women take legal regulations in their decision making process into regard when returning to the labor market (Berger/Waldfogel 2003). The end of the parental leave period denotes the horizon until the employment contract with the previous employer remains in force (Ondrich et al. 2003). At this point in time, a woman has to have found adequate and affordable child care and has to have arranged work and family life in order to return to the previous employer. This horizon is assumed to exist independently of the maximum parental leave duration. Because in West Germany child care especially for pre-kindergartners is scarce, it can be expected that women postpone re-entry and wait to return until the potential parental leave duration expires. Thus, the horizon effect leads to a temporary postponement of re-entry according to the extension of the length of the maximum parental leave duration. Within the labor supply framework this means that due to the job guarantee the opportunity costs of staying at home are lower for the mother within the parental leave period than outside, thus decreasing the chances to return within the parental leave period. In the German male breadwinner model staying at home within the parental leave period is then regarded as the best available choice. The maximum duration of parental leave is consequentially used until the end no matter how long it is (Ondrich et al. 1999; 2003; Weber 2004). The horizon effect leads to my first hypothesis: Employment re-entry is postponed until the legal parental leave period expires (horizon hypothesis).

The central idea of human capital theory is that investments in education procure knowledge and skills. Human capital is accumulated during school as general human capital and through vocational training but also through labor market experience as specific human capital. These capabilities have a positive influence on individual productivity and subsequently on expected wages (Becker 1993). Thus, especially in the German knowledge society better educated women are expected to have better labor market chances. They can also realize higher market wages. In accordance with labor supply theory the central mechanism assumed here is that the return probability increases with higher achievable market wage. This is because better educated women most likely do not want to forego their market income. For individuals with a higher possible market wage domestic work will thus be substituted earlier by market work and with a higher probability (Leibowitz/Klerman/Waite 1992). This is the substitution effect of neoclassical labor supply theory

(Blau/Ferber/Winkler 2006: 118).[1] In sum, the level of educational attainment stratifies the re-entry of women after a family related employment interruption. Furthermore, the amount of general human capital or the underlying educational attainment is expected to have a negative influence on (potential) replacement by other employees during the employment interruption. From the perspective of the employer, it can be assumed that the higher the amount of human capital the longer it takes until this effect becomes important and the less likely it is that a mother will be replaced during or shortly after the parental leave period expires. The underlying assumption is that the specific set of abilities is higher for individuals possessing a higher stock of human capital. Consequently, it is easier for employers to replace women with lower levels of human capital. On this account replacement is less likely for better educated women. This leads to my second hypothesis: Better educated mothers have a higher probability to return to the labor market after a family related employment interruption compared to low educated mothers (education hypothesis).

This purely economic point of view does neglect the role of economic pressure that is put on mothers and forces them to return to work. Mothers are not acting as isolated individuals but their re-entry decision depends on the broader family structure. In the case of a partner being present, the labor force participation is linked to the influence and characteristics of a partner (Drobnič 2003; Moen 2003). Also the new home economics propose that decisions are made within the household context (Becker 1991). Women's choices are hypothesized to be constrained by the spouses' earning potential reflected by the educational attainment of the spouse. However, the educational attainment of the spouse must be seen relative to the educational attainment of the woman. Furthermore, one has to take into account that women often have a partner with a similar level of educational attainment and thus live in a partnership with a high level of educational homogeneity (Blossfeld/Timm 2003). For example, for low educated mothers this means that they have to re-enter the labor market due to financial pressure because the partner either does not earn enough or is unemployed and cannot assure the livelihood of the family. Women without a partner, however, have to secure the families living on their own. This leads to following hypotheses: First, mothers living in a hypogamous partnership possessing a higher educational attainment than their partners have a higher return probability than all other mothers in partnerships. Second, women without a partner have the highest return probability of all mothers (hypogamy hypothesis).

In addition, one can assume interdependencies between the influence of educational attainment and the influence of parental leave legislation. Altogether, the changes may have altered the incentive structure to return to the labor market for women with different levels of educational attainment. First, all eligible women irrespective of

[1] The income effect (Blau/Ferber/Winkler 2006: 113) working in the opposite direction and reducing labor force activity of better educated women comes only into play when looking at the hours decision and not at the participation decision in general and can thus be neglected here.

their level of educational attainment are affected by the extensions. When they are out of labor force, they will lose parts of their human capital because acquired knowledge is not fully transferable over time (Datta Gupta/Smith 2001; Kunze 2002; Mincer/Ofek 1982). Human capital depreciation is assumed to take place regardless of the level of educational attainment and labor market experience is not accumulated anymore during the period of inactivity. This is not true for low educated women who do not have a high level of job specific human capital per definition. In turn, higher educated women who have invested more in their human capital in the past might strive at higher changes to sustain their status quo. This induces them to return earlier no matter where the horizon of maximum parental leave duration is fixed at a given point in time. This reflects their rational decision to maintain their earnings potential. Women possessing a higher stock of human capital have higher opportunity costs when remaining outside the labor market due to foregone earnings and simultaneously posses the earnings potential to afford external child care. This forces them to return earlier regardless of the potential parental leave duration. Lower educated woman in turn have a lower earnings potential which has also be diminished by the costs of child care (Leibowitz/Klerman/Waite 1992). Therefore, their market wage diminished by child care costs is lower than their opportunity costs of staying at home. This leads to the rational decision not to re-enter the labor market until the horizon is reached. The expiration of maximum parental leave duration associated with the loss of job guarantee then pushes them back into employment. Consequently, the extension of the potential duration of parental leave especially disadvantages women with low levels of educational attainment because they are easier to replace by their former employers due to limited levels of general and specific human capital.

Transfer payments are paid only when mothers either do not work or are below a certain threshold of working hours. However, transfer payments are income independent of gainful employment and elevate the financial resources of families without the need to organize child care. Due to educational homogamy of marriages and partnerships (Blossfeld/Timm 2003), low educated women often also have a low educated partner so that supposedly their family income is low. Because transfer payment was means-tested for the time period under study, especially women with low levels of educational attainment were eligible to receive this payment. These circumstances are expected to reinforce the influence of educational attainment on re-entry of women into the labor market, especially for the period after 2000 where payment duration was detached from leave duration. Besides the changes in parental leave legislation, the structural changes in the labor market with a worsening situation for low skilled mothers (Konietzka/Kreyenfeld 2010; Solga 2002) are also assumed to reinforce the mechanism. In sum, this leads to following hypothesis: The changes in German family policy from 1979 until 2001 contributed to a diverging re-entry probability according to the educational attainment of mothers meaning that the re-entry probability decreased for low educated women and increased for higher educated woman (polarization hypothesis).

Furthermore, one has to take into consideration that mothers have to fulfill their roles as caregivers. Caring becomes less time intensive as children grow older and thus leaves more time for paid employment. In addition, the costs of public or private childcare decline with an increasing age of children (Leibowitz/Klerman/Waite 1992). Therefore, the age of the youngest child and the presence of other children are assumed to play a crucial role for the labor market re-entry of mothers and are included in the empirical investigation.

5 Data, Variables and Method

5.1 Data

The empirical analyses draws on data from the ALWA study, a retrospective life-history survey conducted in Germany in 2007 and 2008 on behalf of the Institute for Employment Research (IAB) (Antoni et al. 2010; Kleinert/Matthes/Jacob 2008). This survey is based on a nationally representative sample of the German resident population and was collected by computer assisted telephone interviews. The longitudinal dataset provides information on 10,000 German residents born between 1956 and 1988. It systematically contains retrospective information in major life domains such as schooling, vocational training, employment or unemployment. More important, the dataset also contains retrospective information about partners, parental leaves and children.

In this paper, I focus on family related employment interruptions of woman born in West Germany because other mechanisms can be assumed to be at work in the Easter part of Germany due to a different historical development and different family policies. Furthermore, I excluded spells of parental leave which have begun abroad because the German parental leave regulations do not apply to them. Family related employment interruptions of men are not included in the analysis due to a very limited number of cases. I restrict my analysis to the time-period between 1979 and 2006, covering the most important parental leave changes. Women who only take the statutory maternity leave are included in the analyses to avoid a potential selection problem of non-leave takers. Under these restrictions around 3,600 spells of parental leave and adjacent periods of labor market inactivity of women due to child-rearing leading to about 1,600 employment re-entries are analyzed. The original spell data were transformed into a person-period file including one observation per month and observed interruption. The event time is measured on a monthly basis in discrete time units.

Major advantages of the IAB-ALWA data compared to other retrospective or prospective longitudinal surveys, such as the German Life History Study (GLHS) or the German Socio Economic Panel Study (SOEP), are that periods of parental leave are collected directly and do not have to be reconstructed from the context. This is for example the case for the SOEP data until 1989. Therefore, detailed information on family related employment interruptions associated with the birth of a child is available also for the late 1970s and 1980s. However, retrospective data are criticized frequently because they are prone to recall errors. To overcome this potential short-

coming, a number of steps were taken during the data collection process of ALWA. To ensure that the data are complete and consistent they were checked again for internal consistency after the data collection process itself was finished. (cf. Drasch/Matthes 2009). Another advantage compared to the German Life History Study (GLHS) or the SOEP (German Socio-Economic Panel) is that the number of cases that can be studied is substantially higher. This allows for a cohort comparison because the dataset also includes an interesting time span covering several family policy reforms between 1979 and 2007. Compared to process generated data often used to evaluate the causal impact of policy reforms (e.g. Dustmann/ Schönberg 2008; Schönberg/Ludsteck 2007), the ALWA data also contain a number of central control variables, e.g. family background, which are not available in administrative data. However, ALWA does have disadvantages as well: It does not contain longitudinal wage or income information because collecting this information retrospectively is empirically difficult due to recall problems. Another disadvantage is that no information on the employment status of the partner is available.

5.2 Dependent and independent variables

The dependent variable denotes whether a woman re-enters the labor market and works more than 15 hours per week or not after a family-related employment interruption. This interruption is based on the total duration of a family related employment interruption, consisting of the parental leave period plus additional times as housewife immediately followed by a parental leave period, if present. Each spell representing an employment interruption either ends with a return to the labor market or is censored, e.g. due to the next childbirth. The observations are censored after 15 years of interruption. Competing risks between full and part-time employment re-entry cannot be distinguished because of data limitations. From a substantial point of view this distinction also seems not necessary because it is not known whether or not this corresponds to the wishes of the mothers or reflects the constraint through limited availability of child care facilities.

The set of covariates contains individual as well as family characteristics (table 2). Educational attainment of the respondent is included in the analyses as a variable combining information on the highest school and highest vocational training degree obtained. It contains information about the highest degree which had been achieved at a given point in time and is therefore included as a time-varying covariate. The variable includes the following categories: “no vocational training degree/no schooling degree and apprenticeship”, “lower schooling degree and apprenticeship”, “higher secondary schooling degree and apprenticeship/higher vocational training degree” and “university degree or similar”. The variable follows an adapted and aggregated version of the CASMIN classification and reflects the highly standardized and stratified educational system in Germany also present in the system of vocational education (Müller et al. 1998).

To assess the impact of different parental leave schemes, I constructed child birth cohorts according to the most relevant regulations imposed at a given point in time

following a previous approach (Gottschall/ Bird 2003). Four cohorts are included: the maternity leave (Mutterschaftsurlaub) cohort for births from 7/1979 until 12/1985, the short parental leave (Erziehungsurlaub) cohort for births between 1/1986 and 12/1991, the long parental leave (Erziehungsurlaub) cohort from 1/1992 until 12/2000 and the reformed parental leave (Elternzeit) with births from 1/2001 until 12/2006.[2] The short parental leave cohort contains several parental leave prolongations within a short period of time because I assume that women were not able to adjust their behavior so quickly. In addition, a variable is included indicating the status of the interruption. It differentiates whether the family-related employment interruption is within the legal parental leave period, within five months around (meaning the exact month, two months before and two months after) the expiration of parental leave or outside the parental leave period.

Educational homogamy within a partnership is included to account for the dependency within a family (Drobnič 2003). This variable consists of four categories: the partner living in the household has a higher educational degree than the women (hypergamy), both are approximately on the same level (homogamy), the partner possesses a lower educational degree (hypogamy) or no partner is present at all. This variable reflects the earnings potential of the family as a whole but also contains information on social capital and can thus be interpreted as peer effect.

Time-varying controls on the individual level such as the age of a woman as well as employment characteristics are included in the analyses. For example, the accumulated labor market and unemployment experience are taken into consideration by counting up the number of months a woman was employed or unemployed up until the observed time point. Besides, family characteristics such as the age of the youngest child and the total number of underage are used as controls. To account for macro level changes the models contain the female unemployment rate on a regional level as well the degree of urbanization at the place of residence.

[2] The parental benefits ("Elterngeld") cohort with births from 1/2007 onwards is not included in the analyses due to a limited number of cases and the short time-span between the reform and the interview date.

Table 2 Descriptive Statistics (selected)

Variables	Mean (categorical variables in %)	Std. dev
parental leave stage		
before expiration of parental leave	55.0 %	
around expiration of parental leave	11.1 %	
after expiration of parental leave	33.9 %	
educational attainment		
no vocational degree / no schooling degree and apprenticeship	21.5 %	
lower schooling degree and apprenticeship	26.8 %	
higher secondary schooling degree and apprenticeship / higher vocational training degree	33.9 %	
university degree or similar	17.8 %	
educational attainment in partnership		
hypergamy (woman lower than partner)	30.2 %	
homogamy (same as partner)	44.4 %	
hypogamy (woman higher than partner)	16.9 %	
no partner	8.5 %	
child birth cohort		
1979-1985	7.5 %	
1986-1991	28.2 %	
1992-2000	50.5 %	
2001-2006	13.8 %	
Age (in years)	32.2	5.3
Age of youngest child (in years)	2.7	3.8
Age of youngest child squared	21.8	59.1
maximum number of children in household		
one child	37.6 %	
two children	44.0 %	
three and more children	18.3 %	
labor force experience (in years)	6.9	4.1
unemployment experience (in years)	0.4	1
regional type		
urban/agglomeration	59.0 %	
rural	28.2 %	
not defined	12.9 %	
regional unemployment rate	9.0	1.4
Observations	118.270	

5.3 Method

The data are analyzed using the discrete-time approach to event history analysis (Singer/Willet 2003). A non-parametric proportional hazards (PH) model accounting for time-constant and individual specific unobserved heterogeneity is estimated (Jenkins 1995). It allows for random effects and takes the multiple-spell structure of the data into account. A complementary log-log function as link function is preferred over the frequently used logistic function. The main advantage of this link function is that the coefficients do not depend on the length of the discrete time interval and that the function itself is asymmetrical. This link function is especially suitable when the probability to experience an event in one month is small and episodes stem from different time periods.[3] Furthermore, the model is the discrete equivalent of an underlying proportional hazard model in continuous time (Prentice/Gloeckler 1978). The coefficients reflect the conditional probability of event occurrence at time interval t_i given that the event has not occurred until time interval t_{i-1}. I allow the transition rate to vary across time intervals and estimate the PH model as a discrete-time approximation to the piecewise constant exponential model (PCE) often used for continuous time. The model can be formulated as follows:

$$\log\left[-\log(1-\lambda(t))\right] = a(t) + x'_i\beta + z'_i(t)\gamma + u, \qquad (1)$$

$$\text{with } u : \log(v)$$

where $a(t)$ are the set of dummy variables reflecting the time-dependency, $x'_i\beta$ the set of time-constant covariates, $z'_i(t)\gamma$ the set of time-varying covariates and u the error term (Steele 2008, 2009). Time dependency is introduced by grouping time periods in intervals ending after 14, 24, 36 months and at the maximum observed period. This choice also reflects the potential leave durations of selected time periods.[4]

To examine changes over time, I estimate separate models for the different child birth cohorts under the different family policy regimes. I focus on the most important changes and estimate models for child birth cohorts 1979-1985, 1986-1991; 1992-2000 and 2000-2006. However, in regression models with a binary dependent variable, hazard ratios and their standard errors are likely to biased when comparing them over different cohorts. The reason is the potentially different degree of unobserved heterogeneity in the cohorts e.g. arising from a different economic situation or different cohort sizes. Therefore, I additionally present the significance levels of Average Marginal Effects (AME) and test them for differences among cohorts. AMEs

[3] For more details see Singer and Willet (2003).

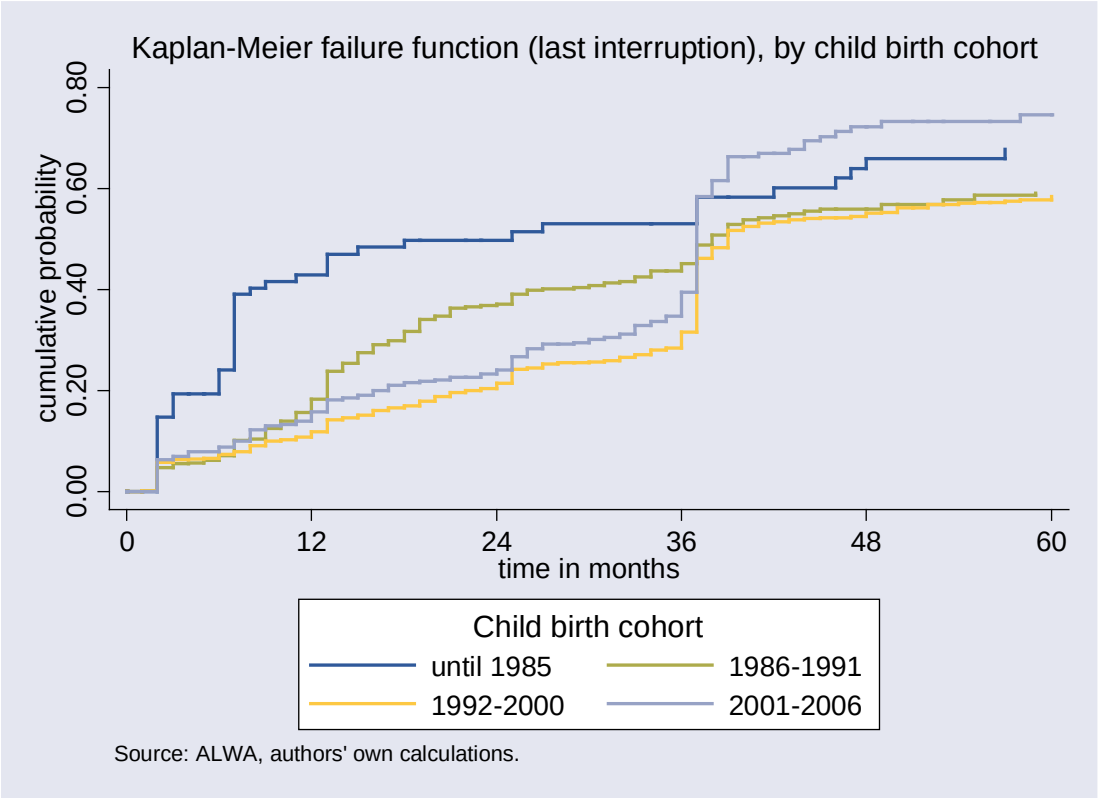
[4] The results are obtained by maximum likelihood estimation (by means of xtclogclog in Stata 11).

report an average effect over all observations and are thus robust with respect to different degrees of unobserved heterogeneity (Auspurg/Hinz 2011; Mood 2009).[5]

6 Results

The failure curve in figure 1 shows the proportion of women who have returned to the labor market at a specific point in time. It denotes the proportion "having not survived" in their last (observable) employment interruption. For the earlier birth cohorts (1979-1985 and 1986-1991) the return probabilities within the first three years of the interruption are higher than the ones for later birth cohorts. For mothers who gave birth to a child between 1992 and 2006, the return probabilities are low within the potential parental leave duration period. Then a sharp increase occurs shortly before the potential parental leave duration expires. Thus, they return slower than the women who gave birth to a child earlier. This pattern is also apparent for the birth cohort from 1979-1985 after around six months. These findings are in line with the horizon hypothesis. For the 1986-1991 birth cohort the pattern is most likely not visible because the potential leave duration changed repeatedly. After around three years the different birth cohorts show a similar pattern and four years after the birth of a child around 60 to 80 per cent of women have returned from inactivity to the labor market. There are significant differences between the birth cohorts as confirmed by log-rank tests.

Figure 1 Kaplan-Meier failure estimates, by child birth cohort



Source: ALWA, authors' own calculations.

[5] The standard errors of the AMEs are calculated by using the delta method (with the help of Stata 11 and the function margins).

The descriptive results are comparable to the results of Ondrich et al. (2003) who found that women postpone their return corresponding to the extension of the potential parental leave duration. The longer the potential duration of parental leave, the longer the average interruption. The results are also in line with the results of Aisenbrey, Evertson and Grunow (2009) who found that mothers in West Germany with births after 1987 were on leave on average longer than mothers with births in the early 1980s. Also the cumulative return probability seems to be affected and is lower for later child birth cohorts. However, one has to bear in mind that it is a lot easier for later birth cohorts to give birth to another child within the extensive leave period and thus remain out of the labor force continuously. This could at least partly explain the results.

Next, a multivariate setting is chosen to test the hypotheses. The conditional probabilities displayed are interpreted in terms of the re-entry probability or re-entry rate. Table 3 shows the results of the clog-log model for all cohorts.

Table 3 Discrete-time event history model on the likelihood to re-enter the labor °market

	Full model	
	Hazard Ratios	**Standard Errors**
parental leave stage (ref. around expiration of parental leave)		
before expiration of parental leave	0.163***	(0.013)
after expiration of parental leave	0.501***	(0.061)
educational attainment (ref. university degree or similar)		
no vocational degree / no schooling degree and apprenticeship	0.346***	(0.067)
lower schooling degree and apprenticeship	0.633**	(0.107)
higher secondary schooling degree and apprenticeship / higher vocational training degree	0.647**	(0.100)
educational attainment in partnership (ref. homogamy)		
hypergamy (woman lower than partner)	0.976	(0.130)
hypogamy (woman higher than partner)	1.268	(0.191)
no partner	2.594***	(0.350)
child birth cohort (ref. 1979-1985)		
1986-1991	0.634**	(0.093)
1992-2000	0.632**	(0.112)
2001-2006	0.780	(0.166)
Age (in years)	1.048***	(0.014)
Age of youngest child (in years)	0.517***	(0.039)
Age of youngest child squared	1.035***	(0.004)
maximum number of children in household (ref. one child)		
two children	0.689***	(0.053)
three and more children	0.484***	(0.069)
labor force experience (in years)	1.013	(0.009)
unemployment experience (in years)	0.697***	(0.050)
regional type (ref. urban/agglomeration)		
rural	0.914	(0.108)
not defined	1.125	(0.179)
regional unemployment rate	1.032	(0.024)
Observations	**118.270**	
Number of events	**1.574**	
AIC	**15.066**	
BIC	**15.318**	

Hazard Ratios (Exponentiated coefficients); time dependency not displayed
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results of the model in table 3 indicate that over all child birth cohorts, the re-entry rate is significantly lower before and after the legal parental leave period expires than around the expiration of the parental leave period. Obviously the expiration pushes mothers back into the labor market. Thus, the institutional regulation of the duration plays a crucial role in shaping re-entry patterns. This yields support for

the horizon hypothesis. Women with lower levels of educational attainment have lower chances to re-enter the labor market and return slower than women with a university degree or similar. Especially women holding no vocational or schooling degree but an apprenticeship have lower chances to return. This probably means that their opportunity costs of staying at home are higher than the market wage they can realize because they have to externalize child care. In sum, this supports the education hypothesis. The degree of educational homogeneity in the partnership has only a minor impact on re-entry: Compared to educationally homogenous partnerships, women living with a partner with a different level of educational attainment are not significantly less or more likely to return. The crucial point is whether a woman has a partner at all. Having no partner significantly increases the likelihood to return. Taken together, the results find some support for the hypogamy hypothesis. Finally, there are significant child birth cohort differences. For the child birth cohorts 1986-1991 and 1992-2000 the return probabilities are significantly lower than for the cohort from 1979-1985. However, the earliest child birth cohort with births from 1979-1985 does not significantly differ from the cohort from 2001-2006.

The results for the control variables indicate that family circumstances play a crucial role in shaping labor market re-entry of mothers. The effect of the age of the youngest child is u-shaped. For women with older children it becomes increasingly more likely to return which seems plausible because caring becomes less time intensive as children grow older. Also the number of children under 18 in the household decreases the return probability. On the contrary, labor force experience has no significant impact on women's returns. What matters, however, is the cumulated unemployment experience a woman has which decreases her return probability. In addition, a significant age effect is found: older woman are more likely to return. From the macro level variables neither the unemployment rate nor the region with respect to the degree of urbanization has a significant influence on re-entry.

To test the polarization hypothesis, I examine separate models for different child birth cohorts. Each of the child birth cohorts represents a cohort where similar policy regulations concerning family related employment interruptions and potential parental leave durations were in effect (cf. Table 1). However, I refrain from interpreting differences in the magnitude of the coefficients between the models because the models are not comparable as presented here (Mood 2009). Instead, I only assess whether there are significant differences with respect to educational attainment within one child birth cohort and additionally present the significance levels of the AMEs. Those results are displayed in table 4. In the earliest child birth cohorts from 1979 until 1985 (model 1), I find no significant differences between the different educational groups. For the cohort from 1986 until 1991 (model 2) a significant effect of educational attainment can be found for the lowest educational group. Only for the two child birth cohorts after 1991 (models 3 and 4), significant differences can be found also for the better educated. There is some evidence that educational attainment matters more in later child birth cohorts than in earlier child birth cohorts also when looking at the significance levels of the AMEs. When testing for significant

differences of the effects among the cohorts as suggested by Auspurg and Hinz (2011), one gets the following results: none of the AMEs are different between adjacent cohorts for the earlier cohorts but for cohorts 1992-2000 (model 3) and 2001-2006 (model 4) significant differences are found indicating lower chances for the last birth cohort to return. On the whole, I find some support for the polarization hypothesis at least for the youngest cohort from 2001-2006.[6]

Table 4 Discrete-time event history models for different child birth cohorts on the likelihood to re-enter the labor market

	Model 1	Model 2	Model 3	Model 4
Child birth cohorts	**1979-1985 Hazard Ratios / (AME-sig.levels)**	**1986-1991 Hazard Ratios / (AME-sig.levels)**	**1992-2000 Hazard Ratios / (AME-sig.levels)**	**2001-2006 Hazard Ratios / (AME-sig.levels)**
educational attainment (ref. university degree or similar)				
no vocational degree / no schooling degree and apprenticeship	0.686 (0.239)	0.433$^{***(**)}$ (0.0920)	0.558$^{***(***)}$ (0.0930)	0.373$^{***(***)}$ (0.107)
lower schooling degree and apprenticeship	1.049 (0.349)	0.760 (0.143)	0.704$^{*(*)}$ (0.0992)	0.652$^{*(*)}$ (0.138)
higher secondary schooling degree and apprenticeship / higher vocational training degree	0.913 (0.308)	0.803 (0.139)	0.831 (0.106)	0.592$^{**(**)}$ (0.102)
Observations	**9.362**	**34.677**	**59.825**	**16.364**
Number of events	**189**	**454**	**659**	**272**
AIC	**1.708.3**	**4.553.5**	**6.697.9**	**2.591.3**
BIC	**1.865.5**	**4.739.5**	**6.895.9**	**2.760.7**

Further control variables not displayed; Hazard Ratios (Exponentiated coefficients); Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

A crucial issue is whether the chosen child birth cohorts really reflect time periods with different external conditions. So, to assess the robustness of my results, I follow

[6] Another strategy to assess the impact of institutional changes is to include interactions with the variables of interest and see whether the coefficients are different before and after a certain point in time. The impact of the changes in 1986 and 1992 has also been shown by Schönberg and Ludsteck (2007) with this strategy. For the 2001 change of transfer payment no results exist to my knowledge but results for the 2007 reform indicate that changes in transfer payment period are also highly relevant (Bergemann/Riphahn 2009). Thus, I examine whether the effect of education is different for the time period before and after the changes took place. Essentially it means that a dichotomous variable is introduced that is zero before a given point in time and one after this time point. In the event history framework the variable of interest is then the interaction between the dummy variable and the level of educational attainment. I am aware that interaction terms in nonlinear models are potentially biased (cf. Ai/Norton 2003). Therefore, I checked the robustness of my results by using linear probability models. The results point in the same direction. All results are available upon request.

several strategies.[7] First, I checked whether the results are stable when including placebo reform periods and tested interaction models for the time period 1979-1989 compared to 1990-1997 and 1998-2006. None of the interaction effects after the institutional changes is significant in these models pointing to the relevance of the chosen time periods in table 4. Second, I estimated separate models for different cohorts but this time for the birth cohort of the mother instead of the birth cohort of the child. There, the educational differences largely disappear. Third, I checked whether the likelihood to realize parental leave changed over historical time because this could bias the results. This is not the case which is also in line with previous research results (Schönberg/Ludsteck 2007). Fourth, I can confirm that the results are robust with regard to different specifications of time dependency. Summarizing, the results concerning the polarization effect are stable and robust with regard to different model specifications.

7 Conclusions and Discussion

On average mothers spent a longer time out of the labor force in West Germany than in other European countries. This confirms again that especially West Germany can still be seen as a welfare state focusing on traditional gender roles. Descriptive results show that approximately three quarters of all mothers have returned to the labor market after four years and 9 out of 10 within ten years after the birth of a child. However, the central aim of this paper was to shed light on educational differences regarding the duration of family related employment interruptions and employment re-entry patterns for women in West Germany over the past three decades.

Striking evidence of the relevance of parental leave schemes for re-entries is found. Since women tend to use the entire leave period no matter how long it is, the gradual extension of parental leave duration has probably led to the longer interruptions. The extensions of the maximum parental leave durations have resulted in the situation that many women also use this time period completely. Even when the overall return probabilities do not change over a longer period, this can have negative consequences in the long run and destabilize the careers of mothers (Aisenbrey/Evertsson/Grunow 2009).

Furthermore, I find support that women with different levels of educational attainment have different re-entry patterns. The result that women holding a university degree are more likely to re-enter the labor market than all other women can be attributed to their preferences for work which has also been shown by their prior investments in human capital. A woman who has spent a long time in the educational system has probably already decided that she wants to make use of her investments and consequently returns earlier to the labor market. To put it differently: their preference for education can be assumed to be closely connected with their prefe-

[7] The results of these robustness checks are available from the author upon request.

rence for paid labor. The educational attainment of the partner only plays a minor role; important is whether a partner is present at all. Having no partner increases the chances to return to the labor market probably due to financial needs. So, without a partner the woman is forced to take over the role as sole breadwinner to secure the family's living.

The most important reforms of parental leave legislation after its introduction in 1979 were established in 1986, 1992 and 2001. Indeed, there are significant cohort differences with lower return probabilities for the cohorts 1986-1991 and 1992-2000 compared to the child birth cohort from 1979-1985. However, the last child birth cohort from 2001-2006 does not differ from the cohort 1979-1985. This result must in my view seen within the broader context of the labor market reforms in the past decades. For example in 2001 another law was introduced to facilitate part-time employment ("Teilzeit- und Befristungsgesetz"). This could have promoted re-entry of mothers and work into the opposite direction.

These changes may have contributed to increasing educational inequalities of labor market chances for women with different levels of educational attainment. Indeed, I find some evidence of an educational polarization of re-entry behavior between low skilled and high educated women over time. Especially low skilled women return slower and with a lower probability to the labor market. With several robustness checks I assured that the results do not only reflect a general time trend that is, admittedly, incorporated in the results as well. But to disentangle the pure and causal effect of the reforms was also not the aim of the paper.

One potential problem is that the birth of a child is regarded as exogenous which is not necessarily the case. There are a number of influence factors like the marital status or the family-orientation that can be assumed to have an influence on (re-)employment as well as on fertility decisions but also the decision or the possibility to take a parental leave period after the birth of a child at all. Thus, as a next step I will estimate these processes jointly in a multi-process framework (Steele 2008). Another problem is that I can only control for changing labor market conditions to some extent on a regional level. Unfortunately, other macro level characteristics like the local availability of child care institutions are not available for the whole period under study due to several reorganizations on the administrative district level.

One contribution of this paper is to analyze the process of re-entry shaping employment rates of mothers over a longer period of historical time. Thus, this paper contributed to existing life-course research by bringing a period perspective in this field of research. Admittedly, this was also not possible in previous studies because most life-course studies focused on the data collection of selected birth cohorts only. In addition, it shows again that there are often differences in outcomes when looking at a problem from a longitudinal instead of a cross-sectional perspective. Furthermore, the parental leave reforms as sudden system changes are incorporated in the mod-

els and the question of increasing (educational) “inequality across collective lifetime resulting from cohort-linked stimuli” (Mayer 2009: 424) is addressed. To do this, two strands of research are brought together: the economic as well as the sociological perspective on family related employment interruptions of mothers.

The presented research has important policy implications as well and can be transferred to the last reform of parenting benefit which came in effect in Germany in January 2007. This reform changed the benefit from a transfer payment into an earnings-replacement benefit. Due to these changes in the family policy sphere in 2007 a “moving towards the Nordic model” (Spiess/Wrohlich 2008: 575) was expected. However, this also implies that educational inequality of labor market reentries of mothers could further reinforce because especially the fast return of high skilled mothers is supported by current regulations. It also could lead to other unintended consequences: when highly skilled mothers increasingly decide to stay out of the labor force for only 12 months, then it will be inefficient for employers to find an adequate job replacement for this short time period because considerable training efforts are necessary to qualify the replacement. This could also disadvantage high skilled mothers and level out the effect of education in the long run. In sum, even the regulations nowadays might place disadvantages at all women.

Also, reforms leading to even more generous schemes containing elements of familiarization like the frequently discussed financial compensation (“Betreuungsgeld”) for mothers who stay at home during the first three years after birth and care for their children themselves should be considered carefully. They could lead to even longer employment interruptions. Given the fact that due to demographic changes Germany is facing a lack of specialized workforce in the near future one should instead focus on family and labor market policies that aim to combine work and family for all mothers regardless of their level of educational attainment. This also suggests an increasing invest in training of low educated mothers.

References

Ai, Chungrong; Norton, Edward C. (2003): Interaction Terms in Logit and Probit Models. In: Economic Letters, Vol. 80, p. 123–129.

Aisenbrey, Silke; Evertsson, Marie; Grunow, Daniela (2009): Is There a Career Penalty for Mothers' Time Out? A Comparison of Germany, Sweden and the United States. In: Social Forces, Vol. 88, No.2, p. 573–606.

Antoni, Manfred; Drasch, Katrin; Kleinert, Corinna; Matthes, Britta; Ruland, Michael; Trahms, Annette (2010): Working and Learning in a Changing World. Part I: Overview of the Study. FDZ Methodenreport 05/2010.

Auspurg, Katrin; Hinz, Thomas (2011): Gruppenvergleiche bei Regressionen mit binären abhängigen Variablen. Probleme und Fehleinschätzungen am Beispiel von Bildungschancen im Kohortenverlauf. In: Zeitschrift für Soziologie, Vol. 40, No.1, p. 62–73.

Becker, Gary S. (1993): Human Capital: A Theoretical and Empirical Analysis. With Special Reference to Education, Chicago et al.: University of Chicago Press.

Becker, Gary S. (1991): A Treatise on the Family. Enlarged Edition, Cambridge, MA: Harvard University Press.

Bender, Stefan; Kohlmann, Annette; Lang, Stefan (2003): Women, Work, and Motherhood. Changing Employment Penalties for Motherhood in West Germany after 1945. A Comparative Analysis of Cohorts Born in 1934–1971. MPIDR Working Paper 2003–006.

Bergemann, Annette; Riphahn, Regina T. (2009): Female Labor Supply and Parental Leave Benefits. The Causal Effect of Paying Higher Transfers for a Shorter Period of Time. IZA Discussion Paper 3982.

Berger, Lawrence M.; Waldfogel, Jane (2003): Maternity Leave and the Employment of New Mothers in the United States. In: Population Economics, Vol. 17, No. 2, p. 331–349.

Bird, Katherine (2004): Reconciling Work and the Family. The Impact of Parental Leave Policies and Occupation on the Female Life Course, Frankfurt/Main et al.: Lang.

Blau, Francine D.; Ferber, Marianne A; Winkler, Anne E. (2006): The Economics of Women, Men, and Work. Upper Saddle River et al.: Pearson Prentice Hall.

Blossfeld, Hans-Peter, Timm, Andreas (Eds.) (2003): Who Marries Whom? Educational Systems as Marriage Markets in Modern Societies. A Comparison of Thirteen Countries, Dordrecht: Kluwer Academic Publishers.

Bothfeld, Silke; Schmidt, Tanja; Tobsch, Verena (Eds.) (2006): Erosion des männlichen Ernährermodells? Die Erwerbstätigkeit von Frauen mit Kindern unter drei Jahren. Hans Böckler Stiftung on behalf of the BMFSFJ.

Buchholz, Sandra; Grunow, Daniela (2006): Women's Employment in West Germany. In: Blossfeld, Hans-Peter; Hofmeister, Heather (Eds.): Globalization, Uncertainty and Women's Careers. An International Comparison, Cheltenham and Northampton: Edward Elgar, p. 61–84.

Coleman, James S. (1990): Foundations of Social Theory. Cambridge, MA: Harvard University Press.

Coleman, James S. (1986): Social Theory, Social Research, and a Theory of Action. In: American Journal of Sociology, Vol. 91, No. 6, p. 1309–1335.

Crompton, Rosemary (Ed.) (1999): Restructuring Gender Relations and Employment. The Decline of the Male Breadwinner Model, Oxford: Oxford University Press.

Datta Gupta, Nabanita; Smith, Nina (2001): Children and Career Interruptions. The Family Gap in Denmark. IZA Discussion Paper 263.

Dingeldey, Irene (2007): Between Workfare and Enablement. The Different Paths to Transformation of the Welfare State: A Comparative Analysis of Activating Labour Market Policies. In: European Journal of Political Research, Vol. 46, No. 6, p. 823–851.

Dingeldey, Irene (2002): Das deutsche System der Ehegattenbesteuerung im europäischen Vergleich. In: WSI-Mitteilungen, Vol. 3, p. 154–160.

Drasch, Katrin; Matthes, Britta (2009): Improving Retrospective Life Course Data by Combining Modularized Self-Reports and Event History Calendars. Experiences from a Large Scale Survey. IAB Discussion Paper 21.

Drobnič, Sonja (2003): Ties Between Lives. Dynamics of Employment Patterns of Spouses. In: Heinz, Walter R.; Marshall, Victor W., p. 259–278.

Drucker, Peter F. (1994): The Age of Social Transformation. In: The Atlantic Monthly, Vol. 274, No. 5, p. 53-80.

Dustmann, Christian; Schönberg, Uta (2008): The Effect of Expansions in Maternity Leave Coverage on Children's Long-Term Outcomes. IZA Discussion Paper 3605.

Esping-Andersen, Gosta (1999): The Social Foundations of Postindustrial Economies. Oxford: Oxford University Press.

Gottschall, Karin; Bird, Katherine (2003): Family Leave Policies and Labor Market Segregation in Germany. Reinvention or Reform of the Male Breadwinner Model? In: Review of Policy Research, Vol. 20, No. 1, p. 115–134.

Granovetter, Mark (1985): Economic Action and Social Structure. The Problem of Embeddedness. In: American Journal of Sociology, Vol. 91, No. 3, p. 481–510.

Grunow, Daniela; Hofmeister, Heather; Buchholz, Sandra (2006): Late 20th-Century Persistence and Decline of the Female Homemaker in Germany and the United States. In: International Sociology, Vol. 21, No. 1, p. 101–131.

Heidenreich, Martin (2002): Merkmale der Wissensgesellschaft. Mimeo.

Heinz, Walter R.; Marshall, Victor W. (Eds.) (2003): Social Dynamics of the Life Course. Transitions, Institutions, and Interrelations, New York: Aldine de Gruyter.

Henninger, Annette; Wimbauer, Christine; Dombrowski, Rosine (2008): Demography as a Push toward Gender Equality? Current Reforms of German Family Policy. In: Social Politics: International Studies in Gender, State & Society, Vol. 15, No.3, p. 287–314.

Hillmert, Steffen; Jacob, Marita (2003): Bildungsprozesse zwischen biographischer Diskontinuität und Karriere. Das Phänomen der Mehrfachausbildungen. In: Zeitschrift für Soziologie, Vol. 32, No. 4, p. 325–345.

Ingram, Paul; Clay, Karen (2000): The Choice-within-Constraints New Institutionalism and Implications for Sociology. In: Annual Review of Sociology, Vol. 26, p. 525–546.

Jenkins, Stephen P. (1995): Easy Estimation Methods for Discrete-Time Duration Models. In: Oxford Bulletin of Economics and Statistics, Vol. 57, No. 1, p. 129–138.

Klein, Thomas; Braun, Uwe (1995): Der berufliche Wiedereinstieg von Müttern zwischen abnehmendem Betreuungsaufwand und zunehmender Dequalifizierung. In: Zeitschrift für Soziologie, Vol. 24, No. 1, p. 58–68.

Kleinert, Corinna; Matthes, Britta; Jacob, Marita (2008): Die Befragung "Arbeiten und Lernen im Wandel". Theoretischer Hintergrund und Konzeption. IAB-Forschungsbericht 5/2008.

Konietzka, Dirk; Kreyenfeld, Michaela (2010): The Growing Educational Divide in Mothers' Employment. An Investigation based on the German Micro-Census 1976-2004. In: Work, Employment & Society, Vol. 24, No. 2, p. 260–278.

Kreyenfeld, Michaela; Geisler, Esther (2006): Müttererwerbstätigkeit in Ost- und Westdeutschland. In: Zeitschrift für Familienforschung, Vol. 18, No. 3, p. 333–360.

Kreyenfeld, Michaela; Konietzka, Dirk; Geisler, Esther; Böhm, Sebastian (2007a): Gibt es eine zunehmende bildungsspezifische Polarisierung der Erwerbsmuster von Frauen? Analysen auf Basis der Mikrozensen 1976–2004. MPIDR Working Paper 2007–013.

Kreyenfeld, Michaela; Konietzka, Dirk; Böhm, Sebastian (2007b): Die Bildungsungleichheit des Erwerbsverhaltens von Frauen. In: Zeitschrift für Soziologie, Vol. 36, No. 6, p. 434–452.

Kunze, Astrid (2002): The Timing of Careers and Human Capital Depreciation. IZA Discussion Paper 509.

Kurz, Karin (1998): Das Erwerbsverhalten von Frauen in der intensiven Familienphase. Ein Vergleich zwischen Müttern in der Bundesrepublik Deutschland und den USA, Opladen: Leske und Budrich.

Lauterbach, Wolfgang (1994): Berufsverläufe von Frauen. Erwerbstätigkeit, Unterbrechung und Wiedereintritt, Frankfurt/Main et al.: Campus.

Leibowitz, Arleen; Klerman, Jacob A.; Waite, Linda J. (1992): Employment of New Mothers and Child Care Choice. Differences by Children's Age. In: Journal of Human Resources, Vol. 27, No. 1, p. 112–133

Leitner, Sigrid; Ostner, Ilona; Schratzenstaller, Margit (Eds.) (2004): Wohlfahrtsstaat und Geschlechterverhältnis im Umbruch. Was kommt nach dem Ernährermodell? Wiesbaden: VS Verlag.

Lewis, Jane (2002): Gender and Welfare State Change. In: European Societies, Vol. 4, No. 4, p. 331–357.

Lewis, Jane (1992): Gender and the Development of Welfare Regimes. In: Journal of European Social Policy, Vol. 2, No. 3, p. 159–173.

Manske, Alexandra (2005): Eigenverantwortung statt wohlfahrtsstaatlicher Absicherung. In: Berliner Journal für Soziologie, No. 2, p. 241–259.

Mayer, Karl-Ulrich (2009): New Directions in Life Course Research. In: Annual Review of Sociology, Vol. 35, p. 413–433.

Mincer, Jacob; Ofek, Haim (1982): Interrupted Work Careers. Depreciation and Restoration of Human Capital. In: Journal of Human Resources, Vol. 17, No. 1, p. 3–24.

Moen, Phyllis (2003): Linked Lives. Dual Careers, Gender and the Contingent Life Course. In: Heinz, Walter R.; Marshall, Victor W., p. 237–258.

Mood, Carina (2009): Logistic Regression. Why We Cannot Do What We Think We Can Do, and What We Can Do About It. In: European Sociological Review, Vol. 25, No. 6, p. 1–16.

Morgan, Kimberly; Zippel, Kathrin (2003): Paid to Care. The Origins and Effects of Care Leave Policies in Western Europe. In: Social Politics, Vol. 10, No. 1, p. 49–85.

Müller, Walter; Steinmann, Susanne; Ell, Renate (1998): Education and Labour-Market Entry in Germany. In: Shavit, Yossi and Walter Müller (Eds.): From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations. Oxford: Oxford University Press, p. 143–188.

Müller, Walter; Steinmann, Susanne; Schneider, Reinhart (1997): Bildung in Europa. In: Hradil, Stefan; Immerfall, Stefan (Eds.) (1997): Die Westeuropäischen Gesellschaften im Vergleich. Opladen: Leske+Budrich, p. 177–246.

Nee, Victor; Brinton, Mary C. (Eds.) (1998): The New Institutionalism in Sociology. New York: Russell Sage Foundation.

Ondrich, Jan; Spiess, C. Katharina; Yang, Qing; Wagner, Gert G. (2003): The Liberalization of Maternity Leave Policy and the Return to Work after Childbirth in Germany. In: Review of Economics of the Household, Vol. 1, No. 1, p. 77–110.

Ondrich, Jan; Spiess, C. Katharina; Yang, Qing; Wagner, Gert G. (1999): Full Time or Part Time? German Parental Leave Policy and the Return to Work after Childbirth in Germany. In: Labor Economics, Vol. 18, p. 41–74.

Prentice, Ross L.; Gloeckler, Lynn A. (1978): Regression Analysis of Grouped Survival Data with Application to Breast Cancer Data. In: Biometrics, Vol. 34, No. 1, p. 57–67.

Puhani, Patrick A.; Sonderhof, Katja (2010): The Effects of Parental Leave Extension on Training for Young Women. In: Journal of Population Economics, Vol. 24, No. 2, p. 731–760.

Reinberg, Axel; Hummel, Markus (2005): Vertrauter Befund. Höhere Bildung schützt auch in der Krise vor Arbeitslosigkeit. IAB Kurzbericht 9.

Schaeper, Hilde; Falk, Susanne (2003): Employment Trajectories of East and West German Mothers Compared: One Nation - One Pattern? In: Heinz, Walter R.; °Marshall, Victor W., p. 143–166.

Schönberg, Uta; Ludsteck, Johannes (2007): Maternity Leave Legislation, Female Labor Supply, and the Family Wage Gap. IZA Discussion Paper 2699.

Schratzenstaller, Margit (2004): Neue Dilemmata – neue Bedarfe. Synopse und Ausblick. In: Leitner, Sigrid; Ostner Ilona; Schratzenstaller, Margit, p. 381–391.

Schupp, Jürgen (1991): Teilzeitarbeit als Möglichkeit der beruflichen (Re-)Integration. Empirische Analysen auf der Basis aktueller Längsschnittdaten. In: Mayer, Karl Ulrich; Allmendinger, Jutta; Huinink, Johannes (Eds.): Vom Regen in die Traufe. Frauen zwischen Beruf und Familie, Frankfurt u.a.: Campus Verlag, p. 207–232.

Singer, Judith D.; Willet, John B. (2003): Applied Longitudinal Data Analysis. Modeling Change and Event Occurrence, New York: Oxford University Press.

Solga, Heike (2002): Stigmatization by Negative Selection. Explaining Less-Educated People's Decreasing Employment Opportunities. In: European Sociological Review, Vol. 18, No. 2, p. 159–178.

Sonderhof, Katja (2007): Effekte der Verlängerung des Erziehungsurlaubes auf die berufliche Weiterbildung bei jungen Frauen. Mimeo.

Spiess, C. Katharina; Wrohlich, Katharina (2008): The Parental Leave Benefit Reform in Germany. Costs and Labour Market Outcomes of Moving Towards the Scandinavian Model. In: Population Research and Policy Review, Vol. 27, No. 5, p. 575–591.

Stadelmann-Steffen, Isabelle (2007): Der Einfluss des sozialpolitischen Kontextes auf die Frauenerwerbstätigkeit in der Schweiz. In: Kölner Zeitschrift für Soziologie und Sozialpsychologie, Vol. 59, No. 4, p. 589–614.

Steele, Fiona (2009): Introduction to Discrete-Time Models. Centre for Multilevel Modelling, University of Bristol UK. Material distributed for the QMSS2 Summer School "Introduction to Event History Analysis", Paris 2009.

Steele, Fiona (2008): Multilevel Models for Longitudinal Data. In: Journal of the Royal Statistical Society: Series A (Statistics in Society), Vol. 171, No. 1, p. 5–19.

Weber, Andrea M. (2004): Wann kehren junge Mütter auf den Arbeitsmarkt zurück? Eine Verweildaueranalyse für Deutschland. ZEW Discussion Paper 04–08.

Recently published

No.	Author(s)	Title	Date
22/2010	Schlitte, Friso	Local human capital, segregation by skill, and skill-specific employment growth	11/10
1/2011	Grün, C. Mahringer, H. Rhein, Th.	Low-wage jobs: A means for employment integration oft he unemployed? Evidence from administrative data in Germany and Austria	1/11
2/2011	Achatz, J. Trappmann, M.	Arbeitsmarktvermittelte Abgänge aus der Grundsicherung: Der Einfluss von personen- und haushaltsgebundenen Arbeitsmarktbarrieren	2/11
3/2011	Patuelli, R. Schanne, N. Griffith, D.A. Nijkamp, P.	Persistence of regional unemployment: Application of a spatial filtering approach to local labour markets in Germany	2/11
4/2011	Riphahn, R.T. Trübswetter, P.	The intergenerational transmission of educational attainment in East and West Germany	2/11
5/2011	Koller, L.	Lohnmobilität alleinstehender SGB-II-Leistungsempfänger	2/11
6/2011	Brück-Klingberg, A. Burkert, C. Garloff, A. Seibert, H. Wapler, R.	Does higher education help immigrants find a job? A survival analysis	3/11
7/2011	Mendolicchio, C. Paolini, D. Pietra, T.	Income taxes, subsidies to education, and investments in human capital	3/11
8/2011	Mendolicchio, C. Paolini, D. Pietra, T.	Investments in education and welfare in a two-sector, random matching economy	3/11
9/2011	Antoni, M.	Lifelong learning inequality? The relevance of family background for on-the-job training	3/11
10/2011	Bruckmeier, K. Wiemers, J.	A new targeting – A new take-up? Non-take-up of social assistance in Germany after social policy reforms	4/11
11/2011	Mosthaf, A.	Low-wage jobs - stepping stones or just bad signals?	5/11
12/2011	Promberger, M.	Typenbildung mit quantitative und qualitativen Daten Methodische Überlegungen	5/11

As per: 22.06.2011

For a full list, consult the IAB website
http://www.iab.de/de/publikationen/discussionpaper.aspx

Imprint

IAB-Discussion Paper 13/2011

Editorial address
Institute for Employment Research
of the Federal Employment Agency
Regensburger Str. 104
D-90478 Nuremberg

Editorial staff
Regina Stoll, Jutta Palm-Nowak

Technical completion
Heiko Gerneth

Website
http://www.iab.de

Download of this Discussion Paper
http://doku.iab.de/discussionpapers/2011/dp1311.pdf

For further inquiries contact the author:

Katrin Drasch
Phone 0911.179 4762
E-mail katrin.drasch@iab.de