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625-2013

# A step in a new direction? The effect of the parent's money reform of 2007 on employment rates of mothers in Germany

Susanne Schmidt

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ISSN: 1864-6689 (online)

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## **A step in a new direction?**

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# **The effect of the parent's money reform of 2007 on employment rates of mothers in Germany**

Susanne Schmidt<sup>1</sup>

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<sup>1</sup> The following paper is my master thesis which I completed during my master program at the Maastricht Graduate School of Governance in June 2013. I would like to thank Denisa Sologon and Zina Nimeh for supervising the thesis and being supportive in all possible ways.  
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## ***Abstract***

Increasing maternal employment rates engage policies and people for decades. It is pushed but also questioned at the same time depending on whether women are regarded in first line as mothers or workers. In Germany, the *male breadwinner model* is traditionally favored. The parent's money reform of 2007 is regarded as a first step towards the *dual earner – dual carer model* by some scholars. Compared to previous reform, it introduced a shorter time span of receiving a child-raising benefit, a higher benefit and two additional months extending the reference period if both parents participate in child raising. This paper addresses the question *what is the effect of the parent's money reform of 2007 on maternal employment rates?* Using the SOEP, an ex-post impact evaluation with difference-in-difference estimator and propensity score matching is done to investigate causal effects of the reform on the employment rates of mothers. The results reveal that the mothers giving birth under the new reform start significantly earlier working than mothers bearing a child under the old reform, but the number of working mothers did not increase. This observation results in the conclusion that the parent's money reform did not fulfill its role as a driver towards a shift the *dual earner – dual carer model*. Future policies should have an explicit holistic approach to improve the reconciliation of work and family life.

*Keywords: labor, gender, family and networks*

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### ***Abbreviations***

CDU	Christian Democratic Union
CRB	Child-raising benefit
DD	Difference-in-difference estimator
EU	European Union
PM	Parent's money
OLS	Ordinary least square
PSM	Propensity score matching
SOEP	Socio-Economic Panel of Germany
SPD	Social Democratic Party of Germany
UK	United Kingdom



## 1. Introduction

Maternal employment has been gaining increasing attention during the last years in academics, politics and society. It is pushed but also questioned at the same time depending on whether women are regarded in first line as mothers or workers. This paper seeks to explain the effects of the parent's money reform of 2007 in Germany on maternal employment rates. Compared to the previous legislation, the child-raising benefit, the reform has three main features. Firstly, the reference period, defined as the time span in which beneficiaries receive the benefit, decreased from two to one year. Secondly, everybody receives two-thirds of his net income instead of an equal benefit of 300 Euro for all recipients. Thirdly, two additional "father months" are introduced, meaning that the reference period extends to fourteen months in case the parents share the time. The main goals of the reform are the increase of incentives for the re-integration of mothers into the labor market, enabling parents to concentrate on child-rearing directly after childbirth without any financial pressures and increasing the participation of fathers on child-care (Wrohlich et al., 2012).

Just recently, politicians started to set direct incentives to increase the employment rates of mothers. Traditionally, the *male breadwinner model* with a full-time working father and a mother, staying at home and doing housework, was boosted in Germany by the media and politicians<sup>2</sup>. Family policy reforms after World War II dealt mostly with maternity leave expansions and increasing benefits, often linked to the obligation that mothers are raising the children. Tax deductions for married couples with children were also introduced as a way to strengthen this ideal type. Due to societal developments during the last century, this ideal type was more and more questioned. Especially the increasing levels of women's education and constantly low fertility rates gave reasons to re-think this ideal type. Additionally, economic developments showed that the one-person-earning model often confined the financial means of a family (Pfau-Effinger & Smidt, 2011). For the first time, the parent's money reform of 2007 displays explicit characteristics moving away from this ideal type.

Spotting these developments in the European context, firstly Sweden favored the *dual earner - dual carer model* which focuses on the division of work by the parents within the household and the labor market. Already in 1974, Sweden introduced parental leave

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<sup>2</sup> These policy preferences refer to West Germany. The situation in East Germany will be explained later.

entitlements highlighting a gender-neutral approach. In 2003 and 2007, the United Kingdom (UK) expanded the paid leave reference period from 18 to 39 weeks, maternity leave from 40 to 52 weeks as well as introduced two weeks of paternity leave. The approach of the UK seeing women primarily as mothers than as a worker is more in line with the German than the Swedish one. The employment rates show, however, that the issue of maternal employment is most profoundly in Germany. It had the lowest female employment rate (62.2%) compared to Sweden (70.7%) and the UK (65.8%) in 2006. The unemployment rates for women are the highest in Germany with 10.1% in contrast to Sweden with 7.3% and the UK with 4.9% in 2006. The difference between the employment rate of women with or without children is the fifth highest within the EU (European Commission, 2008). It is further notable that Germany's fertility rate of 1.33 in 2006 is also one of the lowest ones in the European Union (European Commission, 2012).

Working mothers are normatively discussed in Germany. For instance, working mothers who have children below the age of three and bring their child to public caring institutions are often judged as uncaring mothers. Contrary, others argue that well-educated mothers should not miss the opportunity to invest in their career while having a baby. In the light of a potential paradigm shift from *male breadwinner model* to the *dual earner - dual carer model*, this paper evaluates if the incentives for mothers to start working after child birth changed and addresses the question:

What is the effect of the parent's money reform of 2007 on maternal employment rates?

The following analysis consists of two parts. Firstly, a descriptive analysis shows the differences in employment rates for a group of mothers receiving the parent's money and the child-raising benefit in the distinct years before and after giving birth. Here, special attention is drawn on the control variables education, nationality and marital status since they show contradicting expectations based on the literature review. Secondly, various applications of a difference-in-difference estimator (DD) and propensity score matching (PSM) investigate causal effects of the reform on maternal employment rates. The analysis is based on is the Socio-Economic Panel of Germany (SOEP).

This paper contributes to current research by investigating the effect of the reform over a period of seven years from 2005 until 2011. Previous literature examines the effect at

most for three years. Furthermore, the analysis of maternal employment rates before the birth, the application of different methodologies to re-check the results and controlling for variables, which have not been used beforehand, substantiate the following analysis. For instance, child care availability determines the employment status of mothers considerably; however, it is not explicitly included in any study yet. Most studies control for living in East or West Germany, since East Germany possesses historically a more expanded institutional set-up of child care facilities, but do not break up to a lower level.

The structure of this paper is as follows. The subsequent section deals with European developments as well as the history of parental leave entitlements in Germany. Section three describes the theoretical framework of the study. Section four explains the methodology applied in the analysis. The fifth section describes firstly the results of the descriptive analysis and afterwards the results of the impact evaluation. Section six interprets and discusses the results of both analyses. Afterwards, the conclusion is drawn.

## **2. Background situation**

This section describes firstly the development of leave entitlement policies in Europe. The following part provides an overview of the situation in West and East Germany and after the unification in unified Germany. It then moves to a comprehensive description of the parent's money reform in 2007.

### **2.1. European developments in parental leave policies**

The German developments in leave entitlements are also reflected on supranational level and in other countries. The European Union is aware of constantly low fertility and maternal employment rates in nearly all European countries. To increase both rates simultaneously, the European Commission passed a Directive on minimum parental leave requirements in 1996 and set targets for child care provisions at the Barcelona Council (Lewis, Knijn, Martin, & Ostner, 2008). Since family policies belong to national competences, the developments on national level are of greater importance.

Many countries have had these policies already for many decades. The main reforms for these policies started after World War II whereby the Nordic countries pioneered in respect to gender equality policies. Already in 1974, the Swedish government changed their maternity-leave policies into gender-neutral leave entitlements and extended the reference period from six to 16 months during the 1980s and 1990s. Norway and Finland introduced gender-equality policies in 1978 and Norway increased continually the reference period for paid benefits to 13 months. Denmark established gender-neutral policies in 1984 and extended them to 12 months in 2001. Most continental countries expanded their paid leave entitlements in the late 1970s and 1980s while the Mediterranean countries Italy, Spain and Portugal reformed in the 1990s. Several countries introduced additional un- or low paid weeks next to their leave entitlements. Lasting between one and three years, inter alia Norway, France, Austria and Finland adopted these policies mainly in the 1980s and 1990s with optionally allowing for part-time work or taking the paid leave time with interruptions (Morgan, 2009). In contrast to the other countries, Germany increased their paid parental leave period until 2007 and cut them then by half of the time. The parliament justified the length of 12 plus two months instead 14 plus two months by the current economic situation (Wrohlich, et al., 2012). Again, the Nordic states started a new trend with the implementation of "father months" which are six weeks in Norway and two months in Sweden. The longest ones

are in Austria with six months. The Netherlands, France, Belgium, the UK and Portugal adopted or extended “father months” already during the end of 1990s. The introduction of the German “father months” is remarkably later compared to other European countries.

Despite of sharing basic cultural values, it seems noteworthy that the European countries have different reasons for maternal employment policies (Morgan, 2009). For instance, France supports a strong role of the state with regard to family policies. The amount of public child care provisions for below three year old children increased significantly from the 1985 onwards to enable mothers to work early after childbirth. In 1986, a policy was introduced including a benefit for working parents in case they employ a person to take care of their child in their own home. Commonly, France’ policies regard mothers in first line as workers, who need institutional support to work and being a mother simultaneously. In the UK, the state encouraged the employment of mothers as well. The underlying goal deals, however, with the promotion of children’s early learning. Various policies stimulated early curricula for pre-school learning as well as subsidies for child care facilities for children below three years. Due to the attitude of the government of non-interference in the private life of the people, policy documents always favored neutral expressions like parental entitlements instead of maternal entitlements. Thus, increasing maternal employment rates is not the overarching goal of policies, but rather combined with other state interests in the UK (Morgan, 2009).

## **2.2. Historical flashback of leave entitlements in Germany**

The course of West Germany’s maternity policies originated already during the 1880s with Bismarck’s *social question* (Arbeiterfrage). The introduction of a mandatory and occupational related insurance system for the principal earner and his dependencies should preserve the status of the worker in case of need and as a protection for the family (Leibfried & Obinger, 2003). Announced in 1878, a law obliged working women to take three week-long unpaid leave break after giving birth. After World War II in 1952, the government adopted the new *maternity leave law* (Mutterschutzgesetz) including 12 weeks of paid leave for working mothers. In 1979, the optional *maternity vacation* (Mutterschaftsurlaub) introduced a payment of 750 DM (around 380 Euro) for working mothers who are taking care of the child for a period of six months. On the one hand, both measures were “explicit financial acknowledgment of their right to care” for

mothers (Erler, 2009, p. 121). On the other hand, the target group consists of women and both laws excluded fathers implicitly from the entitlements by directing them to women. The Christian Democratic Party (CDU) criticized these reforms established by the governing Social Democratic Party (SPD). According to their conviction, these policies gave impulse for women to work rather than take care of their children and therefore a limitation of their freedom of choice of being a housewife.

A turning point in this respect concerned the introduction of the *parental leave law* (Bundeserziehungsgeldgesetz) in 1986, which firstly addresses working as well as non-working mothers and fathers. It consists of six months mandatory leave period and an optional ten month leave period with monthly payments of 600 DM (around 300 Euro). The allowance of working part-time (19 hours) during the reference period shall facilitate the reintegration into the labor market afterwards. Still, the expansion of child care facilities was not even considered by the government. This implies that the law continued with the course of the previous ones to encourage mothers to take care of the child by herself. In the following years, the payments and leave periods were extended significantly from 10 months in 1986 to 24 months of payment and 36 months of leave period in 1992. The governing CDU, the opposing SPD as well as welfare associations supported these policies as it is essential in their view for a child to be raised by the own family. The SPD, however, highlighted missing child care facilities as a main obstacles for a “more gender-equal combination of work and family responsibilities” (Erler, 2009, p. 123). This concern regained importance as the evaluation reports in the upcoming years demonstrated that most mothers did not re-enter the labor market and just a marginal number of fathers decided to take the parents leave.

Contrary to West Germany, East German politics actively encouraged mothers to continue working full time after childbirth in East Germany. Due to the socio-economic situation after World War II, the state promoted on the one hand full-time employment for women. On the other hand, the state aimed at full reproduction of the population, meaning that each parent’s generation should replace themselves with the same number of children. To support this approach, highly elaborated nearly free public child care facilities with offering rates of typically close to 100% were provided to facilitate reconciliation of family and work. Furthermore, curtails of credits after childbirth or one year paid work interruption after child birth should facilitate the decision of parents for

children. Nevertheless, especially the paid work interruption did not support the freedom of choice to stay at home since social and political pressures expected mothers to come back promptly to work. As a consequence, East Germany exhibited the highest maternal employment rates with 91.8% in 1988 in the world. Nevertheless, the fertility rates decreased however constantly from the peak of 2.1 children per woman in 1971 to 1.7 children per woman in 1989. Reasons for this development were inter alia the inadequate division of work within the household as it was expected that this was mainly done by the women, though their full-time employment. In addition, work-related disadvantages of mothers could often not be smoothed out completely by state regulations (Erler, 2009).

Strong negotiations signed the consolidation of two nearly opposing approaches after the unification in 1990. The bilateral *unification contract* (Einigungsvertrag) included the preservation of the East German public child care facilities and the advice for West Germany to extend legal rights for working parents in respect to work-family reconciliation (Felfe & Lalive, 2010). In the aftermath of the unification, no major reforms have been adopted to facilitate the reconciliation of family and work life. Erler explains this by the “lack of political will to tackle the complex issue of intra-households role models” (2009, p. 124) as well as the prioritization of other issues like economic situation in the former East Germany.

The *child-raising benefit* (Erziehungsgeld) introduced in 2001 was a reform of several smaller policies. It involves the possibility to spread the last twelve months of leave entitlements over a period of eight years, and the option that both parents can take leave entitlements simultaneously. Due to evaluations of the difficulties for mother’s re-integration into the labor market, the reform increased the amount of part-time work from 19 to 30 hours during the reference period. Besides, recipients could decide between a budget-option with a rate of 450 Euro monthly over one year instead of 300 Euro monthly over two years. Contrary to their own underlying ideology and against strong societal criticism, the governing Social Democrats decreased income ceiling for the first six months for the entitlements from 51130 Euro to 30000 Euro. This reduced the number of recipients substantially, justified by the sorrowful economic situation in Germany (Erler, 2009).

The political and socio-economic situation in the upcoming years gave several reasons to deal with the future of family, childcare and gender policies. First, the low fertility rates persistent from the 1970s on and the related population aging gave direct reasons for action. The actors of the whole political spectrum worried about the future of the health and pension systems (Erler, 2009). In this context, especially the low fertility rates of university graduates with an average of 1.3 children compared to lower educated women with 1.7 children averaged were debated heavily. The validity of the statistics on this topic however were questioned in public but nevertheless gave additional incentives to reform the current policies (Henninger, Wimbauer, & Dombrowski, 2008). In addition, the low rates of maternal labor force participation, the high gaps between salaries for male and female and the societal complains to improve the reconciliation of work and family life offered motivations to change the stance of family policies (Auth, Leiber, & Leitner, 2011). Though all reasons did not seem to appear from nowhere, the forthcoming national elections in 2005 with a change in government from the SPD to the CDU changed the course of the family policies dramatically with the introduction of the parent's money in 2007.

### **2.3. *The parent's money reform of 2007***

The reform coming into force on the first of January 2007 had three overarching goals. Firstly, parents shall be able to concentrate on child-rearing in the first time after giving birth without any financial pressures. The second goal aims at increasing incentives for mothers to re-integrate into the labor market. Thirdly, the participation of fathers on child care shall be increased (Wrohlich, et al., 2012).

The main difference between the parent's money of 2007 and the previous child-raising benefit concerns the type of transfer. The child-raising benefit was a means-tested program. A family received thereby 300 Euro during the first two years after the childbirth in case the net income of family was below 30.000 Euro or of a single parent below 23.000 Euro in six months. Otherwise the family or single parents were not eligible. Contrary, the parent's money is an earnings-related system which amounts to two-thirds of the net income before the childbirth of the parent who is going to disrupt working after birth. The amount ranges from 300 Euro for parents with no income to 1.800 Euro maximum. A complementary low-income component (Geringverdinere Komponente) is included for low income person compared to non-working recipients. This new system provides earnings replacement for one year after the birth while the



other parent is able to obtain the benefit for two supplementary months of disrupting work. Since this shortening means a reduction by fifty percentages compared to before the reform, recipients have the possibility to receive the benefits over a period of two years at a replacement rate of 33.5%. This point which was discussed by opposing SPD since it would mean a breach of the right to decide on the appropriate way of caring for the child (Erlor, 2009). The additional two months are also known as the “father months” as it was the government’s intention to implicitly give incentives for fathers to be involved on child-care. The existing parental leave period of three year job protection remains. Recipients are still allowed to work up to 30 hours per week during the reference period whereby the amount of the parent’s money reduces in relation to the resulting earnings.

All in all, the parent’s money is regarded as a “much more generous transfer with, in principle, universal coverage” (Kluve & Tamm, 2009) than the previous child-raising benefit. The former transfer was particularly directed to low-income families whereas the new benefit shall especially give incentives to high-income parents to give birth to a child, since this target group had the reputation of having few or no children. The society as well as scholars, however, reacted rather negative to this approach as it was not convincing for them to give high-income childless people financial incentives to decide to get a child. It is worth highlighting, that for the first time, father involvement in childcare and shorter work interruptions were unambiguously addressed with this reform

### **3. *Maternal employment: the picture***

The following section deals with the theoretical framework. The first part presents paradigms for the division of labor within and outside the household before applying them to the parent's money reform. In following part develops the hypothesis for the subsequent analysis. The third section includes a literature review highlighting factors influencing the decision of mothers to work after the birth of a child.

#### **3.1. *Paradigms for the division of labor within and outside the household***

The social policy approach of Germany emphasizes strong incentives to preserve the traditional family image with the men as the principal earner and the women responsible for housework and children. There is for instance the joint taxation system for married couples with tax deductions compared to singles. Female employment is often indirectly discouraged by inter alia insurance benefits for women deriving "primarily from their status as wives and maternal carers" (Fleckenstein, 2011, p. 547) instead of contributing for themselves. Increasing heights of dependency benefits and the avoidance of extending public child care facilities gave fewer incentives to work.

Fraser's (1994) *male breadwinner model* applies to this gender division of work which is primarily criticized in the feminist literature. Her work highlights that social policies serve as a normative reference point for the *male breadwinner* system and strengthen the division of labor by genders, especially within the household (Fleckenstein, 2011). Lewis (2001) argues that two developments in the life style of families resulted in an erosion of the *male breadwinner* model during the last century. She criticizes that women's attitude towards paid work outside the household changed significantly. But they still inherit the greatest part of the unpaid housework. Meanwhile men's behavior neither changed with regard to paid nor unpaid work. In addition, the cohabitation as an alternative and sequel way of life next to the marriage leads to a greater separation of being married and being parents.

Based on this criticism, three further ideal types emphasize different distributions of work in intra-household situations, summarized by Ciccio and Verloo (2012). The second type called the *caregiver model* underscores the traditional role of genders. It focuses on gender equality in terms of gender differences instead of alteration to each other. The model stresses the value of raising the child in the own family and the domestic work stays within the household, which is generally done by the women.

Contrary to the above mentioned model, the state acknowledges and rewards this work by for instance allowances. Moving away from the traditional division of work, the adult-work model or *universal breadwinner model* favors full-time working of both men and women. Here, not gender differences but rather gender sameness is stressed as a way to enable gender equality. In order to achieve this idea, the family and in first instance the mother is excused from child care which is outsourced to public facilities. In this way, both the father as well as the mother is able to work full-time. The fourth type called *dual earner - dual carer model* or the universal caregiver model deals with gender equality by transforming gender roles both within the household and in the labor market. Especially remarkable is the stimulation of caregiving by the father. Since both men and women are taking part in work as well as child care, the latter one is regarded as obligation by the state and the family (Ciccia & Verloo, 2012). In the context of this reform, the fourth model is of greatest interest as the reform combines simultaneously increasing maternal employment rates and fathers participation in childcare.

While paradigm shifts in policies are often explained by socio-economic developments or changes in political leadership, family political processes require often normative developments. Family policies affect the intimate life of individuals and their families and are often influenced by norms and values in the society rather than events like economic growth. In addition, family policies are scattered among many different actors such as the range of political parties, non-governmental organisations like churches or other welfare associations. They “need a tool to induce coherence and align actors” (Mätzke & Ostner, 2010, p. 128). A substantial longer period of time and changing rationales and value is required for policy reforms in this field.

#### **3.2. The parent's money in the light of paradigm shifts**

The destruction of Germany after World War II, the resulting loss of trust in society and family as the last resort of stability explain partially the strong attitude towards the *male breadwinner model* in West Germany (Kuller, 2004). Politicians were reluctant to make fundamental changes in family policies to keep the family as a safe institution in individual's life. In society, the working mothers often represented a sign for broken families. In this light, they rather approved the *male breadwinner* ideal type, especially in strong catholic areas of Germany. This image was especially endorsed in the politics due to the leadership of the CDU during the 1950s and 1960s. Scholars evaluated this ideal

type, however, as rather disconnected from reality. A significant majority of women lost their husband during the war and needed to finance the family consequently alone.

During the 1970s, the feminists approached the traditional image from the angle of old-age poverty. Due to the dependency on the derived benefits as a wife, increasing long-term unemployment rates and high divorce rates during the 1970s, old-age poverty was a danger for many women (Mätzke & Ostner, 2010). Pfau-Effinger (2010) highlights the large broadening of university places in Germany at the beginning of the 1970s. This increased the knowledge and career prospects of women and supported the formation of strong feminist movements. These feminists as well as economists were the first ones who emphasized that female labor market participation does not necessarily imply a slowing down of the birthrate. Concurrently, the politicians and public opinion maintained on the idea of working mothers as a reason for a stifling fertility rate. The feminist literature criticized the informal obligation that women are expected to overtake the unpaid work in the household. The leading CDU promoted this attitude strongly still during the 1980s (Mätzke & Ostner, 2010). The policies started to promote the idea of part-time working mothers after a baby pause to facilitate the reintegration of mothers into employment during the 1990s and 2000s. The idea of working mothers were, however, always subordinated the idea of the *male breadwinner model*, although the societal developments did not support this image.

The reform of 2007 was therefore regarded as a clear turn in German family policies. Pfau-Effinger (2010) sees the shift away from the *male breadwinner model* due to several equally important reasons. Firstly, the societal developments, pushed forward especially by the feminist culture, questioned the traditional ideal picture of the family and the one of non-working mothers in particular. Secondly, the unification could have inspired politicians to get ideas for alternatives next to the *breadwinner model*, especially since it rejected by several sub-groups of the population like single mothers. Both approaches do not explain why the shift occurred in this moment in time, and even under CDU leadership. This course would be rather expected by the SPD, who have governed beforehand. Pfau-Effinger (2010) finds two reasons for this turnover. Firstly, the feminist members of the Social Democrats and the co-governing Greens were deeply fragmented and did not agree between themselves on a conformable future for family policies. Secondly, the Chancellor and Vice-Chancellor had family policies on the bottom

on their list of priorities. In contrast, the following CDU-led government with the first female Chancellor and a strong female Minister of Family Affairs agreed from the beginning on the importance of family policies. They introduced the parent's money with the simultaneous goals of increasing women's participation in the labor market and the incentives for fathers to stay home for child caring at the beginning of their legislative period.

Evaluating the reform in more detail, the two additional "father months" give direct and explicit encouragements for fathers to decide to stay at home. Nevertheless, these months are additional months of parental leave time and do not influence the amount of parents leave time for the mother. This implies that the reform gives incentives to father for child care in addition to the mother and not instead of the mother (Auth, et al., 2011). According to Wrohlich et al (2012), the percentage of fathers taking at least two months of parents leave time increased from seven percentage before the reform to 25 percentage after the reform. This increase is in line with their outcome that the employment rate of mothers, whose partner is taking parents leave time, is with 36 percentages twice as high as the employment rate of mothers, whose partner is not taking parental leave time (17%). With regard to the goal of facilitating parents to concentrate on child rearing without financial pressures, the net income of households with children in the first year after childbirth increased by 400 Euro per month. Families having their first child and families in which the mother received a high level of education experienced notably higher increases of income (Wrohlich, et al., 2012).

Several studies investigated explicitly the relationship between the reform and its effect on employment of mothers after giving birth, however not before giving birth. The benefit may vary from individual to individual due to the regulation that the level of net income influences the amount of parent's money.

*H1: It is expected that the employment rate of mothers receiving the parent's money is higher compared to mothers receiving the child-raising benefit before giving birth.*

The studies observed that the employment rate of mothers decreased or remained unchanged during the first year after childbirth, especially in families with a high household income. One of the goals of the reform is to raise the newborn child without financial pressures during the first year and the benefits shall serve as an earnings-

replacement. This implies that the benefits are higher during the first year after the childbirth but are available for a shorter period. This leads to the expectation that

*H2: the employment rate of mothers receiving the parent's money is expected to be lower compared to mothers receiving the child-raising benefit during the first year after giving birth.*

**Table 1:** Previous results of studies on parent's money reform

Authors	Method	Data	Result: Maternal employment rate after child birth
Spieß & Wrohlich (2008)	Ex-ante evaluation	SOEP	1. year: unchanged 2. Year: increased by 3PP
Kluve & Tamm (2009)	Ex-post evaluation	AOK members	1. year: decreased by 4PP 2. year increased by 7PP
Bergemann & Riphahn (2010)	Ex-post evaluation	SOEP	Wish to return to work increased by 14PP
Wrohlich et al (2012)	Ex-ante evaluation	SOEP	1. year: decrease by 6PP 2. year: decrease by 0.5PP (but for some subsamples increase by 2PP)
	Ex-post evaluation	Mikrozensus	1. year: decrease between 5 & 14PP 2. year: increase by 6PP

Source: with help of Spieß (2011), PP=percentage points

Bergemann und Riphahn (2011) focus on the differences between mothers from East and West Germany and argue that they include in this way child care availability as a control variables. It should be noted, however, that there are also huge differences within East and West Germany (Statistische Ämter des Bundes und der Länder, 2007). Wrohlich et al (2012) and Kluve and Klamm (2009) control in their study for foreign background, education, income, number of other children and as well East and West Germany. They do not differentiate between part-time and marginal employment. It is remarkable that Kluve and Klamm (2009) as well as Bergemann und Riphahn (2011) just provide descriptive statistics but do not investigate causal effects.

The goal of the reform of increasing women's employment rate refers particularly to the time after the reference period. During the reference period, mothers shall be able to stay at home without any financial pressures but start working directly after the reference period. Socio-economic issues like the weight gap of income between male and female employees as well as the loss in human capital due to long work breaks shall be reduced by shorter work interruptions of mothers (Erler, 2009). The shortens of the reference period from two to one year is a major step in the German family policies as

parents leave time has been generally always extended beforehand. The shortening of the reference period for parent's money is in contrast to the still existing three years of parental leave period, in which job protection is guaranteed but in which mothers do not receive a benefit. Since the reform was promoted by the government as an incentive for high-income families and facilitation of re-integration of women into the labor market after the childbirth, this still existing job protection may rather serve as a disincentive for mothers from this target group. It might be that there may no financial pressure to re-start work after the reference period. Studies analyzed that the employment rate of mothers increased in the second year of giving birth or at least just decreased minimally compared to the time before the reform (table 1). The effects are strongest for mother from households with low incomes (Wrohlich, et al., 2012). Based on this discussion,

*H3: it is expected, that the employment rate of mothers receiving the parent's money is increased compared to mothers receiving the child-raising benefit from the second year onwards after giving birth.*

Given the validity and reliability of these studies, it is remarkable that Bergemann and Riphahn (2010) deal in their analysis with non-employed mothers and their wish to be employed instead of actually employed mothers. The data set consisting of AOK members, a Germany insurance company, cannot be regarded as representative for Germany since their members are in general older and have lower income than the average German (Kluve & Tamm, 2009). Nevertheless, the scholars agree on the overall success of the reform as a first step away from the *breadwinner model*. But they still shy away from regarding Germany as the universal caregiver or universal breadwinner model.

### **3.3. *Factors influencing maternal employment***

The vast amount of literature on factors influencing mother's decision to be employed in Germany is typically arranged in three fields. The first one concerns the labor market possibilities and own income of a mother. Secondly, non-wage revenue by the partner is influential. Thirdly, opportunity costs determined by institutional arrangements like social transfers or public child care availability can motivate the decision to work.

Starting with labor market characteristics, van Ham and Büchel (2006) observe that mothers are more likely to work if they are living in a region with a low unemployment rate, meaning a high job availability. They argue that high unemployment rates serve as

a discouragement to even enter the labor market. It is in general harder to have a successful application as a mother compared to a childless woman. Further, the level of education of the mother is an often mentioned factor. Kreyenfeld and Hank (2000) reason from the sociological perspective that the attitude of high level educated women is different than the one from lower educated women as higher educated women enjoy their work often more and work more by choice. They also refer to the economic perspective by emphasizing that higher educated women are more likely to participate in the labor market since a high education is often associated with a higher income. On the other hand, it is observed that mothers with a low income are often forced to work to be able to maintain their standard of living, also this observation depends on the level of income of the partner (Spieß, 2011). In the context of this reform and due to these different possible explanations, the influence by education is of high interest as the reform was intentionally designed to increase the fertility rates of high educated mothers.

Having a partner or being single can also influence mother's labor market behavior for other reasons however in different ways. Single mothers are expected to have a lower household income than families with two persons, who are able to contribute to the income, and single mothers just need to work due to financial pressure. Contrariwise, single mothers could have fewer incentives to work than married mothers as they are eligible for a wider range of social benefits next to the parent's money. Further, married mothers have one child care alternative more than single mothers as their partner is able to take part in child raising, which means that it might be easier for them to find a job as they are not hampered by missing child-care availability (Kreyenfeld & Hank, 2000). Thus, being married or not can have different effects on the likelihood of working.

Nearly all studies control for differences between individuals from East and West Germany since the availability of child care facilities for children below three is far better in East than in West Germany due to their historical political attitudes (Kluge & Tamm, 2009). Studies investigated that there is a positive impact of child care availability on maternal employment ((Spieß & Büchel, 2003), (Van Ham & Büchel, 2006)). A positive significant impact can, however, just be observed by inclusion of full-day care opposed to half-day care as often the inflexibility of opening hours of these



institutions even prevent mothers to take a part-time employment (Kreyenfeld & Hank, 2000). Wrohlich (2008) estimates that there is an excess demand of child care facilities for children below three years of 24 % in West Germany and 59% in East Germany. Nevertheless, no study distinguishes further between for instance federal states which show significant differences in the supply of child care facilities. For example, the proportion of children below three years enrolled in day-care centers ranges from 5.9% in Schleswig-Holstein to 16.6% in Hamburg which belong both to West Germany (Statistische Ämter des Bundes und der Länder, 2007). Next to these formal child care institutions, the availability of informal child care facilities for example by family members or friends, executes influence on the employment of mothers. Thereby, especially full-time working mothers benefit from strong social networks due to inflexibility in opening times of the public facilities. There seems to be a positive relation between part-time working mothers and the availability of an informal social network, but this relation is weaker than the one mentioned beforehand. Further, it is observed that the lower the supply of public child care, the more important is the informal network of child care for the mothers to be able to work (Wagner, 2012). Further, it is often investigated that the more children a mother has, the less likely she is involved in the labor market. Reasons might be the difficulties to find appropriate child care for all children as well as the great amount of housework for the mother (Wrohlich, et al., 2012).

Next to these three mentioned fields, there are further factors which can influence the decision of the mother to be employed. The health status of the mother can be one of the determinants as it costs a lot of energy to work next to having a child. It is more likely that mothers with a good health status are working than with a poor health status (Michaud & Tatsiramos, 2008). Another reason deals with the ethnical background. Though emphasizing that the following countries do not have an extensive system of social protection for families and are not characterized by the German *male breadwinner* model, Wagner (2012) observes that mothers in Germany with roots from Italy, Spain, Turkey, Greece or of the former Yugoslavia see the “family as a provider of care and ultimate responsibility-taker for its members’ welfare, strengthening women’s roles as caregivers” and see it as their cultural obligation to stay at home (M. Wagner, 2012, p. 17). Germany has a complicated system for applying for social benefits by the state, and authors observed that many foreigners do not apply to all benefits they are eligible for,

due to the fact that they are not aware of it (Petzold, 2012). It might be the case that several foreign mothers would be able to receive a higher benefit or higher other kinds of social benefits, but are not aware of it and therefore work. The analysis investigates therefore if there the nationality shows influence on the employment rates of mothers.

#### **4. *Methodology***

The subsequent section describes the methodology of the analysis starting with the problem statement and data set. The next part explains the research approach. The following element elaborates on the different techniques for impact evaluation. The final part operationalizes the variables.

##### **4.1. *Problem statement***

The paper aims at providing a comprehensive overview of the effects of the parent's reform on maternal employment rates in different years. Thereby, it attempts to answer the research question:

What is the effect of the parent's money reform of 2007 on maternal employment rates?

The intended effect of the reform varies between the different periods of giving birth. The main intention of the reform deals with the re-integration of mothers into the labor market after giving birth. To investigate this effect, the employment rates of mothers, giving birth after the reform has been introduced, are analyzed in 2009, 2010 and 2011. An additional purpose of the reform concerns the number of working mothers in the first twelve months after giving birth. Thus, the employment status in this period is examined as well. Lastly, a potential side-effect of the reform could be that the mothers, profiting from the reform, increase their employment rates to increase the parent's money benefit as it is earnings-related. This means it is essential to examine if there is a potential effect of the reform on the employment rate of mothers before giving birth.

##### **4.2. *Data set***

The following analysis is based on the SOEP which is a representative panel survey of Germany's households and their members. The survey exists since 1984 and includes over 20.000 adults from over 12.000 households (Wagner, Frick, & Schupp, 2007). The data set inhabits extensive information on the lifecycle of individuals. For instance, a separate file on the life of children is included. The alternative data set is the Mikrozensus, which has not been chosen due to the fact that the participating respondents change every four years. Since the time frame of the analysis is seven years, it could be that the participants have changed. This would weaken the validity substantially.

Taken these advantages, the following limitations can also have substantial effect on the analysis. Firstly, the data set does not include data on macro level. This implies that the variables public child care availability and unemployment rates are included manually (Statistische Ämter des Bundes und der Länder, 2007). It needs to be noted that the variables are both on the level of the federal state (*Bundesland*). Data on a more local level was not available. Further shortcomings deal with the fact that there is no appropriate variable measuring the private child care availability. Therefore, an indicator consisting of several aspects of the private life of mothers is constructed (see page 32). Furthermore, the variables church attendances as well as the frequency of meeting and helping friends provide just data for the years 2005, 2007 and 2009. It is assumed that the data is constant over the years.

### **4.3. Research approach**

The methodology consists of two steps. Firstly, descriptive statistics present the employment rates of mother before and after the reform. The second step covers the investigation of causal effects of the reform on the employment rates of mothers.

In more detail, the first step implies that the frequency and percentage of mothers affected by the reform and their employment status are compared to the same data for mothers not being affected by the reform. This means in practice, that the employment status of mothers giving birth in 2007 is compared to the one of mothers giving birth in 2006. It is ensured that the comparison refers to the same periodical moment of giving birth. This means that for instance the year before giving birth is for the reform-affected mothers 2006 and for the other group 2005. A complete overview of this timeline is given in the appendix (see Table 11, page 57). The frequency is given unweighted based on the data of the SOEP while the percentages are weighted to extrapolate to the population. Furthermore, it is tested whether the difference in the employment status between the mothers giving birth in the two periods is statistically significant different from zero. To test this, ordinary least square regressions (OLS) are made. Heteroskedasticity-robust standard errors are used to avoid inconsistent standard errors which would otherwise lead to wrong hypothesis tests and threatened internal validity (Stock & Watson, 2012, p. 368). These two parts are repeated with a special focus on the education, the nationality and marital status of a mother since these variables show controversial results based on the literature review. Based on difference scholars, the influence of all three variables could lead to higher as well as lower

employment rates. In this part, the dependent variable is the employment status of the mothers in terms of full-time, part-time, marginally or not employed. In the appendix, summary statistics of all variables are listed for the two groups for the year 2007 and 2006 (see appendix Table 12, page 57 ).

This approach misses the most important point of evaluating policy reforms, namely causality. The second part of the empirical analysis deals therefore with this issue and investigates whether there is a causal impact of the policy. This means a counterfactual to estimate the impact of the program is required. The counterfactual is defined as the outcome which would be in place if the policy program would not exist (Gertler, Martinez, Premand, Rawlings, & Vermeersch, 2011). In practice, this impact is estimated by means of a comparison group which is assumed to have the similar observable and unobservable characteristics as the treatment group. As previously, it means here that the mothers giving birth after the reform are compared to the ones giving birth before the reform. The assumption remains that the members of both groups are equal except the fact that one group gave birth when the reform was already introduced while the other groups gave birth before the reform. Or to put it in other words, the behavior of individuals belong to comparison or treatment group would be the same without the reform.

A common problem concerns self-selection of participants to the program which would lead to biased result. Since policies are designed to the needs of people, some individuals could self-select themselves to the program to be able to benefit from it. This could be done due to unobservable characteristics which would lead to variables in the error term, being also correlated with the treatment. A key assumption of OLS regression is violated as the regressor is not independent from the error term which could lead to biased estimates. A consequence of self-selection could be that the comparison group and treatment group have different characteristics before the treatment takes place As a consequence; the expected differences after the introduction of the treatment are not just due to the treatment. To avoid this problematic, the treatment is ideally randomly assigned to the treatment group. This is however often not feasible in practice. A way to deal with selection bias is called the conditional independence assumption defined as the notion that individuals receiving the treatment are assigned independently from the outcome (Khandker, Koolwal, & Samad, 2010).

In the context of this paper, this aspect requires that the mothers did not time the birth of their child according to the introduction day of the reform. Based on the content of the reform, such a behavior would be a logical step since it is expected that the parent's money increases the amount of benefit for the recipients. Kluve and Tamm (2009) deal with this concern explicitly and highlight that the legislative process of the reform was rather short. The CDU and SPD agreed on the main points of the reform in May and published the first proposal in June 2006. The reform passed the national parliament in September and was legally effective from January 2007 on. Mothers giving birth to a child around January 2007 could not be aware of the fact that the reform would be in force at this point in time. A major concern of the above mentioned authors dealt however with the time of turn of the year, since it could be a logically, even though disturbing plan of parents, to delay the birth. Due to the fact that midwives and doctors were aware of this issue, they signed a national agreement between all obstetricians explicitly forbidding any kind of support for birth in January on purpose.

The causal impact of the reform is investigated for years 2009, 2010 and 2011 when the reference period has stopped for both groups. Earlier years are not included since both groups perceive the different periods in relation to giving birth in different years. This would imply for instance for the year 2008, that the employment rates of the child-raising benefit recipients giving birth two years ago would be compared to the employment rates of parent's money beneficiaries giving birth one year ago. This would lead to biased und unreliable results. From the years 2009 onwards, both groups gave birth at least two years ago. The limitation remains that the child-raising beneficiaries gave birth one year earlier compared to the other group. The dependent variable is here the amount of working hours.

It is important to note for section 6 of this paper, when the results of the descriptive analysis and the impact evaluation results are consolidated, that the years vary. For the descriptive analysis, the year of interest is not the actual year (for instance, 2005), but the year in reference of giving birth (for instance, year before giving birth). This means for the consolidation of the two approaches, that the results from the descriptive part refer to the data for the child-raising benefit beneficiaries is from one year earlier than the one for the parent's money beneficiaries. In comparison, for the impact evaluations, the year of interest is the actual year (for instance, 2009).

A serious limitation for the first part of the analysis deals with a sample size of 387 which is acceptable but not high. Though, the second part of the analysis allows a greater sample size as the mothers of interest include now the mothers giving birth after the reform in 2007 and 2008 and the mothers giving birth before the reform 2005 and 2006.

#### **4.4. Ex-post impact evaluation techniques**

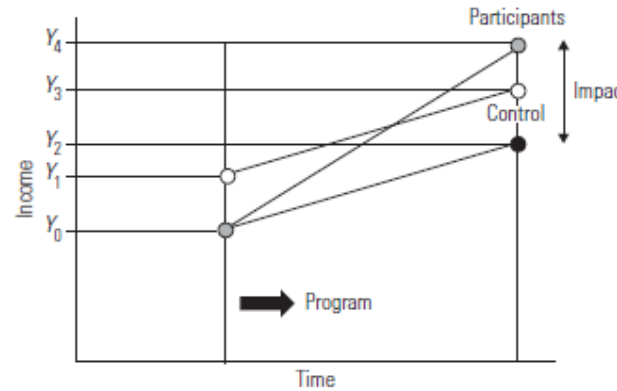
As the previous section has already highlighted, randomization as the gold standard for impact evaluation is hard to reach due to ethically and politically concerns. Other methods require often stronger assumptions than randomization. This paper uses therefore different methods to check the robustness of results. Khandker et al (2010) proposed the mixture between difference-in-differences estimator and propensity score matching combined with either fixed effects or OLS regressions. Fixed effect regressions are technique to control for unobservable factors in panel data analysis (for a description, see appendix, page 57).

##### **4.4.1. Difference-in-difference estimator**

Essentially, as the name says, the difference-in-difference estimator “compares treatment and comparison groups in terms of outcome changes over time relative to the outcomes observed for a preintervention baseline” (Khandker, et al., 2010, p. 72). As a consequence, there is the assumption that the trends are the same in the comparison and treatment group. To calculate this estimator, first the difference between the treatment group before and after the introduction of the reform is identified and then the difference between the comparison group before and after the policy change is looked at. Finally, the difference between the differences in outcomes of the treatment as well as comparison group is taken which is then called the difference-in-difference estimator. Hence, the sample is decomposed into four groups. In a regression framework, the equation looks like

$$y_i = \beta_0 + \beta_1 T_1 + \beta_2 A_1 + \beta_3 T_1 * A_1 + \varepsilon_i \quad (1)$$

whereby  $T_1$  equals 1 for the treatment group and 0 for the comparison group,  $A_1$  equals 1 for the period after the introduction of the reform in 2007 and 0 for the time before the reform. The coefficient of the interaction terms is the difference-in-difference estimator of the treatment effect.



**Figure 1:** Example of Difference-in-Difference

Source: Khandker et al., 2010

The main benefit of this estimator concerns the allowance for unobserved heterogeneity which could otherwise influence selection bias. It is assumed that unobserved heterogeneity between comparison and treatment group exists, but it is time-invariant and not correlated with the policy reform. The assumption remains that there are no time-varying differences between comparison and treatment group which is also the main limitation of this approach (Khandker, et al., 2010).

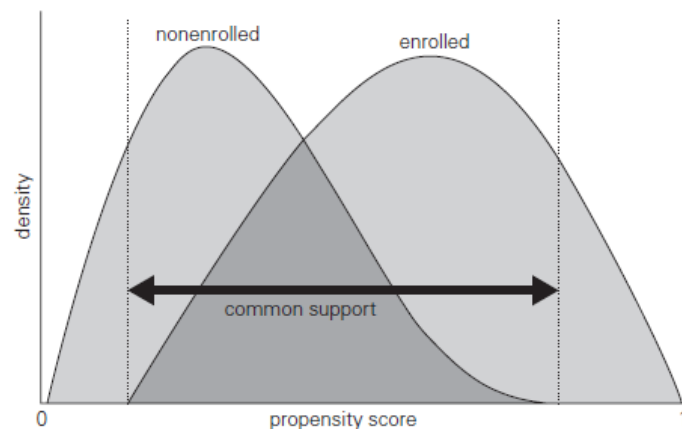
For the following analysis, the year 2005 is taken as the basis year. The employment status is then compared to the years 2009, 2010 and 2011.

#### **4.4.2. Propensity score matching**

In a nutshell, matching methods in general construct comparison groups based on most similar observable characteristics. The main challenge concerns the identification of similar units as it is rarely difficult to find individuals that are exact in many characteristics. Therefore, PSM is often used as a common approach of matching individuals. Thereby, nonparticipating individuals are matched to participating individuals with regard to a single propensity score “reflecting the probability of participating conditional on their different observed characteristics” (Khandker, et al., 2010, p. 53). Based on this propensity score, the individuals of the treatment group are then matched to individuals of the control group. There is the possibility of having no matching partners in the control group for participants with regard to the propensity score. This is also called the lack of common support. The common support area defines



the region in which the propensity scores of both groups overlap and participants with scores outside the area are dropped.



**Figure 2:** Propensity score matching and common support area

Source: Gertler et al., 2011

Afterwards, the balancing property is checked meaning whether within each quintile of the propensity score distribution the average scores are the same. These steps rely on two further assumptions. Firstly, it is assumed that there is conditional independence which means that the observable characteristics are not affected by the reform. These are not per se testable but need to be evaluated in the context of the reform. A major drawback with regard to the parent's money reform relies in the fact that the height of benefits depends on the previous amount of earnings, hence, self-selection into the new reform would be reasonable (see previous section). Secondly, the common support condition implies that units of the treatment group have counterfactuals within the propensity score distribution.

The matching of participants of both groups can be done by means of several different approaches. The nearest-neighbor matching method accomplishes the two units based on the closest propensity score. Stratification or interval matching methods divide common support areas into different intervals to calculate the impact within each interval. The nonparametric estimators' kernel and local linear matching use weighted averages of treatment and control groups. The mean impact between participants of control and treatment group is then regarded as the average treatment effect (Khandker, et al., 2010).

The approach relies on the assumption that there are no unobserved differences between both groups. This implies that propensity score matching as a single method should just be used in cases in which it is assumed that only observed characteristics play a role.

#### **4.4.3. Combination of different techniques**

To approach the limitations of both methods, the assumptions of time-invariant unobserved heterogeneity with regard to the difference-in-difference estimator and the assumption of only observable characteristics concerning propensity score matching, the two methods are combined. In this way, the preprogram characteristics of treatment and control group are matched in a better way by means of the propensity score. Having two time periods as in this paper, the impact of the reform is calculated within the common support area between treatment and control group. The difference-in-difference estimator is assessed by

$$y_i = (Y_{i2}^T - Y_{i1}^T) - \sum w(i,j) (Y_{j1}^T - Y_{j2}^T) \quad (2)$$

whereby  $w(i,j)$  is the weight given the  $j$ th control area matched to the  $i$ th treatment area by using propensity scores. Then, fixed effects or OLS regressions can be applied (Khandker, et al., 2010).

#### **4.5. Operationalization of variables**

Based on the literature review in section 3.3., table 2 provides an overview over the dependent and independent variables of the analysis. For the two different parts of the analysis, two different dependent variables are taken. The descriptive part inhabits the employment status of women in terms of full-time, part-time, marginally and non-employment measured as the average monthly employment status of the year. The causal impact evaluation uses working hours, starting from zero, meaning not employed. Employment is defined as paid and legally being employed (G. Wagner, Frick, & Schupp, 2007). For the variable public child care availability, either the proportion of children below three in public child care facilities or the usage of these facilities could be used. Due to the fact that there is a high shortage for these facilities, the first measurement is taken as it can be assumed that more mothers would bring their children to these facilities if there would be more available (Spiess & Wrohlich, 2008). The variable church attendance has not been used for assessing maternal employment until now. Wagner (2012) however argues that it could be an indicator the religiosity of mothers

which can be further a sign for the preferences towards the *male breadwinner* model as most religions traditionally regard it as the ideal type for division of work within the family. The categorical variables education, marital status, and health status are recoded into binary variables for the empirical analysis in terms of high and low education, married or not married and having a good/very good health status or not.

**Table 2:** Operationalization of variables

Name	Values	Based on (inter alia)
<b>Labor market characteristics</b>		
Employment status (dependent variable)	Not employed, full-time employed, part-time employed, marginal employed	Kreyenfeld & Hank (2000)
Working hours (dependent variable)	from 0 onwards	Wrohlich et al (2012)
Job availability	Average employment rate in federal state	Kreyenfeld & Hank (2000)
<b>Individual Characteristics</b>		
Mothers education	High or low education	Kreyenfeld & Hank (2000)
Foreign background	Binary variable: German or not	Kreyenfeld & Hank (2000)
Marital status	Married living together, married separated, single, divorced, widowed	Kreyenfeld & Hank (2000)
Current health of mother	Very good, good, satisfactory, poor, bad	Michaud & Tatsiramos (2008a)
Age of mother		Wrohlich et al (2012)
Nr of children		Wrohlich et al (2012)
Individual income		Wrohlich et al (2012)
Household income		Wrohlich et al (2012)
Church attendance	Very frequently, frequently, not frequently, never	Wagner (2012)
<b>Child care characteristics</b>		
Availability of public child day care in federal state	Proportion and usage of children below 3 in public (full) day care facilities	Kreyenfeld & Hank (2000)
Availability of informal child care	3 indicators to measure social support networks: 1. additive index of the number of grandparents, aunts, uncles and other relatives caring 2. how frequently the child's mother and her partner a) meet with friends and neighbors and b) help friends and neighbors. 3. Partners' participation in housework is measured in average housework hours on a normal week day.	Wagner (2012)

## 5. Empirical analysis

### 5.1. Descriptive statistics

In the following, the employment rates for mothers giving birth in the years 2006 and 2007 are investigated in separated steps for the time before, immediately after and in the following years after giving birth. The mothers, who gave birth in the year 2006, were receiving the child-raising benefit, while the mothers giving birth in the year 2007 were the first recipients of the parent's money. Furthermore, it is tested whether the difference in the employment status between the mothers profiting from the different kinds of benefit is statistically significant different from zero. The results are further separated for high and low level of education, being German or not and being married or not. These tables can be found in the appendix.

In general, the data shows that there is an increasing trend of female employability in Germany. While 59.74% of all women between 15 and 65 years were employed in 2005, this amount increased to 64.28% in 2011. The same trend can be observed for mothers since 42.57% of them were employed in 2005 and 64.05% in 2011. This means that the rate of employed mothers increased on a faster pace than the employment rate of all women in Germany.

The first part relates to the difference between mothers giving birth before and after the reform and discusses the employment rates before giving birth. The results show that the employment rates are 5.81% higher for women receiving the child-raising benefit (table 3). While the employment rates in terms of part-time and marginally employment are rather similar, the potential child-raising beneficiaries have considerably higher full-time employment rates by 6%. Tests reveal that the differences between the two groups are significantly different from zero.

In addition, it is investigated that there are significant differences when separating after levels of education (table 14, page 59). The differences between the child-raising beneficiaries and parent's money recipients are however rather minor for both levels of education. With regard to the nationality, the child-raising beneficiaries have higher employment rates for Germans as well as non-Germans of around 3-4% than the parent's money recipients, but just the ones for the German nationality are statistically significant. In case of the differentiation between married and non-married mothers, it is

remarkable that 69.51% of the married mothers receiving the child-raising benefit were employed but just 57.37% of the married parent's money beneficiaries. The results for married as well as non-married mothers are significant.

**Table 3:** Employment status before giving birth

	child-raising benefit		parent's money	
	frequency unweighted	percentage weighted	frequency unweighted	percentage weighted
Full-Time Employment	74	39.96	57	33.74
Regular Part-Time Employment	28	17.7	23	17.61
Vocational Training	5	2.64	6	3.04
Marginally employed	12	8.34	14	10.17
Not Employed	52	29.63	66	35.44
Missing	41	1.74	8	0
<b>Total</b>	<b>212</b>	<b>100</b>	<b>174</b>	<b>100</b>

*Significance test:* Coeff. -0.14, robust st. error 0.028, t-value -5.03, *source:* SOEPv28 2005&2006, *note:* the data for CRB refers to the year 2005 and for PM to the year 2006.

Table 13 (see appendix, page 59) describes the employment status in the year of giving birth. It should be noted that mothers are subject to the “legal protection of working mothers” starting six weeks before the planned date of birth and ending eight weeks after the birth. During this time period, it is forbidden for mothers to work, however they are receiving their full salary and are legally having their employment status (Wrohlich, et al., 2012). After these eight weeks, the reference period starts for both groups. These regulations were not affected by the reform. Due to this long period of maternity protection, the employment rates shrink drastically during the months after but not immediately after giving birth. In the context of the analysis, and as explained in the methodology, the employment status refers to the average employment status per year of a woman. Due to this long period of still having the legal employment status, the results in the year after are important for the analysis.

During the first year after giving birth, when both groups of mothers experience the reference period and are receiving their benefit, the employment status changed considerably for both groups (table 4). The non-employment rate increased to 63.58% for the child-raising beneficiaries and to 82.48% for the other groups compared to previous years. Decreasing employment rates can be observed for all kinds of employment. It is remarkable for both groups that the full-time employment rates decreased more than the one for part-time employment rates. With regard to the differences between the two groups during the first year after giving birth, the

employment rates in all kinds of employment are lower for the child-raising benefit recipients than for the parent's money beneficiaries. The results are significant.

In terms of a more separated look, the data shows that 21.5 % of the child-raising benefit recipients with a low education and 11.64% of the of parent's money beneficiaries with the same level of education are employed (table 15, page 60). It is noteworthy that the trend is the other way around for high education, meaning that 12.16% of the child-raising beneficiaries are working and 21.9% of the parent's money recipients. With regard to the nationality, it is noticeable that 21.33% of the German mothers before the reform receiving the child-raising benefit were working while 34.58% of the mothers after the reform benefiting from the parent's money were working. There are no notable differences for non-German mothers as well as married and non-married mothers. All results are significant.

**Table 4:** Employment status first year after giving birth

	child-raising benefit		parent's money	
	frequency unweighted	percentage weighted	frequency unweighted	percentage weighted
Full-Time Employment	10	3.65	8	1.52
Regular Part-Time Employment	19	10.46	13	6.95
Vocational Training	1	0.05	2	0.45
Marginally employed	10	2.26	12	8.6
Not Employed	172	63.58	139	82.48
Missing	0	0	0	0
<b>Total</b>	<b>212</b>	<b>100</b>	<b>174</b>	<b>100</b>

*Significance test:* Coeff -0.31, robust st. error 0.05, t-value -6.08, *source:* SOEPv28 2007&2008, *note:* the data for CRB refers to the year 2007 and for PM to the year 2008.

Table 5 shows the employment rates during the second year after giving birth. During this time period, the reference period for the child-raising benefit recipients continues while it has already stopped for the parent's money beneficiaries. The results reveal that the employment rates for the parent's money beneficiaries are higher (52.43%) than for the child-raising beneficiaries (37.29%) by over 15%. These tendencies are valid for all kinds of employment whereby the difference between the rates in part-time employment are the highest.

Taking a closer look on individual characteristics, clear tendencies can be observed for all three appearances education, nationality and marital status (table 17, page 61). For all separations, the employment rate of mother receiving the parent's money is at least

10% higher than the employment rate for mothers getting the child-raising benefit. The results are significant for all differentiations.

**Table 5:** Employment status second year after giving birth

	child-raising benefit		parent's money	
	frequency unweighted	percentage weighted	frequency unweighted	percentage weighted
Full-Time Employment	17	5.27	17	7.89
Regular Part-Time Employment	41	20.08	40	29.86
Vocational Training	2	0.48	1	0.34
Marginally employed	21	11.26	19	14.14
Near Retirement (Zero working hours)	1	0.19	1	0.2
Not Employed	111	62.71	80	47.57
Missing	19	0	16	0
<b>Total</b>	<b>212</b>	<b>100</b>	<b>174</b>	<b>100</b>

*Significance test:* Coeff -0.2, robust st. error 0.04, t-value -5.12, *source:* SOEPv28 2008&2009, *note:* the data for CRB refers to the year 2008 and for PM to the year 2009.

Table 6 presents the results for the employment status, when both reference periods have expired, which is the third year after giving birth. The data reveals that the employment rate is just slightly higher for parent's money beneficiaries (0.82%) compared to the employment rates for child-raising benefit recipients. In relation to the previous year, in which the employment rates for the parent's money beneficiaries were substantially higher than the ones for the child-raising benefit recipients, it means that the employment rates of mothers benefiting from the parent's money increased steep and faster than the others ones but then leveled off with the employment rates of the child-raising benefit recipients. With regard to the different kinds of employment, the full-time employment rate of the child-raising benefit beneficiaries is higher by 2%. These results are significant.

With regard to education, clear tendencies can be observed (table 18, page 61). High as well as low educated mothers receiving the parent's money have higher employment rates of above 20 and respectively 8% than child-raising benefit recipients. It is notable that the German recipients of the parent's money have a higher employment rate of above 20% than the child-raising benefit recipients while the non-German recipients of the child-raising benefit have a higher employment rate of above 15% than the parent's money beneficiaries. There are no remarkable differences between married and non-married mothers. Except for the difference between non-Germans, all results are significant.

**Table 6:** Employment status third year after child birth

	child-raising benefit		parent's money	
	frequency unweighted	percentage weighted	frequency unweighted	percentage weighted
Full-Time Employment	24	9.59	16	7.6
Regular Part-Time Employment	47	21.3	37	29.01
Vocational Training	4	1.07	0	0
Marginally employed	18	18.58	18	12.83
Not Employed	87	49.47	74	50.56
Missing	32	0	29	0
Total	212	100	174	100

*Significance test:* Coeff -0.23, robust st. error 0.05, t-value -4.85, *source:* SOEPv28 2009&2010, *note:* the data for CRB refers to the year 2009 and for PM to the year 2010.

The data for the fourth year after giving birth shows that the employment rate of mothers under the new reform is again just slightly higher than for the child-raising beneficiaries by 1.1% (table 7). While the percentage of full-time employed mothers is approximately the same for both groups of beneficiaries, the part-time employment rates are 7.71% higher for parent's money recipients than child-raising benefit recipients. With regard to marginally employment, child-raising benefit recipients have a higher employment rate of 5.75% compared to parent's money recipients.

Taking a closer look on the different levels of education (table 19, page 62), mothers receiving the parent's money and having a low education have a higher employment rate of 20% compared to child-raising benefit recipients with a low education, however mothers getting the child-raising benefit with a high education have a 8% higher employment rate than the parent's money recipients with a high education. Other notable differences are between non-Germans as 39.27% of the women getting the child-raising benefit are working, but 68.66% of the mothers receiving the parent's money. The further separations do not reveal considerably differences. The results are significant for all differentiations except for the non-Germans and married mothers.



**Table 7:** Employment status fourth year after giving birth

	child-raising benefit		parent's money	
	frequency unweighted	percentage weighted	frequency unweighted	percentage weighted
Full-Time Employment	24	13.33	21	13.39
Regular Part-Time Employment	40	24.08	44	33.35
Vocational Training	3	2.12	8	0
Marginally employed	19	16.61	59	13.56
Near Retirement, zero working hours	1	0.6	0	0
Not Employed	74	43.26	42	39.7
Missing	51	0	42	0
<b>Total</b>	<b>212</b>	<b>100</b>	<b>174</b>	<b>100</b>

*Significance test:* Coeff -0.20, robust st. error 0.06, t-value -3,38, *source:* SOEPv28 2010&2011, *note:* the data for CRB refers to the year 2010 and for PM to the year 2011.

## 5.2. Impact evaluation

The impact evaluation is done here with several different techniques to check the robustness of the results. In the following, the different results are presented for the time when the reform was three, four and five years in force.

### 5.2.1. Effect of reform in 2009

In 2009, the parent's money was three years in place after its introduction in 2007. This part shows the results for the investigation if the reform would have not been taken place. This means if the estimated parameters show an increase or decrease in the employment status of mothers receiving the parent's money compared to the ones receiving the child-raising benefit. The regressions display in table 8 the variable of interest, which is the interaction terms, consisting of the year dummy and the treatment variable. This interaction tells the difference-in-difference estimator. The appendix includes the complete outputs (table 20, page 63). For the results of the different applications of propensity score matching, the average treatment effect is presented.

It should be noted that the results of the propensity score matching are based on the differentiation between child-raising benefit beneficiaries and parent's money recipients in the year 2009, meaning that the members of the two groups are matched according to observable characteristics in this year 2009. Meanwhile, the regression outputs including the DD estimator include the difference between the two groups in the year 2005 as well. The third category of estimations with the combination of DD and PSM is matched based on the year 2005 and estimates the differences in 2009 based on this matching.

Throughout, the regression results show that the coefficient is varying between 4.7 and 2.7 depending on OLS or fixed effect specifications, meaning that being a recipient of the parent's money compared to the child-raising benefit increases the amount of working hours between 4.7 and 2.7 hours. Compared to the OLS regressions, the fixed-effect regressions have a substantial lower standard error and a minor lower r-square, which are both signs for a better fit of the regression. The t-value as a parameter for testing if there is a significant difference between the two groups is slightly lower in both cases for the fixed-effect regressions compared to the OLS regressions. The most sophisticated approach including a combination of DD and PSM while using fixed effects regressions reveals results which are not considerably different from the other ones. The results are never significant. With regard to results based on PSM, the average treatment effect varies between 1.514 and 1.267, which means that parent's money recipients have on average between 1.514 and 1.267 working hours more than being a child-raising benefit recipient. Again, the results are not significant.

**Table 8:** Results various evaluation techniques (2009)

	Coefficient	ATT	Robust st. error	t-value	R-Square
<i>Difference-in-difference estimator</i>					
OLS regression	4.717		3.147	-1.5	0.609
Fixed effect regression	2.729		2.445	-1.12	0.61
<i>Propensity score matching</i>					
Nearest Neighbor		1.514	2.576	0.588	
Stratification		1.907	1.617	1.179	
Kernel Matching		1.267	1.447	0.875	
<i>Combination difference-in-difference estimator &amp; propensity score matching</i>					
OLS regression	4.627		3.283	-1.41	0.61
Fixed effect regression	2.438		2.691	-0.91	0.6277
<i>Source: SOEPv28, 2005+2009</i>					

Taking a closer look on the estimated parameters of the control variables (table 22, page 63); the variable individual income shows throughout the different regression specifications significant positive results. This means that having a higher income increases the likelihood of working more hours, *ceteris paribus*. Furthermore, the variable number of children (except the child due to which the mother belongs to the mothers of interest) shows always significant results. Here, the coefficients are negative meaning that having more children decreases the likelihood of working more hours, *ceteris paribus*.

With regard to the individual characteristics education, nationality and marital status, whose explanatory power is of special interest, just nationality shows significant results in two different regressions. The constant negative coefficients in all four regression specifications show the same tendencies, meaning there seems to be some evidence that being German decreases the likelihood of working more hours. With regard to education and marital status, the results are also not significant, with an even smaller t-value and the coefficients with large standard errors. This means that the results should not be interpreted in a meaningful way.

The social support network variable, in the tables called private child care availability, also shows constantly negative estimates; however they are just significant for the fixed-effects regressions. The interpretation implies having a low social support network increases the likelihood of working more hours, *ceteris paribus*. The unemployment rate displays also significant results in at least two different regressions. Still, the coefficients vary between negative and positive and cannot be regarded as robust. The household incomes shows throughout the regressions a positive non-significant coefficient, however since the standard error is always greater than the coefficient, the results cannot be regarded as reliable.

### ***5.2.2. Effect of reform in 2010***

The results are significant for the OLS regressions but not for other estimations in the fourth year after the reform came into force. Furthermore, the OLS regressions show substantially higher coefficients for the interaction term and higher standard errors compared to the fixed effect regressions. Depending on the regression specification, being a recipient of the parent's money increases the amount of working hours between 1.95 and 14.568 hours. The coefficients and standard errors of the fixed effect regressions are in line with the average treatment effects of the various matching techniques of the PSM. The span of the average treatment effects increases compared to the previous year. Here, being a parent's money recipient increases the amount of working hours between 1.602 and 3.5, depending on the matching specification.

**Table 9:** Results various evaluation techniques (2010)

	Coefficient	ATT	Robust st. error	t-value	R-Square
<i>Differene-in-difference estimator</i>					
OLS regression	14.568		5.319	-2.74	0.5908
Fixed effect regression	1.95		2.909	-0.67	0.4278
<i>Propensity score matching</i>					
Nearest Neighbor		3.5	2.813	1.244	
Stratification		2.7	1.543	1.032	
Kernel Matching		1.602	1.505	1.065	
<i>Combination difference-in-difference estimator &amp; propensity score matching</i>					
OLS regression	14.568		5.31	-2.74	0.5908
Fixed effect regression	1.95		2.908	-0.67	0.4278

*Source:* SOEPv28, 2005+2010

Compared to the previous year, the control variables with significant results changed slightly (table 21, page 64). The variable individual income shows again throughout the different regression specifications the similar significant results as in the previous year. This means again that a higher income increases the likelihood of working more hours substantially, *ceteris paribus*. Although the variable social support network is just significant for the fixed effect regressions, it shows constantly negative results. This means again that having greater private child care availability increases the likelihood of working more hours, *ceteris paribus*. The variables nationality and marital status do not provide robust results. The coefficients for education are all negative, however varying between -1 and -27 and should not be taken as robust. The variables health status, nationality and unemployment rate are at least two times significant, however, their coefficients vary between positive and negative throughout the different regressions.

### **5.2.3. Effect of reform in 2011**

The effect of the reform five years after coming into force does not seem to differ substantially compared to the previous two years. According to the different regression specifications, being a recipient of the parent's money increases the amount of working hours between 1.95 and 10.652. There is a significant impact for the OLS regressions in both cases but the other estimates do not reveal significant differences between the two groups. The results based on matching reveal that the average effect of receiving the parent's money leads to a higher amount between 0.59 until 2.631 working hours on average. The results for the OLS regressions show distinct higher values for the

coefficients compared to the ones for the fixed effect regressions as well as the average treatment effects. The standard errors are also substantially higher.

**Table 10:** Results various evaluation techniques (2011)

	Coefficient	ATT	Robust st. error	t-value	R-Square
<i>Differene-in-difference estimator</i>					
OLS regression	10.652		5.055	-2.11	0.7634
Fixed effect regression	2.029		2.641	0.77	0.4278
<i>Propensity score matching</i>					
Nearest Neighbor		2.631	2.956	0.89	
Stratification		2.341	1.723	1.433	
Kernel Matching		0.59	2.432	0.242	
<i>Combination difference-in-difference estimator &amp; propensity score matching</i>					
OLS regression	14.568		5.31	-2.74	0.5908
Fixed effect regression	1.95		2.908	-0.67	0.4278
<i>Source: SOEPv28, 2005+2011</i>					

With regard to the control variables (table 22, page 65), there is again a throughout significant positive impact of the individual income. The interpretation is the same compared to the previous years, meaning that a higher income leads probably to more working hours, *ceteris paribus*. The previously constant negative results for the social support network changed to varying coefficients and cannot be regarded as robust. The same observation applies to the variable number of other children.

The variables health status, education, nationality and unemployment rate show at least two times significant results, however their coefficients vary between being positive and negative. Further, also the marital status does not provide robust results.

## **6. Discussion of results**

The following part deals with the question, in how far the two ways of analysis go in the same direction, as well as the interpretation of the results in the context of the reform. The first part investigates the employment rates of mothers in the European context. Secondly, the hypotheses are confirmed or rejected. Afterwards, the third part interprets the meaning of the individual characteristics education, nationality and marital status in relation to the difference between child-raising benefit and parent's money recipients based on descriptive results. Next, the development of these variables over time as constant explanatory factor for the employability of mothers is discussed. Finally, the discussion of the remaining control variables follows.

The female employment rates in 2011 in Germany with 64.28% are still slightly lower than the ones for the UK and Sweden in 2006 (European Commission, 2008). But since these rates increased in Germany by about 5% within six years, it might be that this growth continues during the following years. Otherwise, since the maternal employment rates increased on a substantial faster pace than the female employment rates, it could also be that the growth will level off. With regard to the maternal employment rates in the European context, the rates of Germany in 2011 are on the same level as the ones for the UK in 2006 (European Commission, 2008). The UK reformed their parental leave policies substantially in 2003 and reached higher rates in 2006, while Germany introduced them in 2007 and reveals higher rates in 2011, which implies that the same trends can be observed across the European countries.

In terms of the explicit effects by the reform, the first hypothesis inhabited the expectation that the employment rate of mothers receiving the parent's money is higher compared to mothers receiving the child-raising benefit before giving birth. It can only be answered by the descriptive part of the analysis since the causal effects are just investigated for the time after the recipients of both policies are not anymore in the reference period.

The significant results show that the percentage of employed women receiving the child-raising benefit is by 5.81% higher than the women receiving the parent's money. This means that the first hypothesis needs to be rejected. A possible interpretation could be that the child-raising beneficiaries are aware of their rather low benefit and worked

more before the child-birth to be able to save money. In comparison, the parent's money beneficiaries did not have the urgent need to work since they are aware of higher benefits. This interpretation was however not mentioned in previous literature. Increasing these rates of employability is not the intention of the reform and it was rather investigated as a side-effect. Nevertheless, higher employment rates before interrupting working for some time increase probably the chances of re-integration into the labor market afterwards. This implies for the goal of increasing the maternal employment rates in Germany that the employment rates over the life cycle of women should be stimulated by policies.

Likewise, the second hypothesis stating that the employment rate of mothers receiving the parent's money is lower compared to mothers receiving the child-raising benefit during the first year after giving birth, only refers to the part of the descriptive statistics. This hypothesis can be confirmed since the employment rate is indeed substantially higher for the child-raising benefit recipients. It means that more mothers decided to stay at home while receiving the parent's money. This observation is clearly in line with previous literature (see table 1, page 20). The effect was intended by the reform as the parent's money should be sufficiently high so that no mothers have the urgent need to start working immediately after giving birth due to financial constraints.

It is, however, interesting to observe the development in terms of changes in part-time versus full-time employment. For both policies, the part-time employment rates decreased significantly, however for the parent's money recipients substantially more. This can be explained by the fact that both policies allow mothers to work up to 30 hours per week during the reference period whereby the salary is offset to the benefit. The effects of working, however, can vary significantly depending on the former income. For instance, a parent had a net income of 2000 Euro before the birth and started working with a net income of 1500 Euro four months after the birth. Before the resumption of work, the person would receive a parent's money of 1340 Euro (two-third of 2000 Euro) and during the employment, the person would receive an amount of 335 Euro (two-third of 500 Euro). In another case a parent would earn a net income of 1500 Euro per month before the birth, and starts working six month after birth with an net income of 500 Euro. Here, the person would receive a parent's money of 1005 Euro (two-third of 1500 Euro) before working and 670 Euro (two-third of 1000 Euro) during

the employment (Klein, 2007). The reform gives hence rather rare incentives to work during the reference period but this stays in line with the goal to enable parents to stay at home during the first time after childbirth.

The third hypothesis says that it is expected that the employment rate of mothers receiving the parent's money is higher compared to mothers receiving the child-raising benefit from the second year after giving birth onwards. This will be answered in an differentiated way for each year afterwards individually. From now on, the impact evaluation results with the dependent variable working hours can be combined with the descriptive results which were constructed by means of the employment status.

Starting with the second year after giving birth, the 15% significant higher employment rates for parent's money beneficiaries compared to child-raising benefit recipients are the highest increase compared to previous literature by far (see table 1, page 20), however the results go in the same direction. Based on the impact evaluation for the year 2009, parent's money beneficiaries have a greater amount of working hours than child-raising beneficiaries as well in different econometrical specifications. The results are not significant. Since all observations go in the same direction, the hypothesis with regard to this year can be confirmed. Since the reform intended to employ the mothers in the second year after giving birth, it seems that the reform has reached its goals. It is of great interest to investigate this development for the following year to analyze if this effect holds on and a higher integration of women into the labor market can be observed. This is firstly done by this paper.

With regard to the third year after giving birth, based on the descriptive statistics, the parent's money beneficiaries have just slightly higher employment rate in percentage compared to the child-raising benefit recipients (0.82%). In contrast, the results of the impact evaluation show greater differences between the two groups. It should be noted that just the results from the OLS regressions provide such a great difference in working hours while the other specifications are rather moderate. Remarkably, just the results based on the OLS regression are significant. This leads to the conclusion that the hypothesis of a higher employment rate during the third year after the reform was in place can be confirmed, however the results are less substantial than in the previous year.



In the fourth year after giving birth, the descriptive statistics reveal a slightly increase for the positive difference between the employment rates of parent's money and child-raising benefit recipients from 0.81% in the previous year to 1.1%. The impact evaluation results also a positive impact between the two groups of mothers, although an increase compared to the previous year cannot be investigated. Though, the hypothesis that the parent's money recipients have higher employment rates than the child-raising benefit recipients during the fourth year after giving birth can be confirmed, taken that the difference is constant on a low level. It has generally a greater span of results by the impact evaluation compared to the results from the descriptive results. This can be explained by the fact that the employment status measured in terms of the different kinds of employment status inhabits greater spans. For instance, part-time employment includes up to 30 hours.

The investigation as a whole negates that a paradigm shift from the *male breadwinner model* to the *dual earner – dual carer model* has taken place based on a change in maternal employment rates (J. Lewis, 2001). To make a comprehensive statement with regard to the *dual earner – dual carer model*, further research needs to investigate if there is a development of father's participation on child-care. With regard to other paradigms, a step in the direction of the *universal breadwinner model* is unlikely since it contradicts the whole cultural attitude of the (West) German society towards public child care availability. The German politics will not strive for the *caregiver parity model* as it would be far away from the societal developments in terms of promotion women's labor market opportunities in general. An attempt to strive for the *dual earner – dual carer model* would inhabit a shift from the perception of women as mothers in first line to an equal perception of both genders as worker as well as carer. It is of great interest to repeat this study within the following years to investigate if the last observed increase of the employment rate of parent's money recipients in 2011 continued or it rather stays constant. This would answer the question of a long-term effect of the reform. An important implication for a follow-up study deals with the two additional "father months" introduced by the reform. It should be investigated whether mothers start working when their partner is taking the additional months or if it is more likely that both stay at home.

The individual characteristics education, nationality in terms of being German or not and marital status have been included in the descriptive part to investigate if the employment status differences between child-raising benefit and parent's money beneficiaries shows differences due to these variables. This was done due to the contradicting results in the literature based on different authors.

During the first year after giving birth, the results reveal that low educated child-raising benefit recipients have nearly double as high employment rates as the same level educated mothers receiving the parent's money. High educated mothers with the parent's money have however also twice as high employment rates than high educated child-raising benefit recipients. Especially the second observation is rather unexpected since the reform intended to give incentives for this target group to give birth and have no incentive to work during the first year after giving birth. With regard of being German, it is remarkable that the employment rate of German mothers is significantly higher after the reform compared to before the reform. A possible, also not mentioned interpretation in previous literature could be that German mothers were reluctant to work since working mothers of young children are generally regarded as bad mothers in Germany (Spieß, 2011). The reform questioned this attitude strongly and shall support mothers in their decision to work. This interpretation should be re-checked in future research.

During the second year after giving birth, the employment rates for all differentiations of the individual characteristics are higher for mothers receiving the parent's money and not the child-raising benefit. This is the purpose of the reform, namely to give incentives for mothers to re-integrate into the labor market after the reference period is over. These results do not give more information.

This situation changed with regard to the nationality for the third year after giving birth. The results show that the German recipients of the parent's money have substantially higher employment rates than the child-raising benefit recipients. During the fourth year after giving birth, a substantially higher number of low educated parent's money recipients is working compared to the child-raising benefit recipients. This statistically significant observations lack an interpretation in the context of this reform. Especially due to the fact that no pattern between these results can be found. Taken as a whole, none of the variables education, nationality and marital status provides consistent

explanations why some mothers re-integrate earlier under one of the two policies into the labor market while others do not.

A further point of interest refers to the development of the employment status due to the influence of the individual characteristics education, nationality and marital status to investigate whether they have constant substantial explanatory power over the complete period. Thus, the following part does not deal with the difference before and after the reform. But it provides an explanation for developments in the employment rates due to the fact that mothers are married or not, have a high or low education and are German or not.

In the presentation of the descriptive part, the marital status nearly never shows substantial differences between the child-raising benefit and the parent's money from the period 2005 to 2009. This is in line with the results from the impact evaluation in the year 2009 to 2011, as the coefficient for the marital status is maximal at 2, but mostly around 0.8. Also the results are never significant (table 20, 21 and 22, page 63-65). Seeing this observation in the light of previous literature, which highlighted rather contradicting results (Kreyenfeld & Hank, 2000), it could rather be that the marital status has no influence on the employability of mothers due to strict regulation with regard to fatherhood in Germany. Even if the parents are not married, the father has at least financial responsibilities. It shall be ensured in this way that single mothers do not need to work due to financial pressures (Klein, 2007).

Looking at the nationality, rather contradicting results have been revealed in the different ways of analyzing the employment rates of mothers. Based on the descriptive results, the employment rates between Germans and non-Germans before giving birth were similar, but changed for the following years in the way that non-Germans had generally lower employment rates than Germans (table 14-19, page 59-62). In 2009, robust results from the impact evaluation showed that the probability of increasing working hours decreased by Germans, but these outcomes were not repeated in the following years. These observations neither approve the findings by Wagner (2012) that foreign mothers in Germany often stay at home with young children due to cultural attitudes nor the conclusions by Petzold (2012) that foreigners might not apply for social benefits due to practical challenges. With regard to the education in terms of the descriptive analysis, the advanced educated mothers have higher employment rates

before giving birth, but these rates change over time of giving birth. A consistent pattern cannot be observed, which is also revealed by the impact evaluation.

Taking into account further control variables of the impact evaluations, these observations can be linked and deeper explored. Preliminary, the consistent significance of the individual income with high positive coefficients is remarkable. This should not be interpreted only in terms of money, but in a broader way. It needs to be highlighted that education does not reflect the same results, meaning that the high income does not need to be due to an advanced education, but could also be due to inter alia positive attitudes towards work leading to fast promotions. Kreyenfeld and Hank (2000) argue from the sociological perspective that higher educated women have a different, more favorable, attitude towards work than lower educated women. They exclude the possibility that a different attitude could also be due to a higher income. Wrohlich et al (2012) investigate that being employed in the service sector has a positive impact on the employment rates. Thereby, it needs to be noted that the service sectors employs low and medium educated persons to a great extent. They often have the possibility to increase their salaries during the time. Furthermore, since the household income does not reveal consistent significant results like the individual income, it seems that the income per se does not play the main role. These interpretations could explain the significant impact of individual income but not education. It would be interesting to include in further research a participatory approach with the opinion of mothers towards working while having young children. It would be of great interest why the women decide to work or not.

Furthermore, it is interesting to observe that the indicator developed to measure private child care availability and the number of further children show a consistent negative impact on the working hours for the years 2009 and 2010. The first observation lies in line with the results by Spiess and Wrohlich (2008) saying that the public child care facilities have a far higher demand than supply and preliminarily, the inflexible working hours prevent a lot of mothers from starting to work again. This situation seems to take place here as well. The second observation is also reflected by Kreyenfeld and Hank (2000) in a way that it is more difficult to combine work and having children with a greater number of children. However, it should be noted that the results are not constantly significant in both cases. It is remarkable that both variables do not provide

consistent results for the year 2011 which could be interpreted by that fact that the importance of child care availability decreases when the child or the children are getting older. Nevertheless, since the children are still very young and approximately not older than three years, this interpretation need be done carefully.

The study should be repeated with a special focus on control variables which are related to the working environment of mothers since this analysis has shown that individual characteristics do not provide strong influence on the employment status. Exemplary, flexible working hours within the company or the opportunity for home office might be an influential factors for the decision of mothers to work.

## **7. Conclusion**

This paper investigated the effect of the parent's money reform on the employment rates of mothers. The first hypothesis dealing with the employment rate before giving birth could be rejected. Since this was not the intended effect of the reform, it has no negative implications for the evaluation. The second hypothesis refers to the employment status in the first year after giving birth and could be clearly confirmed. The analysis investigated robust results with lower employment rates for parent's money recipients. The third hypothesis discussing the employability of mothers from the second year onwards after giving birth could be confirmed for all the following years. It is important to note that the difference in the employment status between the child-raising beneficiaries and the parent's money recipients decreased over the years substantially. In the last year of the analysis, the difference diminished even to a value near zero.

To sum up, these observations demonstrate that mothers starting to work significantly earlier under the new reform than under the old one, but that this steep progress does not hold constant for the following years. Due to this observation, it could be that the mothers, who want or need to work, start earlier under the new reform than they would have under the old reform, but not a greater number of mothers decides to start working. Further, these mothers would have probably also started to re-integrate in the labor market under the child-raising benefit, but one year later. The impact evaluation results reveal a greater span of possible increasing employment rates due to the different regression specifications. However, these results should be interpreted carefully since they are rarely significant. In the context of the goal of the reform, to increase the employment rates of mothers with young children, the reform should not be regarded as a success. The statements by previous literature including that the parent's money reform shows positive results cannot be approved by this analysis (see for instance Wrohlich et al (2012)). Since this paper has firstly investigated the effect of the reform for later years than 2009, it is likely that these papers would reach the same conclusion if they would continue their analysis.

Some points need to be highlighted to see this conclusion in the context of social policy developments in Germany. Compared to other European countries, it took a remarkable long time until Germany introduced gender neutral policies with this reform in 2007 for

the first time. Next to this, the *male breadwinner model* was not just highlighted by the politicians, but also by the media and society (Kuller, 2004). Social policy reforms require substantial longer periods than for instance economic reforms and involve mostly a change or at least acceptance of previous values in the society (Mätzke & Ostner, 2010). In combination with the clear expressions towards the *male breadwinner model*, make it hard to receive a clear change by one reform.

None of the individual characteristics education, nationality and marital status could provide strong explanatory power. Except for individual income, there are no control variables with throughout significant results. This implies that there are strong unobservable characteristics which probably influence the decision of mothers to reengage in employability. In this respect, it underlines the statement that a change in the attitudes of mothers cannot be changed by a single reform. Further, it could also mean that the mothers expect a nearly perfect working and child care environment before they decide to start working when having a young baby. These interpretations are supported by the high increase in non-employment rates of parent's money recipients during the first year after giving birth. During this time, the recipients of the parent's money had a substantial higher benefit compared to the previous reform, implying here that the mothers welcome the chance of staying at home. It could be the case that the mothers who worked and received the child-raising benefit during the first year after giving birth certainly worked due to financial constraints, but would preferable stay at home.

Increasing the incentives for mothers to have indeed freedom of choice between working and caring, it is important that the daily environment should not influence the behavior in a way that one choice seems to be unattractive. In real life, one step would include for instance flexible opening hours of child care facilities. In this way, mothers would not need to get stressed if they are delayed due to unexpected reasons. In terms of the relevance for policy making in this context, the following issues arise. Firstly, increasing maternal employment rates do not just require financial motivations to give incentives for a re-integration into the labor market. It is important to provide an environment in which reconciliation of working and caring for a child is not in contrast to each other. Secondly, the complete range of actors from political parties to religious associations needs to work together and complement each other. Thirdly, the benefits

for women deriving from their status as wives should be critically questioned. It seems that these benefits are desirable for families with children, but it is questionable if the same benefits are necessary for families with no children. Fourthly, the analysis revealed that there seem to be strong unobservable characteristics influencing the decision rather not to work. It should be the task of the politics to promote the freedom of decision in public in a way that no clear preferences towards working versus non-working mothers are there.



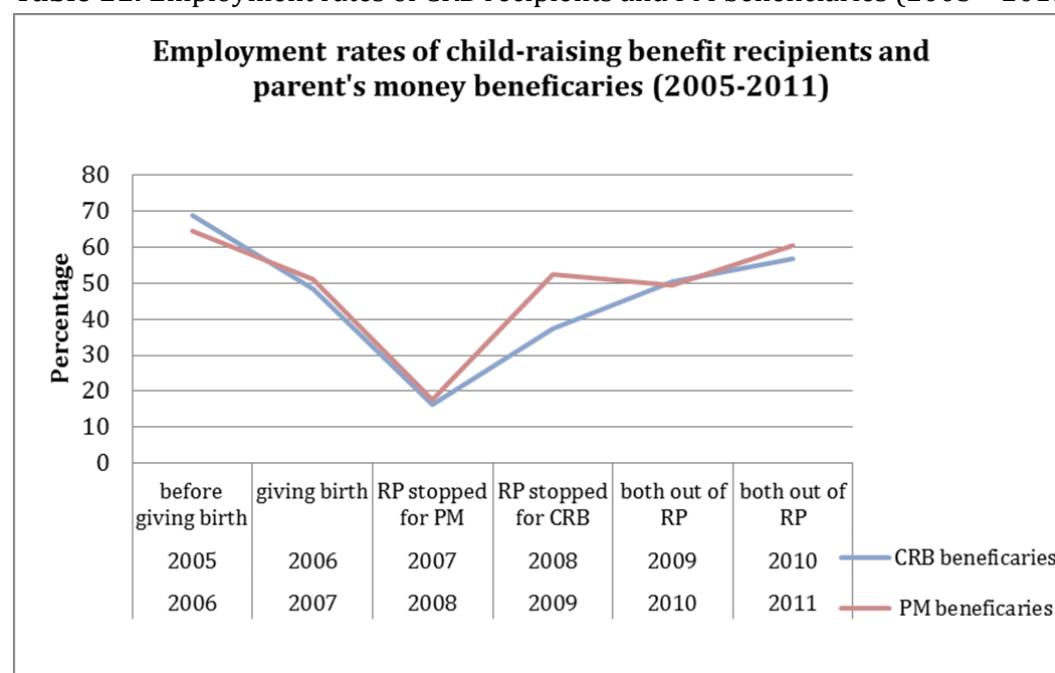
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## Appendix

**Table 11:** Employment rates of CRB recipients and PM beneficiaries (2005 – 2011)



Source: SOEPv28, 2005-2011, note: RP means reference period

**Table 12:** Summary statistics, 2006/2007

	Parent's money beneficiaries	Child raising benefit recipients
<i>Labor market characteristics</i>		
Employment status	5.29 (3.66)	5.46 (3.72)
Unemployment rate	10.75 (3.86)	11.03 (4.12)
<i>Individual characteristics</i>		
Education	5.69 (2.14)	4.68 (2.51)
Nationality	1.1 (3.12)	1.1 (3.31)
Marital status	1.86 (0.976)	1.88 (1.12)
Current health of mother	2.21 (0.811)	2.24 (0.81)
Individual income	535.59 (766.83)	509.522 (703.88)
Age	30.55 (6.14)	30.54 (6.71)
<i>Household characteristics</i>		
Nr of children	0.86 (0.86)	0.99 (1.01)
Household income	2467.76 (1424.09)	2169.86 (1351.23)
<i>Child care availability</i>		
Private	1.48 (0.53)	1.44 (0.58)
Public	2.22 (1.66)	1.39 (0.99)

Source: SOEPv28, 2006+2007, notes: cell entries are means with standard deviations in paranthesis, PM beneficiaries gave birth in 2007, CRB recipients gave birth in 2006

**Description: Fixed Effects**

The SOEP as a panel dataset has several advantages over a cross-sectional data set. In a nutshell, it can be controlled for factors that change across observations but not across time and factors which cannot be included due to practical reasons. For instance, unobservable or immeasurable factors like cultural attitudes towards working mothers differ maybe from one entity to another but not over time. The key point is therefore that changes in the dependent variable cannot lead to omitted variable bias if this factor does not vary over time.

In regression frameworks, *fixed effects* techniques are used to control for this issue. Basically, using *fixed effect* models deals with the assumption, that a characteristic within the observations may impact the dependent variable which can bias the results by removing the effect of those characteristics from the dependent variable. The basic regression framework for *fixed effects* looks like

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_i + \varepsilon_{it} \quad (3)$$

whereby  $Y_{it}$  is the dependent variable,  $X_{it}$  is the independent variable and  $\varepsilon_{it}$  is the error term in which subscript  $i$  refers to the number of entities and  $t$  refers to the time periods.  $Z_i$  shall exemplarily show an unobservable variable changing across entity but not over time. The goal is to get an estimate for  $\beta_1$  which can be interpreted as the effect of  $X$  on  $Y$ , holding constant  $Z$ . This intended interpretation can also be rewritten as having individual intercepts  $\alpha_i$  for each state

$$Y_{it} = \beta_1 X_{it} + \alpha_i + \varepsilon_{it} \quad (4)$$

whereby here  $\alpha_i = \beta_0 + \beta_2 Z_i$  going from 1 to  $n_i$  represents the intercept for each individual observation. As a result, the slope coefficient is the same for all entities but with different, not correlated intercepts between the entities (Stock & Watson, 2012, p. 397).

Using fixed effects, the following assumptions remain. Firstly, the conditional mean of the error term in the present and past is zero. As already indicated above, this implies that there are no omitted variables biases. Secondly, it is assumed that simple random sampling is applied to randomly select the sample from the population. It is not required that the entities are identically and independently selected over time. The third assumption implies that  $X_{it}$  and  $Y_{it}$  have finite fourth moments. Fourthly, there is no perfect multicollinearity.

**Table 13: Employment status during year of giving birth**

	child-raising benefit		parent's money	
	frequency unweighted	percentage weighted	frequency unweighted	percentage weighted
Full-Time Employment	57	27.04	44	27.37
Regular Part-Time Employment	32	14.93	34	12.55
Vocational Training	3	1.03	2	0.3
Marginally employed	8	5.39	17	10.83
Not Employed	91	51.61	73	48.94
Missing	21	0	4	0
<b>Total</b>	<b>212</b>	<b>100</b>	<b>174</b>	<b>100</b>

*Significance test: Coeff -0.17, robust st. error 0.04, t-value -4.5, source: SOEPv28 2006&2007, note: the data for CRB refers to the year 2006 and for PM to the year 2007.*

**Table 14: Employment rates before giving birth - individual characteristics**

	Education				Nationality				Marital Status			
	child-raising benefit		parent's money		child-raising benefit		parent's money		child-raising benefit		parents money	
	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted
	Low education				German				Married			
Employed	72	65.22	51	62.96	110	69.67	89	64.38	59	69.51	37	57.37
Not employed	39	34.78	35	37.04	43	30.33	59	33.93	27	31.49	33	42.63
Total	111	100	86	100	153	100	148	100	86	100	70	100
	High education				Not German				Not Married			
Employed	40	76.37	32	71.17	9	71.29	11	66.07	60	71.94	51	71.86
Not employed	12	23.63	20	28.83	9	28.71	7	33.93	25	29.06	23	28.14
Total	52	100	52	100	18	100	18	100	85	100	74	100
Significance test	Low education: Coeff -0.143, robust st. Error 0.037, t-value -3.92 High education: Coeff -0.146, robust st. Error 0.0441, t-value -3.31				German: Coeff -0.1505, robust st. Error 0.0307, t-value -4.90 Not German: Coeff -0.079, robust st. Error 0.04, t-value -1.93				Married: Coeff -0.1502, robust st. Error 0.034, t-value -4.34 Not married: Coeff -0.153, robust st. Error 0.04, t-value -3.51			

Source: SOEPv28 2005&2006, note: the data for CRB refers to the year 2005 and for PM to the year 2006.

**Table 15: Employment rates during first year after giving birth - individual characteristics**

	<u>Education</u>				<u>Nationality</u>				<u>Marital Status</u>			
	child-raising benefit		parent's money		child-raising benefit		parent's money		child-raising benefit		parents money	
	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted
	Low education				German				Married			
Employed	59	53.36	55	57.56	91	47.23	91	53.72	65	54.96	52	49.4
Not employed	61	46.74	39	42.44	80	52.77	61	46.28	58	45.04	41	50.6
Total	120	100	94	100	171	100	152	100	123	100	93	100
	High education				Not German				Not Married			
Employed	42	46.15	37	48.24	9	57.8	6	29.36	35	39.56	44	54.17
Not employed	25	53.85	63	51.76	11	42.2	12	70.64	33	60.44	29	45.83
Total	63	100	26	100	20	100	18	100	68	100	73	100
Significance test	Low education: Coeff -0.158, robust st. error 0.049, t-value -3.23 High education: Coeff -0.142, robust st. error 0.037, t-value -3.84				German: Coeff -0.147, robust st. error 0.0302, t-value -4.85 Not German: Coeff -0.083, robust st. error 0.04, t-value -2.20				Married: Coeff -0.1502, robust st. Error 0.034, t-value -4.34 Not married: Coeff -0.153 robust st. Error 0.04, t-value -3.51			

Source: SOEPv28 2006&2007, note: the data for CRB refers to the year 2006 and for PM to the year 2007.

**Table 16: Employment rates second year after birth - individual characteristics**

	<u>Education</u>				<u>Nationality</u>				<u>Marital Status</u>			
	child-raising benefit		parent's money		child-raising benefit		parent's money		child-raising benefit		parents money	
	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted
	Low education				German				Married			
Employed	22	21.5	19	11.64	37	21.33	32	34.58	31	15.91	18	15.67
Not employed	115	78.5	51	88.36	155	78.67	124	65.42	119	84.09	87	84.33
Total	137	100	70	100	192	100	156	100	150	100	105	100
	High education				Not German				Not Married			
Employed	15	12.16	12	21.9	3	15.82	3	15.33	9	17.51	16	15.94
Not employed	52	87.84	82	78.1	17	84.18	15	84.67	53	82.49	49	84.06
Total	67	100	93	100	20	100	18	100	62	100	65	100
Significance test	Low education: Coeff -0.27, robust st. error 0.061, t-value -4.44 High education: Coeff -0.265, robust st. error 0.067, t-value -3.93				German: Coeff -0.313, robust st. error 0.053, t-value -5.83, Not German: Coeff -0.234, robust st. error 0.09, t-value -2.40				Married: Coeff -0.4366, robust st. error 0.08, t-value -5.02 Not married: Coeff -0.228 robust st. error 0.05, t-value -4.39			

Source: SOEPv28 2007&2008, note: the data for CRB refers to the year 2007 and for PM to the year 2008.

**Table 17: Employment rates third year after birth - individual characteristics**

	<u>Education</u>				<u>Nationality</u>				<u>Marital Status</u>			
	child-raising benefit		parent's money		child-raising benefit		parent's money		child-raising benefit		parents money	
	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted
	Low education				German				Married			
Employed	33	48.92	19	59.49	78	39.24	73	53.51	60	39.22	61	54.27
Not employed	27	51.08	27	40.51	95	60.76	71	46.49	76	60.78	58	45.73
Total	60	100	72	100	173	100	144	100	136	100	119	100
	High education				Not German				Not Married			
Employed	15	30.54	46	47.54	4	25	5	44.09	22	32.34	78	48.82
Not employed	80	69.46	49	52.46	16	75	9	55.91	35	67.66	22	51.18
Total	125	100	95	100	20	100	14	100	57	100	100	100
Significance test	Low education: Coeff -0.24, robust st. error 0.061, t-value -3.9				German: Coeff -0.208, robust st. error 0.041, t-value -5.00				Married: Coeff -0.264, robust st. error 0.075, t-value -3.50			
	High education: Coeff -0.171, robust st. error 0.053, t-value -3.20				Not German: Coeff -0.167, robust st. error 0.07, t-value -2.250				Not married: Coeff -0.174, robust st. error 0.04, t-value -3.95			

Source: SOEPv28 2008&2009, note: the data for CRB refers to the year 2008 and for PM to the year 2009.

**Table 18: Employment rates fourth year after birth - individual characteristics**

	<u>Education</u>				<u>Nationality</u>				<u>Marital Status</u>			
	child-raising benefit		parent's money		child-raising benefit		parent's money		child-raising benefit		parents money	
	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted
	Low education				German				Married			
Employed	32	40.75	46	62.2	88	31.54	66	51.81	68	51.79	55	49.91
Not employed	27	59.25	24	37.8	77	68.46	64	48.19	62	48.21	58	50.09
Total	59	100	70	100	165	100	130	100	130	100	113	100
	High education				Not German				Not Married			
Employed	15	53.87	46	60.29	5	53.24	5	35.66	25	46.12	27	46.55
Not employed	57	46.13	36	39.71	10	46.76	10	64.34	25	53.88	18	53.45
Total	115	100	82	100	15	100	15	100	50	100	45	100
Significance test	Low education: Coeff -0.17, robust st. error 0.059, t-value -3.18				German: Coeff -0.231, robust st. error 0.049, t-value -4.68				Married: Coeff -0.27, robust st. error 0.105, t-value -2,56			
	High education: Coeff -0.209, robust st. error 0.05, t-value -3.74				Not German: Coeff -0.298, robust st. error 0.169, t-value -1.76				Not married: Coeff -0.213, robust st. error 0.04, t-value -4.29			

Source: SOEPv28 2009&2010, note: the data for CRB refers to the year 2009 and for PM to the year 2010.

**Table 19:** Employment rates fifth year after birth - individual characteristics

	<u>Education</u>				<u>Nationality</u>				<u>Marital Status</u>			
	child-raising benefit		parent's money		child-raising benefit		parent's money		child-raising benefit		parents money	
	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted	freq. un-weighted	% weighted
	Low education				German				Married			
Employed	34	53.24	44	73.7	82	59.27	66	58.79	63	56.46	67	65.91
Not employed	22	46.76	19	26.3	66	40.73	53	41.21	55	43.54	43	34.09
Total	56	100	63	100	148	100	119	100	118	100	110	100
	High education				Not German				Not Married			
Employed	15	57.96	65	51.58	5	39.27	7	68.66	24	57.77	19	37.83
Not employed	48	42.04	11	48.42	8	60.73	6	31.34	19	42.23	16	62.17
Total	99	100	76	100	13	100	13	100	43	100	35	100
Significance test	Low education: Coeff -0.266, robust st. error 0.075, t-value -3.56				German: Coeff -0.2, robust st. error 0.06, t-value -3.22				Married: Coeff -0.26, robust st. error 0.16, t-value -1.66			
	High education: Coeff -0.173, robust st. error 0.05, t-value -3.10				Not German: Coeff -0.36, robust st. error 0.19, t-value -1.83				Not married: Coeff -0.173, robust st. error 0.04, t-value -3.85			

Source: SOEPv28 2010&2011, note: the data for CRB refers to the year 2010 and for PM to the year 2011.



**Table 20:** Estimated parameters of causal effects (2009)

	Difference-in-Difference				Combination DD & PSM			
	OLS regression		Fixed effects		OLS regression		Fixed effects	
	Coeff.	Robust st. error	Coeff.	Robust st. error	Coeff.	Robust st. error	Coeff.	Robust st. error
Year dummy	3.2156	2.392	-6.654	8.35	3.278	2.524	-5.848	9.108
Treatment	-0.057	2.544			-0.221	2.747		
Interaction	4.717	3.147	2.729	2.445	4.627	3.283	2.438	2.6917
<i>Child care availability</i>								
Public	-0.029	0.355	0.955	0.688	-0.131	0.370	0.744	0.774
Private	-2.562**	1.226	-4.143	2.508	-2.492**	1.247	-4.421	2.746
<i>Personal characteristics</i>								
Age	-0.003**	0.001	0.023	0.024	-0.002	0.001	0.024	0.0262
Individual income	10.662*	1.489	12.029*	1.816	10.626***	1.51	1.848***	3.26
Marital status	0.599	0.863	1.983	1.075	0.571	0.875	1.542	1.225
Health status	0.516	0.8383	-0.445	1.076	0.46	0.8411	-0.113	1.199
Education	-0.675	0.365	-1.659	11.686	-0.622	0.377	-2.221	12.251
Church attendance	1.206	0.888	-0.366	1.724	1.551	0.9455	0.075	1.859
Nationality	-3.098	3.184	-17.271**	6.885	-2.795	3.271	-16.603**	7.243
<i>Labor market situation</i>								
Unemployment rate	0.731*	0.225	-0.516	0.595	0.721***	0.233	-0.405	0.658
<i>Household characteristics</i>								
Household income	1.481	2.249	1.873	2.989	1.338	2.326	1.848	3.26
Nr of children	-2.808**	1.125	-6.333**	2.530	-2.795**	1.181	-6.472**	2.782
Constant	-53.96**	17.695	-53.278*	80.687	-53.638*	17.940	-55.916*	84.227
R-squared	0.609		0.6277		0.61		0.6025	
RMSE	9.0075		8.369		9.0117		8.626	

*Note:* Dependent variable: work hours, age is included as a polynomial, the log of hh income and individual income is taken, empty cells refer to omitted variables due to collinearity, *significance test:* \*\*\* p<0.01, \*\*p<0.05, \*p<0.1, *source:* SOEPv28, 2005&2009

**Table 21:** Estimated parameters of causal effect (2010)

	Difference-in-Difference				Combination DD & PSM			
	OLS regression		Fixed effects		OLS regression		Fixed effects	
	Coeff.	Robust st. error	Coeff.	Robust st. error	Coeff.	Robust st. error	Coeff.	Robust st. error
Year dummy	1.891	2.682	-20.07**	9.755	1.89	2.682	-20.074**	9.755
Treatment	-0.2	2.661			-0.20	2.661		
Interaction	14.568***	5.319	1.951	2.908	14.568**	5.319	1.951	2.908
<i>Child care availability</i>								
Public	0.107	0.116	0.208	0.1501	0.107	0.116	0.208	0.150
Private	-3.503	2.169	-6.731**	2.767	-3.532	2.169	-6.731**	2.766
<i>Personal characteristics</i>								
Age	-0.002	0.001	0.031	0.022	-0.002	0.001	0.3	0.212
Individual income	11.377***	1.263	12.344***	1.964	11.377***	1.263	12.344***	1.964
Marital status	-1.064	0.789	2.112	1.091	-1.064	0.789	2.116	1.091
Health status	2.299**	0.941	-0.972	1.427	2.299**	0.941	-0.972	1.427
Education	-1.081***	0.416	-27.913**	9.67	-1.081***	0.416	-27.913***	9.67
Church attendance	-0.303	1.039	-2.408	1.671	-0.303	1.039	-2.408	1.672
Nationality	1.029	4.073	-26.582***	8.987	1.028	4.074	-26.582**	8.987
<i>Labor market situation</i>								
Unemployment rate	1.213***	0.311	-0.781	0.607	1.214***	0.312	-0.782	0.608
<i>Household characteristics</i>								
Household income	-0.894	2.107	-2.307	2.91	-0.894	2.107	-2.307	2.912
Nr of children	-1.449	1.626	-0.176	2.47	-1.449	1.626	-0.177	2.475
Constant	-42.53*	16.997	151.564**	70.302	-42.53**	16.997	151.564**	70.302
R-squared	0.5908		0.6180		0.5908		0.618	
RMSE	9.8321		8.626		9.8321		7.576	

*Note:* Dependent variable: work hours, age is included as a polynomial, the log of hh income and individual income is taken, empty cells refer to omitted variables due to collinearity, *significance test:* \*\*\* p<0.01, \*\*p<0.05, \*p<0.1, *source:* SOEPv28, 2005&2010

**Table 22:** Estimated parameters of causal effect (2011)

	Difference-in-Difference				Combination DD & PSM			
	OLS regression		Fixed effects		OLS regression		Fixed effects	
	Coeff.	Robust st. error	Coeff.	Robust st. error	Coeff.	Robust st. error	Coeff.	Robust st. error
Year dummy	0.491	2.829	-6.695	8.084	1.172	2.962	-23.348**	11.304
Treatment	1.279	2.908			-0.403	3.181		
Interaction	10.652**	5.056	2.029	2.641	14.365***	5.579	1.123	3.259
<i>Child care availability</i>								
Public	0.259**	0.128	0.044	0.128	0.129	0.12	0.234	0.168
Private	4.068	2.437	-3.882	1.992	-4.208	2.398	-7.969**	3.058
<i>Personal characteristics</i>								
Age	-0.005	0.004	0.014	0.015	-0.002	0.001	0.034	0.024
Individual income	13.055***	2.091	12.978***	1.661	11.189***	1.409	12.544***	2.24
Marital status	-0.298	1.123	0.738	0.797	-1.386	0.863	2.374	1.245
Health status	4.437**	1.489	-2.692**	1.102	2.291	1.094	-1.49	1.72
Education	-0.949***	0.447	1.395	4.858	-1.071**	0.4711	-11.908	13.607
Church attendance	1.818	1.333	-1.299	1.44	0.271	1.175	-2.558	1.926
Nationality	-4.851	3.715	-15.852**	7.902	1.212	4.514	-26.424**	9.437
<i>Labor market situation</i>								
Unemployment rate	1.408**	0.329	-0.113	0.463	1.28***	0.349	-1.005	0.687
<i>Household characteristics</i>								
Household income	-0.218	2.903	-0.975	2.589	-1.381	2.365	-1.584	3.382
Nr of children	-0.988	0.926	-3.933	1.757	-1.057	1.879	-0.034	3.022
Constant	-78.093**	23.614	-36.908	38.437	-39.374**	19.107	51.471	92.512
R-squared	0.7634		0.6201		0.5869		0.6043	
RMSE	5.3370		7.576		9.9585		8.991	

*Note:* Dependent variable: work hours, age is included as a polynomial, the log of hh income and individual income is taken, empty cells refer to omitted variables due to collinearity, *significance test:* \*\*\* p<0.01, \*\*p<0.05, \*p<0.1, *source:* SOEPv28, 2005&2011