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Do Family Values Shape the Pace of Return to Work after Childbirth?

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Abstract

This paper evaluates the effect of a parental leave policy reform in Germany in 2007 on the pace of return to work of mothers with different family values background. Using a regression discontinuity design and an epidemiological approach to family values, the paper shows that the policy reform has accelerated the pace of return to work mainly for mothers with traditional family values background, thus leading to overall convergence between mothers with different family values background. The magnitude of convergence, however, differs across education levels. Mothers with low and vocational education exhibit moderate-to-high levels of convergence, whereas highly-educated mothers actually diverge in their pace of return to work. The paper suggests that mothers with traditional family background may use the educational system either as way to enhance their cultural investment or as a marriage market, and therefore will not be very sensitive to changes in economic incentives.

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I. INTRODUCTION

Female labour force participation has been on the rise across Europe and other developed economies in the last decades. Several factors have contributed to this increase: the spread of household durable goods, medical advances in contraception, and increased availability of childcare among others. And yet, after accounting for these material and institutional changes, differences across societies are still salient. This has prompted economists to turn their attention to beliefs and values in order to account for cross-country differences in labour market outcomes (see for example Aghion, Algan, & Cahuc, 2011; Alesina & Giuliano, 2010; Algan & Cahuc, 2007; Fernandez, 2007).

This paper investigates how a reform of parental leave policy interacts with family values background to affect the pace of return to work after childbirth. The paper will show that the policy reform has accelerated the pace of return to work mainly for mothers with traditional family values background, thus leading to overall convergence between mothers with different family values background. The magnitude of convergence, however, differs across education levels. Within the group of traditional family background it is mothers with vocational education and to a lesser extent low education who significantly accelerate their pace of return to work, therefore contributing to the above-mentioned convergence. This is in stark contrast with their highly-educated counterparts, who do not react to the policy in any significant way. This lack of reaction together with a strong reaction from highly-educated mothers with liberal family values results in a divergence on the pace of return to work for highly-educated mothers with different family values. This finding is policy relevant insofar as it points at the limits of labour market interventions in increasingly multicultural societies and it speaks to the limitation of policy transfers. If, as I show, it is the case that the pace to return to work after childbirth is subject to individuals' family values, the policy may then increase the participation gap between different groups or, at the very least, perpetuate the differences in participation across groups. At the same time, the findings of this paper may be of interest for countries which, having a low female labour force participation, attempt to replicate successful care policies of countries whose population has, on average, different family values.

The identification of the causal effect of family values on female labour market participation is difficult because of omitted variable bias. In particular mothers may choose to stay at home because of lower career aspirations, or because they might be less successful, or more generally, for a reason that is difficult to identify and measure. I therefore use a natural experiment in Germany that aimed at increasing the pace to return to work of mothers after childbirth. The policy reform of 2007 incentivized an earlier return to work by reducing the paid parental leave subsidy from two to one year. Although it would encompass delivering childcare, the return was expected to generate an income effect in the second year. In order to disentangle any possible institutional effects from the effects of family values, I use migrant population in Germany and compare the effect of the reform across mothers who have different migrant or native origin. This identification strategy is known in the literature as the epidemiological approach (Fernandez & National Bureau of Economic Research., 2010) and it is especially useful in disentangling the institutional effects from the "cultural" ones. Migrant groups face the same institutional and economic environment of the native individuals in the country of residence but they are assumed to preserve, to a certain extent, family values of their country of ancestry. Thus, individual migrants are assigned the historic family values of their country of ancestry, to avoid reverse causality problems.

The analysis uses the cross-section form of the German Socio-Economic Panel data (GSOEP) for the years 2005 to 2009 – that is, before and after policy implementation. The empirical strategy follows closely a regression discontinuity design to compare observations before and after the policy implementation cut-off point (January 2007). Given the assumption that the intervention is randomly assigned, observations before the implementation cut-off point can then be treated as a control group (Green, Leong, Kern, Gerber, & Larimer, 2009). At the same time, the difference-in-difference approach allows me to compare the outcome between different subgroups of individuals according to their family values.

This paper contributes to the literature of social economics by looking at how family values affect the effectiveness of a policy reform and suggesting that the former are a factor that explains lack of convergence across societies. Institutional economist approaches have either pointed to the persistence of inefficient formal institutions to explain this limited convergence or to the existence of different

types of institutional settings corresponding to equally efficient labour market performance (Amable, 2003; Freeman & Schettkat, 2001; Hall & Soskice, 2001; Scharpf & Schmidt, 2000). And yet, despite their vast contribution to the understanding of a lack of convergence in economic outcomes, these approaches have arguably opened more questions. Firstly, empirical analyses suggest that the residual is still large after accounting for differences in institutions (Del Boca, Pissarides, Boeri, & Fondazione Rodolfo Debenedetti., 2005). Secondly, the persistence of inefficient or different institutional settings cannot be fully understood unless beliefs and values are taken on board. This is particularly the case with labour market institutions and policies that are tightly related to family life, such as childcare and parental leave policies. As some authors have already noted, there is a circularity between a lack of family policy measures and an absence of demand for such measures (Flaquer in Bahle, Pfenning, & Mannheim Centre for European Social Research., 2000), driven by the fact that in certain countries there exists the spread belief that 'family services are superior in quality to those offered by the state'(p. 27). As a result, a growing body of research in the field of economics has turned to values, social norms and beliefs to explain differences in institutions and economic outcomes. In this field, recent analyses on the persistence of certain labour market institutions supports this view by showing that beliefs and values co-evolve with labour market regulations, reinforcing each other and creating multiple equilibria from which is difficult to depart (Aghion et al., 2011; Aghion, Algan, Cahuc, & Shleifer, 2010). The acknowledgement of the existence of a two-way interaction between values and institutions broadly enhances our understanding of the persistence of such institutions. Yet, it does not tell us much about what would happen to female labour force participation if this co-evolution were to be broken and an institutional change in the opposite direction of the engrained values in society took place. And this is what this paper does. It analyses whether, when such an institutional change takes place via a policy reform, the power of engrained family values is as strong as to hamper the effects of the new institutional setting on female labour force participation.

The rest of the paper is organized as follows. Section 2 describes the policy reform and section 3 explains the empirical strategy. Section 4 gives an account of the data used. Section 5 presents the results and section 6 concludes.

II.   INSTITUTIONAL BACKGROUND

2.1. An overview of Germany's parental leave reforms

The numerous parental policy reforms that took place in Germany in the past three decades reflect a continuous conflict between the traditional breadwinner model and the dual-earner-carer model, as can be seen in detail in *Table 1*. The introduction of maternity leave dates back to the 1920s and now women enjoy 14 weeks of leave with full wage replacement, with 6 weeks before the child is born and 8 weeks after childbirth. In 1979 a parental leave period after the statutory maternal leave was implemented for the first time, on the basis of protecting women's health and well-being (Leitner, 2010). The subsequent reforms in the 1980s and 1990s were to a great extent the continuation of the traditional breadwinner model (see Fleckenstein, 2011; Leitner, 2010 for a review of the main reforms). This changed at the start of the twenty-first century, when reforms acknowledged the individual right to parental leave by allowing both parents to take the leave simultaneously and allowed some part-time work. There was also a commitment to expand childcare facilities for children less than 3 years old. By the end of 2006, and before the 2007 reform used by this paper, employed and non-employed new mothers and fathers were paid a means-tested flat-rate benefit up to €300 for two years. Additionally, there was an unpaid parental leave period of one more year and part-time work was permitted. The benefit, however, was so low that it did not attract fathers, and the breadwinner's earnings were taken into account, thus reducing the benefit.

The 2007 reform – called *Elterngeld* – represented a step away from the traditional breadwinner model. It replaced the flat-rate benefit with a wage-replacement benefit up to 67% of earnings before maternity leave, funded by the federal government through public taxation (Blum, 2012). A cap of €1800 and a minimum of €300 were set and the non-employed were entitled to this minimum. Importantly, the reform decreased the benefit span from two to one years and devoted resources to the expansion of childcare places.

2.2 The expected benefits of the 2007 parental leave reform

The design of the *Elterngeld* policy suggests that the work behaviour of both low-income and high-income mothers would be affected. Before the policy low-income mothers were entitled to a maximum

of €300 per month, whereas after the policy they were entitled to 67% of their pre-maternal earnings with a minimum of €300, a substantial increase of the benefit. In the second year, however, by design, employed low-income mothers experienced a total decrease of the benefit. With regard to high-income employed mothers, their work behaviour is likely to change in the first year more than in the second one. Before the policy high-income mothers did not receive any benefit. After the policy this situation changes and they receive 67% of their earnings during the first year (with a cap of €1800) and nothing in the second year.

The argument of the paper is that preferences to work are likely to be influenced not only by the reform but also by family values. As Bork states in his paper (2011), attitudes towards working mothers in Germany have been rather negative over the years, especially in West Germany. A term has been coined - 'Rabenmütter' (raven mother) - to designate working mothers with young children. Fleckenstein (2011) makes a similar point in his paper when he argues that, despite a decline in traditional family values, 'West Germany remains relatively conservative by international standards' (p. 548). Therefore, the paper suggests that the impact of the reform in the return to work will differ depending on the family values held by the mother.

Table 1. Parental policy reforms in Germany since 1970s.

Year reform	1979	1986	1993	2000	2007
period of paid parental leave (in months)	6 months	10 months	24 months	24 months	12-14 months
period of non-paid parental leave (in months)	-	-	12 months	12 months	22-24 months
total period parental leave (in months)	6 months	10 months	36 months	36 months	36 months
benefits	- capped-earning related - partner's earnings not accounted	- flat-rate benefits - partner's earnings accounted		- flat-rate - higher if benefit span reduced from 2 to 1 year	- wage-replacement up to 67% wage. - capped at €1,800 - minimum of € 300.
target	formerly employed mothers	employed and non-employed mothers		employed and non-employed mothers	- employed - the non-employed are entitled to the minimum benefit
part-time work	not allowed	allowed: up to 18-19 hours week		allowed: up to 30 hours week	allowed: up to 30 hours week
parental leave for fathers	not allowed	allowed		allowed, and simultaneously with the mother	allowed, and simultaneously with the mother

Source: own elaboration, based on Leitner (2010) and Ostner, Reif, Schmitt & Turba (2003).
Notes: This table shows how the different reforms affected the period of paid and non-paid parental leave, the calculation of the benefits, the potential beneficiaries and whether part-time work was allowed.

III.   EMPIRICAL AND IDENTIFICATION STRATEGY

The paper examines the effects of the 2007 *Elterngeld* policy on the decision to return to work for mothers with different family values. To this purpose I have used a regression discontinuity design (RDD) with a difference-in-difference specification. As noted earlier, the RDD method is used to estimate causal effects of an intervention by examining comparable observations before and after the cut-off point. It relies on the assumption that the intervention is randomly assigned and therefore observations *around* the cut-off point are comparable. Observations before the cut-off point (the implementation of the policy) can then be treated as a control group (Green et al., 2009). I suggest that the policy intervention analysed in this paper suits a RDD method. Firstly, the intervention was randomly assigned, given that the treatment was available to all new-mothers from 1 January 2007. The cut-off point, therefore, did not depend on any individual characteristics of the mother, only on the

birth date of the child. Although it can be argued that mothers could have attempted to change their behaviour and delay maternity, this argument is rather weak due to the speed of the legislation process. The main features of the reform were discussed in May 2006, drafted in June, the law was passed in September 2006 and it became effective on 1 January 2007 (Kluve, 2009). *Figure 1* supports this argument by showing that the monthly number of birth rates did not change significantly from 2005 to 2007.

Figure 1. Birth rates across years
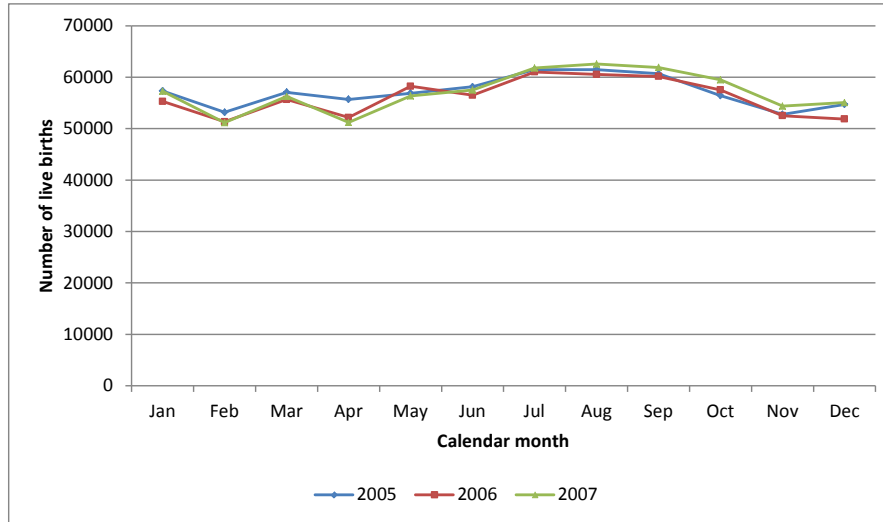
Source: German Federal Statistical office

The choice of years before and after the cut-off point reflects a trade-off between the number of observations and the accuracy of the control and treatment group. With a RDD specification, the closer the observations are to the cut-off point, the lower the risk that the treatment effect suffers from omitted variable bias (Green et al., 2009). On the other hand, having a narrow timeframe leads to fewer observations, which increases the sampling variability. At the same time, a narrow timeframe cannot account for a potential delay in implementation. In this paper the timeframe is two years before (2005-2006) and three years after the policy (2007-2009) in order to allow an acceptable number of observations and account for potential delays. Although this choice is made at the expense of increasing the bias, this is of limited relevance, since I am more interested in comparing the impact of the policy for mothers with different family values than the impact of the policy in itself. The difference in impact between the two groups is captured by the difference-in-difference coefficient in my regression. That is, I estimate the following difference-in-difference coefficient for the effect of the parental leave policy when the mother holds fv family values (for fv = liberal and traditional):

$$\beta_3 = (y_{l,t} - y_{l,c}) - (y_{t,t} - y_{t,c}) \tag{1}$$

where $y_{fv,T}$ denotes the return to work of mothers with fv family values in year T. The difference-in-difference coefficient β_3 measures the changes in the pace of return to work before and after the policy for mothers holding liberal family values compared with mothers holding traditional family values. The paper therefore runs a series of logit specifications of the following type:

$$P(y_{it}=1) = \alpha + \beta_1 T_{it} + \beta_2 fv_j + \beta_3 T_{it} fv_j + \beta_4 X_i + \varepsilon \tag{2}$$

where y_{it} is the mother i's labour market outcome, that is, the probability of preferring a fast return to work after maternity. T_{it} stands for the timeframe, whether the observation takes place before or after the policy, fv_j is a proxy of the family values of each individual, who can hold traditional or liberal family values, $T_{it} fv_j$ is the interaction between the time dummy and the family values and X_{it} includes a set of individual characteristics as controls.

IV.   DATA

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I use the German Socio-economic panel data (GSOEP)[2], a longitudinal dataset running yearly from 1984 until 2011 (the latest wave) which interviews all the members of the household, newcomers and follows the leavers in new households. The GSOEP has gradually increased its sample, with some of those being focused on migrants (see *Appendix 1* for details on sample). For the present analysis I select women who work and have had a child in one of the years from 2005 to 2009 (see coding of childbirth in *Appendix 1*). After dropping missing observations and coding all the variables I need, I end up with 300 to 450 observations (depending on the specification).

4.1 Dependent variable

The policy is meant to influence the number of months mothers spend in parental leave, encouraging them to reduce it to up to one year (twelve months). Therefore, ideally the variable of interest would be the number of months spent in parental leave. Unfortunately the dataset has only information on the total number of months spent on maternity and parental leave together. Given that maternity leave is compulsory for eight weeks after childbirth (and only optional for a maximum of six weeks before childbirth), the cut-off point of interest will not be twelve months, but fourteen months, as the variable used includes minimum two extra months corresponding to the compulsory maternity leave period after childbirth. Bearing this factor in mind, the dependent variable - total number of months in maternity and parental leave - is dichotomized taking fourteen months as a cut-off point; coding the variable as a fast return if the mother returns within fourteen months, and slow return if she returns after fourteen months. To avoid classifying mothers who spend some or all six optional weeks of maternity leave before childbirth into the category "slow pace of return to work", robustness checks are done for which the cut-off point is fifteen months.

4.2 Independent variable

The main independent variables are family values and a time variable to account for before and after the reform.

Family values

There are different ways of proxying family values within the epidemiological literature[3]. Carroll, Rhee and Rhee (1994) use a dummy variable for the immigrant's home country region. As Fernandez (2006) points out, this has the drawback that it is not entirely clear what is being measured, or why it matters that someone is from a different country or region. Fernandez and Fogli (2009) use the female labour force participation rates of the country of ancestry as cultural proxies. These rates are likely to reflect individual factors as well as economic, institutional and cultural factors of the country. Then, as Fernandez (2007) points out, if they have explanatory power for why, in a certain country, "women from one ancestry work more than women from another ancestry after controlling for their individual economic attributes, only the cultural contribution to this variable can be responsible" (p. 312). Nevertheless, this choice also comes with some drawbacks. Especially, female labour force participation rates in one country with traditional family values may be, for example, very high because there are very high female wages. In this case, female labour force participation rates would not represent the existing family values very accurately (Fernandez & National Bureau of Economic Research., 2010). An alternative, also suggested and used by Fernandez in some of her papers (see for example Fernandez & National Bureau of Economic Research., 2007) is to proxy family values with attitudes towards women with children and work expressed by individuals in the migrant's country of origin in previous years, in order to avoid reverse causality. This approach follows a similar logic to that stated above. Attitudes towards women and work in the country of ancestry may reflect individual factors as well as economic and institutional ones. If these attitudes are useful to proxy attitudes of women from the same country of origin who live in another country - with different economic circumstances and institutional settings- then it suggests that the cultural aspect of the attitudes has explanatory power.
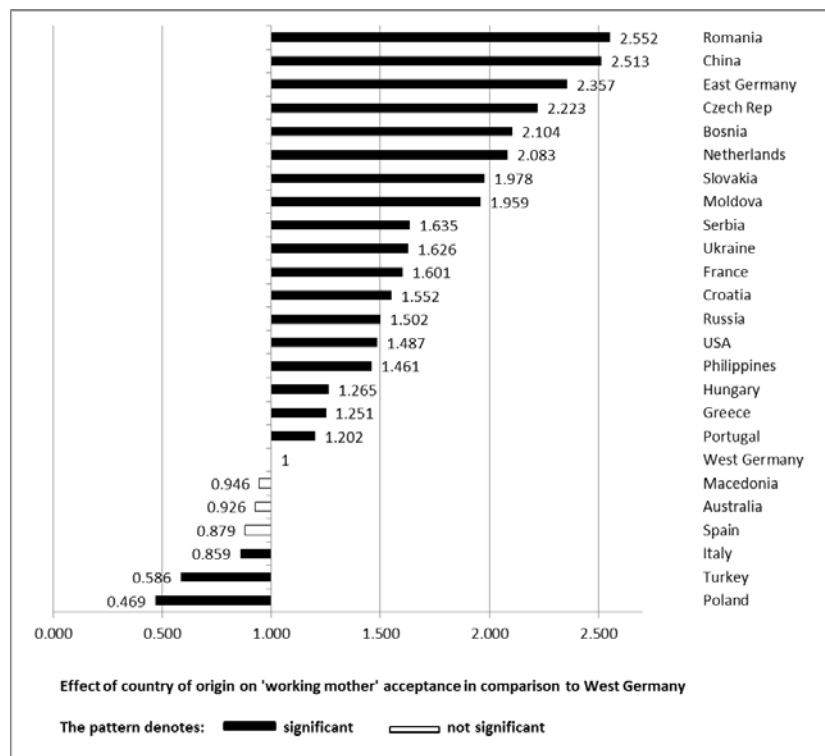
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[2] The data used in this paper were extracted using the Add-On package PanelWhiz v4.0 (Oct 2012) for Stata. PanelWhiz was written by Dr. John P. Haisken-DeNew (john@panelwhiz.eu). The PanelWhiz generated DO file to retrieve the SOEP data used here and any Panelwhiz Plugins are available upon request. Any data or computational errors in this paper are my own. Haisken-DeNew and Hahn (2010) describe PanelWhiz in detail.

[3] For a thorough discussion on the epidemiological approach see Fernandez (2010).

This paper relies on this latter approach to proxy family values. It firstly identifies the country of origin of each individual and then it relies on attitudinal survey data to assign to the individual the corresponding family values. The country of origin is provided by the GSOEP dataset, which assigns to each individual his or her migration background – the categories being "no migration background", "direct migration background" (i.e. first generation migrant), or "indirect migration background" (i.e. second generation migrant). For individuals with direct and indirect migration background the country of origin and the parental country of origin are provided. At the same time, the dataset contains information to differentiate observations that come from East and West Germany. Therefore, those observations with "no migration background" will be coded as natives from either East or West Germany. (see *Appendix 1* for details).

Having gathered information on migration background, I then use the 1990s waves[4] from the World Value Survey (WVS, 2006) and the European Value Survey (EVS) to construct a proxy for family values. Firstly, one question related to women, children and work is chosen. The question is the following: '*Do you agree with the following statement? A working mother can establish just as warm and secure a relationship with her children as a mother who does not work*'[5]. Secondly, I want to know how the country of origin affects the response to this question, controlling for other relevant variables such as age, age squared, size of town, marital status, sex and education. To do so I follow Fernandez (2007) and I run an individual probit regression, with this question being the dependent variable and my main independent variable being country dummies. The base 'country' is 'West Germany' and the country dummy coefficients will be the values used as a proxy for my independent variable. That is, these coefficients are the likelihood that an individual from a certain country or region will agree with the previous statement compared to an individual from West Germany. *Figure 2* depicts the results. All coefficients are statistically significant (most of them at 1% significance level) except for Macedonia, Australia and Spain.

Figure 2: effects of country of origin on 'working mother' acceptance

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[4] Mostly the wave 1995-1998.

[5] Data for this question is not available for the following countries of origin in my sample: Austria, Switzerland, Iran, Bolivia, Tunisia, Cuba, Brasil, Kazakhstan, Lebanon, Eritrea, Uzbekistan. This amounts to around 20 observations.

Before proceeding it is interesting to check that these country coefficients are a good proxy for family values of the individuals in my sample. This is because although family values are thought to change slowly, it might be that family values for first and second generation individuals in the 2000s have completely evolved from the family values of individuals in their country of origin in the 1990s. To this purpose I compare the obtained country coefficients with the current family values of first and second-generation migrants in Germany. A high correlation would then suggest that my proxy – family values expressed by individuals in the migrant's country of ancestry in the 1990s– is a good one.

To get the current family values of first and second generation migrants in Germany I use the German sample of the European Social Survey (ESS) database (ESS, 2004, 2010) for the years 2004 and 2010, that is, before and after the policy. Ideally, I should find the same question from the WVS in the ESS database, run an individual-level probit regression with the question as a dependent variable and country dummies as my main independent variable and compare these coefficients with the country coefficients of my proxy. Unfortunately the ESS does not include a statement on working mothers as the one included in the WVS. Nevertheless, it includes one similar question, namely 'Women should be prepared to cut down on paid work for sake of family''. Besides, the ESS also includes another question about job scarcity – 'men should have more right to women to work when job scarce' – which is also included in the WVS in several waves. I use the two questions to run a similar individual-level probit regression as the one above, with my main independent variable being country dummies. Given that the German ESS sample of first and second generation migrants is rather small, I only keep countries with more than twenty observations (the result is robust also if I keep only countries with more than fifty observations) to carry out the analysis, which leaves me with nine countries for each question[6]. The correlation between the coefficients from this regression for both questions and the coefficients from the previous regression using the WVS is very strong and around 0.80. This suggests that family values with regard to women, children and work have not evolved in a very substantial way, and therefore my proxy is a valid one.

The initial country coefficients are then assigned to the individuals in my sample who have migration background from the country in question. For those with indirect migrant background, I use the mother's migrant origin[7]. I then dichotomise the family values variable between traditional or liberal background according to whether the value is below or above the mean value. Following Fernandez (2007), I drop the observations with indirect migration background whose parents came from a country that became a centrally planned economy during World War II (11 observations). This is because there might be the possibility that their parents emigrated during or before this time and therefore it would not be accurate to attribute them the values of these countries in 1990. The following table, *Table 2*, shows the migration background and the number of observations.

Table 2. Country of origin of observations

No migration background	East Germany	145	
	West Germany	401	
Direct migration background		84	Turkey, Greece, Italy, Austria*, France, USA, Rumania, Poland, Iran*, Hungary, Bolivia*, Portugal, Czech Republic, Russia, Philippines, Tunisia*, Cuba*, Brazil*, China, Moldova, Kazakhstan*, Lebanon*, Ukraine, Eritrea*, Uzbekistan*, The Netherlands, Croatia, Bosnia, Macedonia, Slovakia, Kosovo, Serbia,
Indirect migration background		48	Turkey, Greece, Italy, France, Portugal, Australia,
TOTAL		678	

Source: own elaboration based on GSOEP

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[6] These countries are: Austria, Serbia, Czech Republic, Kazakhstan, Italy, Poland, Romania, Russia and Turkey, altogether adding up to roughly 500 observations aside from West and East Germany, with roughly 5,000 observations.

[7] Father's country of origin differs from that of the mother in only five observations. Empirical results (not shown in the paper) do not change when mother's country of origin is substituted with that of the father.

Time variable
As noted earlier, the other independent variable of interest is the time variable, which is 0 before the policy (years 2005 and 2006) and 1 after the policy (years 2007 to 2009) – and the interaction between family values and time variable (the difference-in-difference estimator).

4.3 Control variables

Several controls are included in the regression, including individual and partner's controls as well as regional fixed effects. A good selection of controls is crucial to make a persuasive argument that family values matter. This is because, as Fernandez (2010) points out, many of these controls may be influenced by the individual's family values. In the case of working behaviour, family values are likely to influence individual's education as well as her choice of partner (more specifically the partner's age, education, or income). Therefore, not including those raises doubts on what the family values proxy is measuring. Conversely, the inclusion of such variables means, borrowing Fernandez words, that what is being effectively tested is "whether [family values] has an influence on work outcomes beyond the ways in which it is already reflected in these choices" (2010). Mother's education is therefore included using the 1997 ISCED classification and further grouping the categories into elementary, vocational and higher education[8]. With regard to partner's characteristics, age, education – following the same classification as for mother's education - and net income are included. Other variables which are likely to be orthogonal to family values and exert an influence on working behaviour are the age of the mother, marital status, net household income and the presence of children younger than 16 years old at home. Measurement of these variables is included in Table 3. Regional fixed effects have also been included to account for regional institutional differences such as availability of childcare, tax incentives and others.

4.4. Descriptive statistics
Table 3 presents some basic descriptive statistics of the data before and after the policy. The data reveals statistically significant differences in the means of revealed preferences, with mothers accelerating their pace of return to work after the policy. With regard to the independent and control variables, there are no significant differences between the two periods (before and after the policy), except for the number of children younger than 16 at home. There are more individuals with children at home in the second period than in the first one. The data shows a bias towards observations with more traditional family values. The average maternal age is around 31 years old, and most of the observations in both periods are married. Average household income amounts to approximately €2.800 and the average level of education of the sample is vocational training. With regard to partner's characteristics, they tend to be slightly older than their spouses, with a similar average education and a mean net income of around 2000€ a month.

Table 3: Descriptive statistics

	Measurement	Before the reform 2005-2006			After the reform 2007-2009	
Number of children born		**269**			**277**	
Variables		**mean**	**SD**		**mean**	**SD**
Pace to return to work (0/1)	*Categorical*: [0] – within 14 months, [1] – after 14 months.	0.39***	0.49		0.53***	0.50
Family values (0/1)	*Categorical*: [0] – traditional family values background;	0.41	0.49		0.33	0.47

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[8] The 1997 ISCED classification available in the dataset is as follows: general elementary, middle vocational, vocational plus *abitur*, higher vocational and higher education. This more disaggregated categorization does not give different results (results not shown).

	[1] – liberal family values background.					
Age	*Continuous*	31.15	6.04		31.69	5.32
Marital status (0/1)	*Categorical*: [0] – married separated, single, divorced, widowed; [1] – married	0.67	0.47		0.71	0.46
Net Income household	*Continuous*	2860.57	1558.6		2789.48	1182.25
Net income household (0/1)	*Categorical*: [0] – below the median (€2,500); [1] – above the median.	0.47	0.50		0.52	0.50
Education (0, 1, 2)	*Categorical*: [0] – elementary; [1] – vocational; [2] – higher education.	1.13	0.61		1.20	0.58
Children<16 at home (1/2)	*Categorical:* [1] – yes; [2] – no.	1.39**	0.49		1.31**	0.46
Age partner	*Continuous*	34.5	6.68		34.9	6.22
Education partner (0, 1, 2)	*Categorical*: [0] – elementary; [1] – vocational; [2] – higher education.	1.18	0.63		1.22	0.59
Net income partner	*Continuous*	1990.98	1130.87		1952.02	1079.9
Net income partner (0/1)	*Categorical*: [0] – below the median (€2,500); [1] – above the median.	0.50	0.50		0.48	0.50

Note:this table contains descriptive statistics from the main variables used in the regression analysis. t-tests indicate the statistically significant differences between subgroups at 1% and 5% levels.

V.   EMPIRICAL ANALYSIS AND RESULTS

The structure of the empirical analysis is as follows: the first section focuses on the aggregate effects of the 2007 *Elterngeld* policy reform for mothers with different family values background. *Tables 4 and 5* present the results of the empirical analysis. All regressions use a logit model in which the dependent variable is the probability of returning to work after childbirth within 14 months. The results are presented in terms of Average Marginal Effects (AME) and predicted probabilities. The second section examines the role of education and its interaction with family values background in greater detail. Finally, the section ends up with some robustness checks.

5.1. The aggregate effects of the Elterngeld policy reform

Parameter estimates of the policy reform are presented in *Table 4*. The first column presents results from estimation of the variables of interests – family values and policy reform - on the pace of return to work. Col. 2 adds the interaction effect between family values background and the policy reform, and column 3 and 4 adds individual controls and partner's controls respectively. Finally column 5 adds regional dummies to account for regional institutional differences such as availability of childcare, tax incentives and others.

Results show that firstly, family values background is consistently significant throughout the models. Col. 5 (the most complete model) suggests that before the policy reform mothers from a more liberal family background are around 15% more likely to return to work at a faster pace than mothers from a more traditional family background. Secondly, the reform has had a significant effect in accelerating the pace of return to work for all mothers; a result in line with the existing literature on the effect of the *Elterngeld* reform (see for example Bergemann and Rhiphan, 2010). Thirdly, the magnitude of the effect is dependent on family values background, albeit not in the direction that this paper initially suggested. The policy has had a stronger effect on mothers with traditional family background compared to mothers with liberal family background. In particular, the former are 21% more likely to return to work within 14 months of taking parental leave than before the policy. This compares with 10% likelihood for mothers with a liberal family background. The combination of these three results

suggest that whereas before the policy mothers with traditional family background returned to work at a slower pace than mothers with liberal family background, after the policy this difference has practically disappeared, resulting in a convergence of the pace of return to work for mothers from different family values background.

This conclusion is confirmed with the examination of the predicted probabilities to return to work. As table 5 and Figure 3 show, before the policy mothers from a traditional family background had a 29% probability of going back to work within 14 months, which is significantly lower than the 46% probability of mothers from a liberal family background. The confidence intervals in *Figure 3* suggest that the difference is significant. After the *Elterngeld* policy reform the picture changes: mothers from a traditional family background have now a 50% probability of going back to work within 14 months, which is only 5% lower than those mothers with liberal family background. And as *figure 3* shows, the difference is not statistically significant.

Table 4. Average Marginal Effects (AME) of parental leave reform policy on the probability to return to work within 14 months for mothers holding different family values.

VARIABLES	(1)	(2)	(3)	(4)	(5)
family values: [0]tradit; [1] liberal before the policy	0.0764*** (0.028)	0.108*** (0.026)	0.102*** (0.038)	0.174*** (0.048)	0.145*** (0.052)
policy treatment Average	0.156*** (0.018)				
policy treatment traditional fv		0.183*** (0.034)	0.201*** (0.048)	0.222*** (0.041)	0.214*** (0.037)
policy treatment liberal fv		0.118*** (0.026)	0.134*** (0.022)	0.119*** (0.040)	0.103* (0.057)
Age			-0.067** (0.028)	-0.102*** (0.030)	-0.145*** (0.039)
age sq			0.001** (0.000)	0.001*** (0.000)	0.002*** (0.001)
marital st [base:single]			-0.011 (0.023)	0.081* (0.049)	0.101* (0.059)
dummy net income median			0.025 (0.033)	0.164*** (0.030)	0.165*** (0.033)
Educ [base: elementary] Vocational			0.020 (0.046)	0.119 (0.101)	0.138** (0.065)
Educ [base: elementary] Higher educ			0.110 (0.068)	0.216*** (0.064)	0.217*** (0.071)
childr<16 at home			0.093*** (0.031)	0.115*** (0.028)	0.115*** (0.036)
age partner				0.009*** (0.003)	0.012*** (0.004)
Educ partner [base: elementary] Vocational				0.060 (0.136)	0.035 (0.103)
Educ partner [base: elementary] Higher educ				0.049 (0.142)	0.048 (0.106)
dummy net income median hubs				-0.151*** (0.052)	-0.116** (0.051)
Regional fixed effects	no	no	no	no	yes
Observations	455	455	430	308	307
Log pseudo likelihood	-304.6	-307.3	-285.8	-195.5	-184.1
Pseudo R2	0.02	0.02	0.04	0.08	0.13

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The results are robust to the inclusion of several control variables. Particularly, the effect of family background on the probability of returning to work stays significant after controlling for mother's education and partner's characteristics. Mother's education plays a very significant influence on the probability of accelerating the pace of return to work, something that was already expected and it is in

line with the literature on human capital. Mothers with vocational education are 14% more likely to return to work within 14 months than mothers with only elementary schooling. The effect is even larger for mothers with higher education, who are 22% more likely to go back to work within 14 months compared to their less educated counterparts. Age has a negative and strong relationship with working behaviour, with the probability of accelerating the pace of return to work decreasing by 14% with each year. The age square coefficient is significant, but very small, and does not substantially change the results. Being married has a positive but barely significant effect on work behaviour. With regard to partner's characteristics, net income is the most relevant one. Women with high-income partners are less likely to accelerate their pace of return to work compared to women with low-income partners. At the same time, women with a high net household income are more likely to accelerate their pace of return to work. The dataset shows a strong correlation between net household income and partner's income of the magnitude of 0.73%, suggesting that the effects are likely to cancel each other out in the sample. Partner's education is statistically insignificant and age is significant with an increase in 1 year having a 1% effect on the probability of accelerating the pace of return to work. Given the strong correlation between mother's age and partner's age (75%) together with the significantly stronger effect of mother's age over partner's age, the effect of the latter does not seem to significantly change the picture. Finally, having children below sixteen years old at home increases the probability of having a faster return to work.

Table 5. Predicted probabilities to return to work within 14 months

Predicted Probability to return to work within 14 months	
Before policy	
Traditional family values	0.285***
	(0.033)
Liberal family values	0.457***
	(0.033)
After policy	
Traditional family values	0.500***
	(0.025)
Liberal family values	0.559***
	(0.028)
Observations	307

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 3. Predicted probability to return to work within 14 months

12
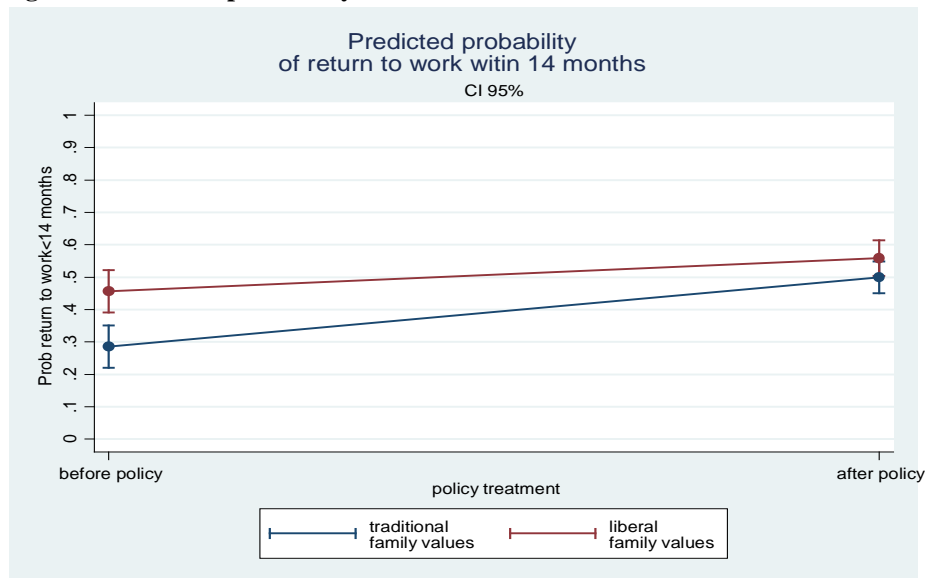
*5.2. Considering heterogeneity effects: the role of education for women with different family backgrounds*

Convergence in the pace of return to work between mothers with different family backgrounds suggests that the pre-policy differences in their choices of work can be minimized by affecting their economic incentives. In other words, it can be suggested that while social norms matter, economic incentives – such as policy reforms - can diminish their significance. In this section we suggest that this convergence in the pace of return to work between mothers with different family values background is subject to the mother's level of education.

One strand of literature on education and female labour force participation argues that education strengthens the attachment of women to the labour market, by increasing their potential earnings and reducing the scope of specialization within the couple (Jaumotte, 2003). At the same time, highly educated women in higher level occupations face higher opportunity costs when taking leaves from work because usually their jobs are more characterized by career ladders and deferred rewards (Smeaton, 2006). From here it follows that the effect of the policy should be mainly driven by highly-educated mothers. Given the initial higher predisposition of mothers with liberal family values to go back to work earlier together with the achieved convergence after the policy in the pace of return to work, we would expect highly-educated mothers with traditional family background to be the ones reacting strongly the policy.

This view contrasts with another one which emphasizes the heterogeneous effects of education on female labour force participation driven by different 'lifestyle preferences'. This literature (see for reference the work of Hakim, 2000) argues that regarding education as human capital investment is useful to understand why most men and some women choose to acquire higher education. However, it fails to explain the decisions of 'home-centred' women – women who give priority to children and family life over work – in doing so. This group of women may choose not to work outside home or do so until they get married or have children. They can also return to work under certain circumstances: few hours a week, pleasant social contacts, nearby home (Hakim, 2000, p. p.159). And yet, contrary to what is often assumed in economics, home-centred women are not necessarily low educated. Education is regarded as a cultural investment or even as a means to get to the marriage market (Hakim, 2000, p. p.160), and as a consequence, they are more likely to choose non-vocational education careers. This line of reasoning suggests that in effect, the policy reform is unlikely to have any significant effect on highly-educated mothers with traditional family background. In terms of convergence, this implies that convergence can still be – on aggregate - expected to happen, mostly due to the effects of the policy on mothers with traditional family values who hold low or vocational education. However, highly-educated mothers with different family values may not experience a convergence in the pace of return to work, and may even experience divergence if those with liberal family background strongly react the policy.

The results below confirm that education is understood in different terms depending on the family background of the mother. As a consequence, women sharing similar levels of education have reacted differently to the policy depending on their family values background. Figure 4 (and table in Appendix 2) shows the average marginal effects for the main variables. For mothers with traditional family background the impact of the policy is larger when they have vocational education. In this case their probability of accelerating their return to work is about 32%, compared to 14% for low educated and null for highly educated. Conversely, for mothers with liberal family background the effect is only significant for the highly-educated group. This group has a 25% of probability of accelerating their return to work. Mothers with vocational training do not change their probability after the policy, and we are uncertain about what happens to those mothers with low education, as the variation is too large to conclude.

Figure 4. Average Marginal Effects of the policy reform on the probability to return to work within 14 months.
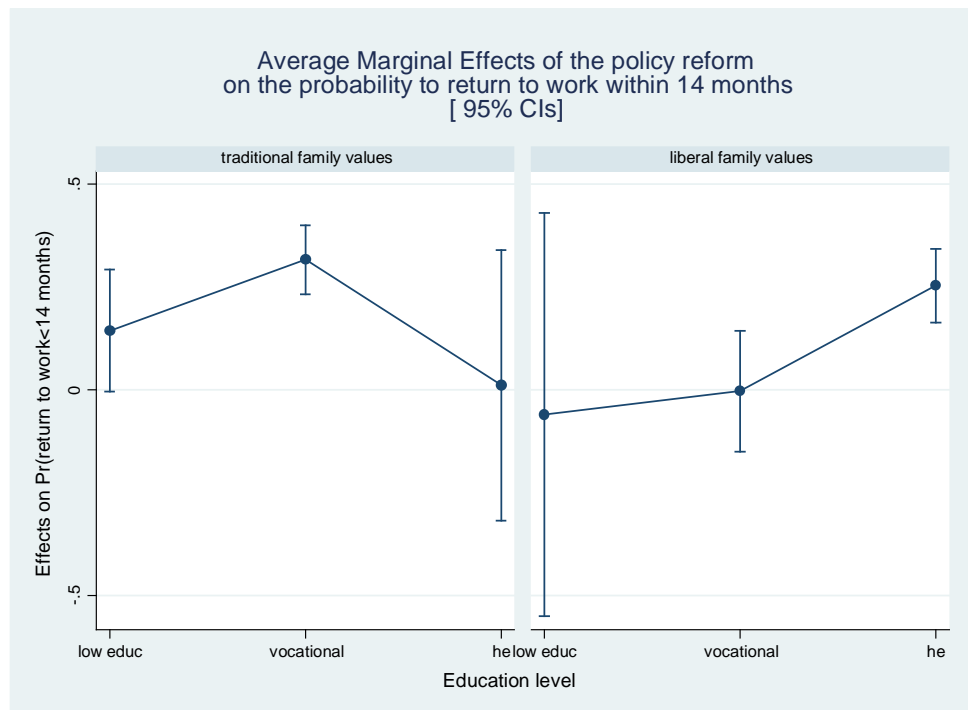

A note of caution must be added. The variation of the highly-educated mothers with traditional family background is quite large, therefore suggesting a higher heterogeneous response from this group compared to their counterparts with liberal family backgrounds. However, the predicted probabilities in *Table 6* and *Figure 7* suggest that the policy has exacerbated the difference in the pace of return to work within highly educated mothers in a statistically significant way. After the policy, highly-educated mothers with a liberal family background have almost 80% probability of accelerating their return to work. This is a very high number, especially when contrasted with their counterparts with a traditional family background, for whom the probability to accelerate the return to work has stayed constant at around 40%. For the other two categories of education – low and vocational education – the effect has been one of convergence. This is especially the case for mothers with vocational education, who have seen a complete convergence in the pace of return to work, increasing their probability to accelerate it around 40%-60%.

Table 6. Predicted Probability to return to work within 14 months

	Before policy	After the policy
Low education		
Traditional fv	0.13	0.28
Liberal fv	0.56	0.50
Vocational Education		
Traditional fv	**0.26**	**0.57**
Liberal fv	0.42	0.42
Higher Education		
Traditional fv	0.40	0.41
Liberal fv.	**0.50**	**0.76**
Observations	307	307

Note: all values are significant at 1% level except for traditional fv before policy low educ at 5% level.

Figure 7. Predicted probabilities to return to work within 14 months

Predicted Probability of return to work within 14 months
CI 95%
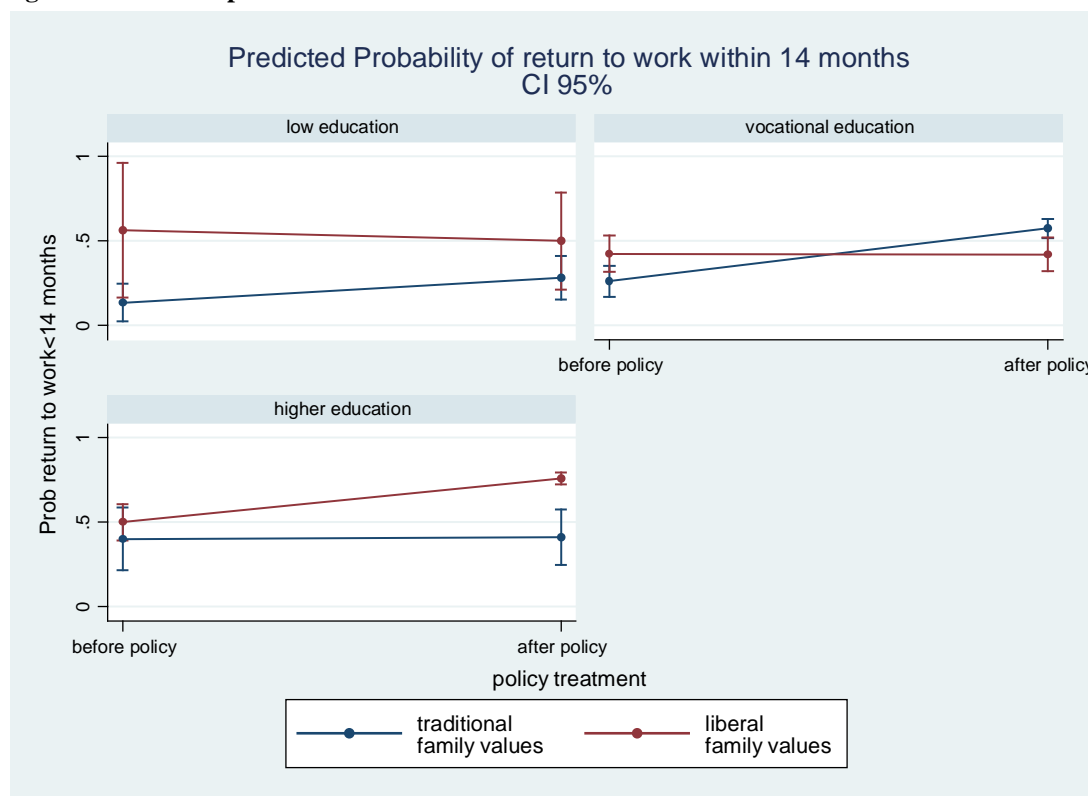
The analysis in this section has shown that the apparent convergence in the previous section has some interesting and policy-relevant nuances. More precisely, the results suggest that convergence has taken place in the case of mothers with vocational education, and to a much lesser extent, mothers with low education. Conversely, mothers with high-education have shown a divergence in the pace of return to work depending on their family background, with those with liberal background almost doubling the likelihood of a fast return compared to those with traditional background, whose pace of return to work after the policy has not changed significantly.

5.3. Robustness checks

This section runs some robustness checks on the previous results. They concern alternative measurements of the dependent and an analysis of income.

5.3.1. Measurement of the dependent variable

For reasons explained in section 4.1., the cut-off point used to dichotomize the dependent variable reflects the number of months for paid parental leave under the new *Elterngeld* policy (12 months) plus the number of months for compulsory maternity leave (2 months). However, mothers also have six optional weeks of maternity leave before childbirth. Having the cut-off at fourteen months as the analysis has done means that there is a risk to have underestimated the effect of the policy, especially if most mothers take these optional weeks. Conversely, if most mothers have not taken these optimal weeks, establishing the cut-off at fifteen months might lead to an overestimation of the policy effects. Given that the paper is interested in the effect of the policy on the pace of return to work for mothers with different family values background, the cut-off dilemma is not of critical importance. An exception would be if mothers with different family values background have systematically significantly different intakes of the non-compulsory maternity leave. It is not implausible that this is the case, and so maybe we have underestimated the impact of the policy for mothers with traditional family backgrounds.

Table 7 reproduces the initial model in *column 1* (*model 5* from *Table 4*) together with a new model in column 2, where the dependent variable establishes the cut-off at 15 months. Differences between the two models are minimal. One exception is the effect of the policy for the traditional low-educated mothers. *Column 2* shows a bigger effect of the policy for this group, suggesting that convergence in the pace of return to work after the policy reform takes place not only for the mothers with traditional family background and vocational education but also for their less-educated counterparts. This result, however, does not significantly change the conclusion of the paper, and if anything, it reinforces it.

Table 7. Comparison of the average marginal effects of the policy reform on the probability of return to work within 14 months and within 15 months.

| VARIABLES	(1)		(2)	
family values: [0]tradit; [1] liberal	0.145***	(0.04)	0.127***	(0.04)
policy treatment				
traditional fv	0.214***	(0.04)	0.241***	(0.03)
policy treatment				
liberal fv	0.103*	(0.06)	0.080	(0.05)
Policy + traditional fv				
Low educ	0.144*	(0.08)	0.316***	(0.10)
Vocational educ	0.316***	(0.04)	0.340***	(0.07)
Higher educ	0.010	(0.17)	0.016	(0.16)
Policy + liberal fv				
Low educ	-0.060	(0.25)	0.038	(0.20)
Vocational educ	-0.000	(0.08)	-0.030	(0.06)
Higher educ	0.25***	(0.05)	0.240***	(0.05)

5.3.2 Income: the key missing variable?

Income is, together with education, one variable that has a significant impact on the pace of return to work. Given its relevance, there is the need to discuss and confirm that it is education, together with values, which explain the lack of convergence on the pace of return to work for highly-educated mothers with different family backgrounds.

Figure 8 shows that, other things equal, mothers with low income have reacted stronger to the policy than mothers with high income. Before the policy, their pace of return to work differed, and after the policy it has converged. This result is consistent with other research done on the effect of the *Elterngeld* policy reform on the pace to return to work for mothers with different levels of income[9].

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[9] See for example Bergeman and Riphahn (2010). They even suggest that high-income mothers may return later after the reform due to wealth effects, although their claim is not sustained by their empirical analysis.

Figure 8. Predicted probabilities to return to work within 14 months for mothers with different income levels.
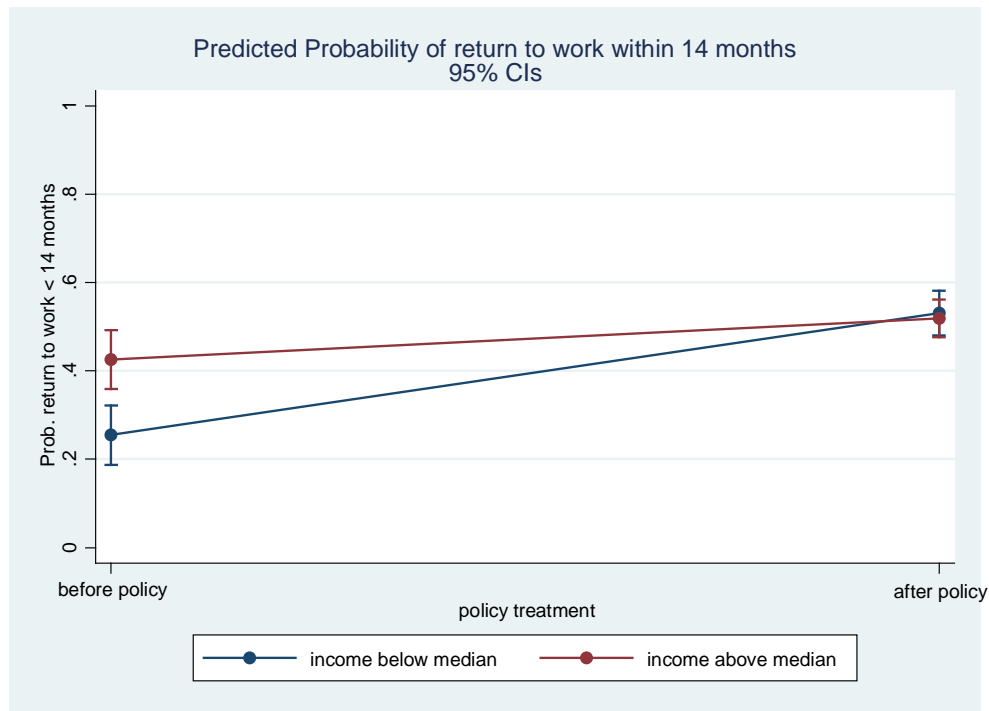
Given this stronger reaction from the low-income mothers to the policy, there are two cases in which the results in the previous section could be attributed to income instead of education levels.

The first case is represented in Figure 9. This figure shows a hypothetical relationship between education and income which is dependent on family background. More particularly, it shows a positive correlation for the sample of mothers with traditional family background together with a negative correlation for the sample of mothers with liberal family background. If these correlations held for my sample, the results in my previous section – which found a stronger reaction to the policy reform from low-educated mothers from traditional family backgrounds and highly-educated mothers from liberal family values – could be perfectly explained in terms of income: low income mothers with traditional family background are those who have low education, whereas low-income mothers with liberal family background are those who have high education.

Figure 9: Hypothetical inverse correlation between education and income depending on family values background.
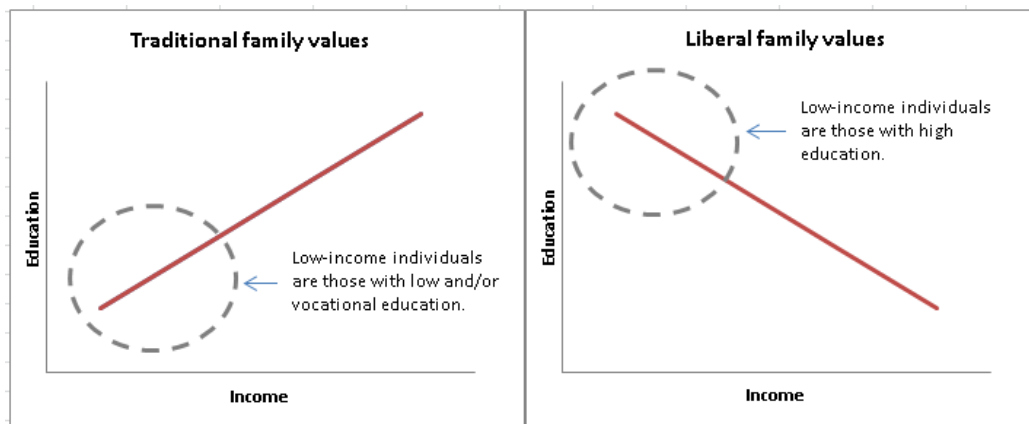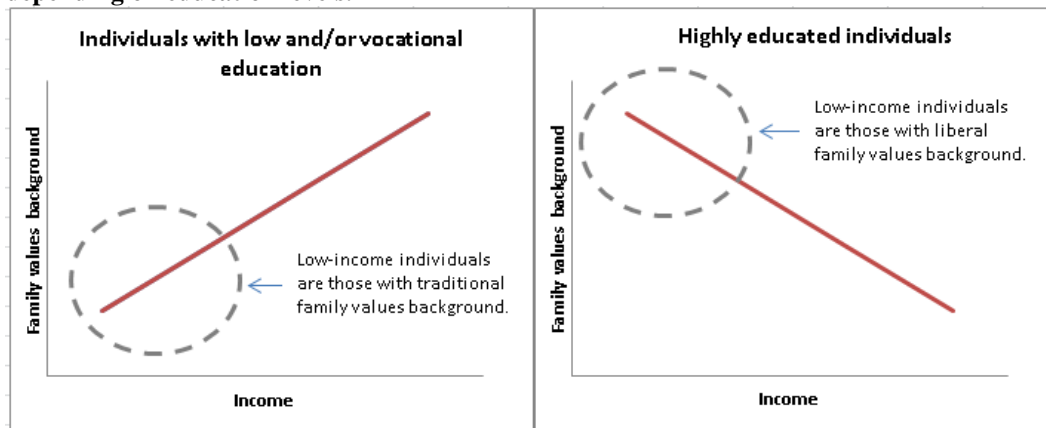
A priori there is no theoretical foundation for family background to affect the direction of correlation between income and education. Moreover, data from *Table 8* confirms that correlation between these two variables is positive regardless of family background.

Table 8. OLS simple regression of income on education levels for subsamples of traditional and liberal family values background.

	Dependent variable: levels of education (ISCED)			
	(1) Subsample: traditional family background		(2) Subsample: liberal family background	
Income (low/high)	0.525***	(0.06)	0.277***	(0.08)
R2	0.18		0.05	
N	301		182	

The second case is represented in Figure 10. In here the figure shows a hypothetical relationship between family values background and income dependent on education levels. More particularly, it shows a positive correlation for the sample of low or vocational educated mothers together with a negative correlation for the sample of highly educated mothers. Again, if these correlations held for my sample, the results in my previous section could be perfectly explained in terms of income: low income mothers with traditional family background are those who have low education, whereas low-income mothers with liberal family background are those who have high education.

Figure 10: Hypothetical inverse correlation between family values background and income depending on education levels.

As with the previous hypothetical situation, a priori there is no theoretical foundation for education to affect the direction of correlation between income and family values background. Moreover, data from *Table 9* confirms that correlation between these two variables is negative regardless of education levels.

Table 9. OLS simple regression of income on family values background for subsamples of highly-educated and low/vocationally educated individuals.

	Dependent variable: family values (traditional – liberal)			
	(1) Subsample: low and vocationally educated		(2) Subsample: highly educated	
Income (low/high)	-0.135***	(0.05)	-0.433***	(0.09)
R2	0.02		0.14	
N	348		135	

VI. CONCLUSION

This paper has investigated the effect of a parental leave policy on the pace of return to work for mothers with different family values background. To this purpose I have looked at the behaviour of mothers living in Germany. For identification, I have used the 2007 *Elterngeld* parental leave policy reform which reduced the parental leave subsidy from two to one year. In order to disentangle any possible institutional effects from the effects of social norms, I have compared the effect of the reform across mothers who have different migrant or native origin - native from East Germany, native from West Germany, and migrant origin from several different countries.

In line with previous analysis of the same policy (Bergemann & Riphahn, 2010; Kluve, 2009) this paper suggests that the policy has had an overall positive effect in increasing the pace of return to work for mothers in Germany. The paper's focus on family values, however, reveals important heterogeneity effects. It is shown that the pace of return to work was initially slower for mothers with traditional family background than for those with liberal family background. Post-reform, however, there has been a convergence in the pace of return to work for mothers with different family background, indicating that the policy has mostly changed the behaviour of mothers with traditional family background. Within the group of traditional family background it is mothers with vocational education and to a lesser extent low education who significantly accelerate their pace of return to work, therefore contributing to the above-mentioned convergence. This is in stark contrast with their highly-educated counterparts, who do not react to the policy in any significant way. This lack of reaction together with a strong reaction from highly-educated mothers with liberal family values results in a divergence on the pace of return to work for highly-educated mothers with different family values.

The findings contribute to the literature on culture and economics. The consensus within this literature is that family values, and more generally attitudes towards women, family and work have explanatory power to understand women's participation rates in the formal market, as well as other economic variables such as household arrangement or fertility outcomes (see for example Alesina & Giuliano, 2010; Fernandez, 2007; Fernandez & Fogli, 2009; Giavazzi, Schiantarelli, & Serafinelli, 2013). At the same time, the literature emphasises the feedback effect between economic policies and attitudes towards women and work (see for example Aghion et al., 2011) reinforcing each other. Less analysed though is the persistence of such attitudes in the light of an "exogenous" change in economic incentives. That is, what happens to the influence of attitudes on individual decision-making once economic incentives which go against the existing attitudes arise?

This paper suggests that persistence of traditional family values is linked to education levels, but not entirely in the way predicted by the literature on education and human capital. We would expect more education to lead to more opportunity costs of staying at home, therefore reducing the persistence of traditional family values and increasing the effect of the policy. However, the null effect of the policy on highly-educated mothers with traditional family values does not fit with this explanation. Instead, the findings suggest that education might be perceived differently depending on family values background. As Hakim (2000) suggests, mothers with traditional family values background (or, as she calls them, home-centred women), may use the educational system either as way to enhance their cultural investment or even as a marriage market and therefore, they will barely react to a policy that incentivises return to work. Instead, mothers with liberal family values background may use the educational system as a way to enhance their human capital, which can then be used at work. Therefore, they will be more sensitive to changes in economic incentives.

The results are important for countries with a heterogeneous population, suggesting that other family policies may have to be in place if female labour force participation is to be increased across all population groups. At the same time, the results might also be of importance for countries which replicate family policies from other countries with an average population who have different family values. The policy replicated may still work, but the impact might be of a very different magnitude.

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APPENDIX

Appendix 1 – Samples in dataset and coding details of some variables

Table A.1. GSOEP samples relation

Name/ Value	Label	Start Year	House-holds	Persons	Description
A/1	German West	1984	4,528	9,076	Head is either German or other nationality than those in Sample B
B/2	"Foreigner" West	1984	1,393	3,169	Head is either Turkish, Italian, Spanish, Greek or from the former Yugoslavia
C/3	Germans East	1990	2,179	4,453	Head was a citizen of the GDR (expansion of survey territory)
D/4	84-93 Immigrant (West)	1994/1995	522	1,078	At least one household member has moved to Germany after 1989 (expansion of survey population)
E/5	Refreshment 1998	1998	1,056	1,910	Random sample covering all existing subsamples (total population)
F/6	ISOEP 2000	2000	6,043	10,880	InnovationRandom sample covering all existing subsamples (total population)
G/7	High Income	2002	1,224	2,671	Monthly net household income is more than 4.500 Euro (7.500 DM)
H/8	Refreshment 2006	2006	1,506	2,616	Random sample covering all existing subsamples (total population)
I/9	"Incentive"	2009	1,531	2,509	Random sample covering all existing subsamples (total population); since 2011 part of SOEP Innovation Sample
J/10	Refreshment 2011	2011	3,136	5,161	Random sample covering all existing subsamples (total population)

Source: SOEP Samples Overview – 2011 / Wave 28

Coding details of some variables

1 Coding of dummy variable childbirth
To know whether they had a child, there is a question which asks '*Has your family situation changed after December 31, 200X?*' (200X belongs to *n-2*, i.e. if the questionnaire belongs to year 2008, the question will refer to December 31, 2006). One of the answers is 'Yes, had a child' and for each answer the respondent is asked whether this was in year *n* or *n-1* (i.e. in the questionnaire belonging to year 2008, the options are: 2007 and 2008). Given that the interviews happen in different months of the year for each respondent, it can be the case that they are asked this question before they have had a child (e.g. the respondent is interviewed in January 2007 and she has a child in December 2007). To avoid dropping women who have actually had a child, I rely on the answers from year *n-1*.

2 Coding of country of origin subject to migration background
For those observations which have 'direct migration background', I take the variable 'country of origin'. For the observations with 'indirect migration background' the process to trace back the country of origin is more complex. Firstly, I look at the variable 'mother and father country of origin'. If this one is existent, I attribute this information to the observation. If the mother or father country of origin is not available, I trace back the mother or father personal number and their 'country of origin'.

Appendix 2 – Average Marginal Effects only for the main vars.

	AME	s.e.
Effects of the policy for:		
Low education		
Traditional family values	0.144*	(0.08)
Liberal family values	-0.06	(0.25)
Vocational education		
Traditional family values	0.316***	(0.04)
Liberal family values	-0.00	(0.08)
Higher education		
Traditional family values	0.01	(0.17)
Liberal family values	0.25***	(0.05)
Individual controls	Yes	
Partner's controls	Yes	
Regional fixed effects	Yes	
Observations	307	