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Family-related employment interruptions and self-employment of women: Does policy matter?*

Olga Suprinovič† Stefan Schneck‡ Rosemarie Kay§

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This paper analyzes how statutory entitlements to maternity or parental leave affect female entry into self-employment after childbirth. For our estimations we use comprehensive panel data for German adults born between 1944 and 1989. We find that utilization of statutory parental leave decreases women's probability to switch into self-employment. This effect is statistically significant for start-ups in high-skilled occupations. In contrast, start-ups in low-skilled occupations are not significantly affected by statutory parental leave.

JEL-Classification: J16, J18, L26, M13

Keywords: family policy, parental leave, women's self-employment

Notes: This paper uses data from the National Educational Panel Study (NEPS): Starting Cohort 6 – Adults, doi:10.5157/NEPS:SC6:6.0.0. From 2008 to 2013, NEPS data were collected as part of the Framework Programme for the Promotion of Empirical Educational Research funded by the German Federal Ministry of Education and Research (BMBF). As of 2014, the NEPS survey is carried out by the Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg in cooperation with a nationwide network.

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INTRODUCTION

Germany looks back on a long tradition of supporting young parents, especially young mothers, financially as well as in terms of employment protection after child birth. Since the 1950s, public family support during parental leave has been extended continuously (for an overview, see Table A1 in Appendix). At last, the so-called *Elterngeld* was introduced in 2007, which is considered as a paradigm shift in the official family policy towards supporting working parents (cf. Bujard 2013, p. 123). As shown in Blome (2011), many other European welfare states changed their parental leave and other family policy regulations in the last two decades in order to support work-family reconciliation, too. Even though countries still differ in the extent of work/care reconciliation policies, Blome (2011) stated an ongoing political trend away from the traditional male-breadwinner model and towards the support of the so-called dual-earner model in Europe.

One of the essential goals of extending parental leave regulations in the past was to increase the employment participation of women. Actually, many empirical studies all over the world find a positive relationship between (job protected) maternity/parental leave and individual employment decisions of mothers (for an overview see Hegewisch/Gornick 2011). The recent evaluation study of family-related benefits in Germany also stated positive effects of the Elterngeld on female labor market attachment in general (cf. Bonin et al. 2013). But there is still little known about how parental leave regulations affect women's self-employment. Although one can assume that parental leave regulations in particular and family-friendly policies in general have a positive effect on women's self-employment, the impact on this special kind of employment is much less obvious than on women's labor market participation in general. We suppose that, if taking the trade-off between self-employment and paid employment into account, parental leave regulations affect the self-employment decision of women negatively. In order to test this hypothesis, we use panel data of almost 6,000 women living in Germany.

The dataset used contains detailed information about the life courses of women, including family-induced employment breaks. Furthermore, we can differentiate between employment breaks which are regulated by law and combined with financial allowances and job protection and those, which are not. This allows us to compare the effects of previous use or non-use of statutory parental leave on start-up activities of women.

The remainder of this paper is organized as follows. Section 2 gives a short review of related literature and formulates the research questions. Our theoretical considerations and hypotheses are presented in section 3. In section 4 we describe the dataset and methodology. The results of our estimations are presented in section 5. Section 6 provides some final conclusions and notes for future research.

LITERATURE REVIEW AND RESEARCH QUESTIONS

In most countries around the world, women still have the major responsibility for family and household. Therefore, it is obvious that family issues, especially childcare, are an important factor for females when making employment decisions – both with regard to the number of working hours and the type of employment (paid employment versus self-employment). The recent theoretical models for women's entrepreneurship account for this topic as they highlight the household and family context as a central explanatory factor for gender differences in entrepreneurship (e.g. Brush et al. 2009). Although the empirical research in this field is generally still in its infancy, a number of studies have focused on the relationship between children and female self-employment. Studies, especially from the US, showed that having (young) children exerts a positive impact on women's entry into self-employment (e.g. Connelly 1992, Lombard 2001, Wellington 2006). Tonoyan et al. (2010) provided similar evidence for females entering self-employment, at least for low-skilled occupations, in the US and in a couple of European countries. Noseleit (2014a) stated a positive impact of children on women's propensity to enter self-employment in the EU, Norway and Switzerland as a

whole. These findings suggest that women may choose self-employment in order to reconcile childcare and paid work (the so-called “flexibility hypothesis”). Following this, one could conclude that family-friendly policies, among other things parental leave regulations, have a negative impact on female self-employment. But caution is advised because evidence for a positive relationship between children and female self-employment has also been found in Sweden and Norway (cf. Andersson Joona 2014 and Raknerud/Rønsen 2014). Both countries traditionally spend a high amount of public means on child care and parental leave systems.

However, empirical studies on the effects of family policies on female entrepreneurship are rather scarce. While several of these studies find evidence for a negative (direct or indirect) impact of public childcare on female participation in self-employment (Elam/Terjesen 2010, Estrin/Mickiewicz 2011, Thébaud 2011, Noseleit 2014b), the findings with regard to maternity or parental leave policies are rather mixed: Kovalainen et al. (2002) find a negative relationship between maternity leave and the start-up activities of women, whereas Thébaud (2011) and Verheul et al. (2005) do not provide any evidence for a link between parental leave benefits and female entrepreneurship. In contrast, Tonoyan et al. (2010) find by means of correlation analysis indications for a positive relationship between paid maternity leave and women's non-professional self-employment in 22 European countries. Although different in their methodology, all these studies use cross-country variation in (the amount and/or duration of) paid maternity leave in order to test for policy effects.

This paper contributes to the literature by analyzing effects of maternity/parental leave policies on the individual transition into self-employment in one county. This makes it unnecessary to account for specific national features, which may be important for cross-country differences in start-up activities. Besides that, we highlight the relevance of direct and indirect effects of human capital on the employment decision after child birth. For this reason, we differentiate between high-skilled and low-skilled self-employment. Furthermore, we do not fo-

cus on paid maternity/parental leave but on the availability of official parental leave schemes in general. In doing so, we take into account among other things the effects of employment protection during parental leave. In our opinion, this plays a central role in explaining the effects of official parental leave entitlements on the individual entrance into self-employment after child birth.

For the purpose of our study, we use information from comprehensive panel data on the adult population in Germany. The data cover a long period of time with different policy regimes and, therefore allows us to conduct a kind of natural experiment. In doing so, we account for the fact that mothers in Germany usually interrupt their employment after childbirth. However, not all mothers in our sample could use state support (i.e. financial assistance and employment protection) during maternity leave: Some mothers took official parental leave and some mothers did not, as they were not entitled to do so (for example, because of prior unemployment) or they interrupted their employment for a longer period of time than allowed by parental leave regulations. As a result, for our sample we can distinguish between episodes of state-regulated parental leaves which entitle young mothers to financial assistance and job protection, and those which are not regulated by law.

In detail, this paper aims to answer the following questions: (1) Does availability (i.e. utilization) of parental leave regulations affect women's entry into self-employment after child birth negatively or conversely, (2) Does a lack of parental leave regulations increase women's subsequent probability of starting a business? (3) Do the results differ depending on the level of occupational skills?

THEORETICAL FRAMEWORK AND HYPOTHESES

Our paper focuses on career choices of individuals, in particular on the decision to become self-employed. At the core of our theoretical considerations is the conceptual framework presented in Shane/Venkataraman (2000). In accordance with this framework, we understand

entrepreneurship as (the process of) discovery, evaluation and exploitation of entrepreneurial opportunities. One of the main factors that influence the ability to recognize an entrepreneurial opportunity is the possession of appropriate information which triggers an entrepreneurial conjecture (cf. Shane/Venkataraman 2000, p. 222). This is the first link to our theoretical model which applies the theory of human capital (Becker 1962, Mincer 1958): We assume that family-related employment-interruptions have a negative impact on the probability of entering into self-employment due to losses of professional skills as well as of professional networks (as a source of relevant information) during the economically inactive time period.[5] However, we also have to take into account that depreciation of human capital during an employment break deteriorates the chances of getting a job in dependent employment as well. Due to lower opportunity costs, transition into self-employment becomes, ceteris paribus, more attractive. This increases the probability to start a business after an employment interruption.

But not only human capital effects may play a role in the decision for self-employment. Following the signaling theory (Spence 1973), family-induced employment breaks can be seen as a signal of low employment orientation by potential employers. This again, reduces the chances to find paid employment and, thus, might enforce self-employment. In addition, inflexible working conditions (e.g. absence of flexible work time or part-time employment), may have similar effects on self-employment decisions. Several studies pointed out that women were often pushed into entrepreneurship because of their negative experiences in the tradi-

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5 Family-induced employment breaks may have positive effects on human capital, too. This applies for the general human capital like self-organization, time management or communication skills. In addition, women get intensive insights into family-related markets. This may increase entrepreneurial opportunities because women may discover gaps in these markets. However, previous research provides evidence that work experience in the start-up sector plays an important role in the start-ups activities of German people. Hence, we assume that industry/sector-specific human capital is crucial for entrepreneurial activities and we therefore neglect the positive effects of parental leave on human capital.

tional labor market caused by work-family conflict and discrimination (cf. Thébaud 2011, pp. 1-2).

As described above, from a theoretical point of view, we can expect both positive and negative effects of family-induced employment breaks on entry into self-employment. However, from the perspective of the theory of human capital, individuals without employment interruptions face basically the same decision situation as individuals with employment interruptions, but with reversed signs (they have *higher* opportunity costs of self-employment). Thus, we cannot determine with certainty the outcome of this decision, neither. Due to this fact we are not able to draw precise conclusions about which effects of family-induced interruptions prevail if applying the theory of human capital. But the existence of push factors described above motivates us to conclude that individuals who left paid employment due to family commitments are - all in all - more likely to start a business. In contrast, individuals who did not interrupt their paid employment are less likely to be faced with these particular push factors.

Further, we assume that the magnitude of the effects under consideration depends on the qualification level of individuals: First, women with lower qualifications experience smaller depreciation of human capital when they are out of the labor force than women with higher qualifications. Ceteris paribus, this decreases entrepreneurial opportunities of the former to a smaller degree. Secondly, women in low-skilled occupations are more likely to experience push factors described above because they have less control over the pace and timing of their work (Tonoyan et al. 2010, p. 138). Additionally, low-qualified women usually earn less. As a result, they have less access to private childcare and cannot afford to work part-time. This tightens the conflict between paid work and family.

Our previous considerations apply at least to a world without parental leave regulations. Parental leave regulations grant parents who interrupt their career for childcare, job protection and financial allowance for a certain period of time. Hence, in a world with parental leave

regulations the relative attractiveness of self-employment for young parents decreases significantly: With job protection it is more secure in terms of income to return to the previous job instead of starting a new business. So we conclude that, ceteris paribus, parental leave schemes have a negative impact on the transition into self-employment for all women. However, due to differences in human capital depreciation and in resources to reconcile paid work and family (indirect effects of human capital endowment) described above, we expect that negative effects of parental leave policies are stronger for high-skilled women.

Based on our theoretical considerations outlined above we derive the following three hypotheses:

> *Hypothesis 1:* Women who interrupt their employment due to family commitments without employment protection have a higher probability to enter into self-employment than (a) women who do not interrupt their employment for childcare or (b) women who have employment protection during parental leave.
>
> *Hypothesis 2:* Prior parental leave without employment protection increases the probability to enter into low-skilled self-employment stronger than the probability to enter into high-skilled self-employment.
>
> *Hypothesis 3:* Prior parental leave *with* employment protection decreases the probability to enter into self-employment, especially into high-skilled self-employment.

Furthermore, we assume that push effects of family-induced employment breaks (without employment protection) are becoming stronger with time: The longer a woman stays outside the labor force, the harder it is for her to find a job. This increases the probability to become self-employed for all women, particularly for low-skilled women. For high-skilled women these effects are supposed to be weaker due to faster depreciation of human capital and higher opportunity costs in terms of an alternative paid work. By contrast, we expect that the start-up probability of women who have an employment protection during parental leave is decreasing

with the length of the employment break. However, these effects are supposed to be stronger for high-skilled women. This leads us to three further hypotheses:

Hypothesis 4: The longer a parental leave without employment protection lasts, the higher is the start-up probability, especially in low-skilled occupations.

Hypothesis 5: The longer a parental leave *with* employment protection lasts, the lower is the start-up probability, especially in high-skilled occupations.

METHODOLOGY AND DESCRIPTIVE STATISTICS

Data and Variables

The analysis in this paper is based on individual panel data from the National Educational Panel Study (NEPS) in Germany. The NEPS aims to investigate educational pathways through the life course and their outcomes (Blossfeld et al. 2011). It collects all relevant data with regard to educational process and individual competences acquired across the entire life span from early childhood to late adulthood (ibid.). The NEPS sample is divided into several starting cohorts, which picture different zones in the educational process.[6] For this paper, we use the adult survey of the NEPS - a representative sample of the German adult population which counts a total of roughly 11,900 participants of birth cohorts 1944 to 1986.[7] The underlying NEPS data sets contain detailed information on the individual histories of education, employment (including self-employment) and family of the respondents. This information was collected retrospectively in the first interview. In the following waves, biographical data is being carried forward. The data is available in the spell format. Spells mark single periods

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6 Like early childhood, kindergarten, different school levels, higher education and, finally, adult education and lifelong learning. A total of 60,000 respondents participate in the study. Further information can be obtained from the NEPS website: https://www.neps-data.de/en-us/home.aspx.

7 The first wave was conducted in 2007/2008 within the forerunner study ALWA (Working and Learning in a Changing World) which only included birth cohorts 1956-1986. In 2009/2010, the sample was refreshed and extended to birth cohorts 1944-1955 (for a methodology overview see Skopek 2012). However, unexpectedly we find birth cohorts 1987-1989 in the NEPS dataset. We keep them in the dataset.

of life of a person like particular educational episodes, episodes of employment or unemployment. For every spell, monthly information is available about the start and the end of the particular episode of life. Currently, the NEPS adult survey provides the most comprehensive individual panel data in terms of individual employment histories in Germany with respect to self-employment.

Our calculations are based on data of wave 3 which was collected in 2010/2011. The starting point is the so-called generated biographical data set which we enrich with further relevant information like current training qualification and employment status or time-independent characteristics like year of birth or sex. We consider only observations if all required information for the following analysis is available. Our final data set includes 29,002 episodes of 5,943 women born between 1944 and 1989. With respect to the definition of start-ups, we make use of the spell character of our data set, whereas each spell of self-employment is characterized as a start-up. This is a reasonable definition because individuals are not expected to report a new episode of self-employment if they continue their current self-employment. 994 women in our data set were at least once in their life self-employed (including freelancers), thereof 222 women were more than once self-employed.

In order to test our hypotheses, we estimate multinomial probit regressions (Greene 2012, Chapter 18) which measure the impact of a range of variables on the probability to start a business. The dependent variables measure three alternative outcomes: high-skilled self-employment, low-skilled self-employment and no self-employment (i.e. paid employment, unemployment and state-regulated or not state-regulate parental leave). The differentiation between high-skilled self-employment and low-skilled self-employment is based on the EGP class scheme (Erikson/Goldthrope 1992) using a correspondent variable in the NEPS

data.[8] The main independent variables of interest are previous employment history episodes, in particular episodes of parental leaves. Here, we distinguish between parental leaves which were regulated by law and household and child care episodes without employment protection and financial support. In addition, we consider further employment history episodes like paid employment, self-employment or unemployment. Finally, we control for a range of other factors (at a given point in time), which can influence the start-up propensity: educational qualification, age, birth cohort, country of birth, existence of a partner, working hours of the partner and existence of children of different ages in the household.

Descriptive Statistics

In our sample, we identify a total number of 1,316 start-ups (i.e. self-employment spells), of which 644 in high-skilled occupations and 672 in low-skilled occupations. As mentioned in the previous section, most women were self-employed only once in their life (360 in high-skilled occupations, 412 in the low-skilled occupations). 222 women possess more than one self-employment episode in their biography, almost one third of them in both, highly qualified and low-qualified occupations. More than half of the total number of high-skilled self-employment tasks was undertaken by individuals with academic degrees (58.1%). By contrast, the share of low-skilled self-employment tasks, undertaken by academic graduates, is considerably lower (23.4%). However, we observe that females with craft master degrees are more often engaged in the low-skilled tasks (2.8% and 1.6%, respectively).

A shown in Table 1, the average start-up, independent of qualification level, is mostly realized by a female with prior work experience as employee: 76.6% of all start-ups are conducted

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8 The class scheme of Erikson, Goldthrope and Portocarero (EGP) allows to differentiate between professional and non-professional/low-skilled self-employment (cf. Tonoyan et al. 2010, p. 144). Following Tonoyan et al. (2010) we apply class I (high-grade professionals) and class II (lower-grade professionals) of the seven-class EGP scheme to measure the start-up activities in high-skilled occupations compared to the start-up activities in low-skilled occupations (other classes).

after at least one paid employment spell or after about 7 years being in paid employment. One in five start-ups is undertaken after household/childcare episodes (without state support) and almost one in three after state-regulated parental leave. Start-ups in low-skilled occupations are on average preceded by longer household/child care episodes than start-ups in high-skilled occupations. Females starting up in high or low skilled occupations do not differ significantly in their unemployment history. The former, however, were more often and over a longer period of time, self-employed in the past than the latter.

Table 1: Descriptive statistics (means) on the employment history prior to self-employment for different qualification levels

Variables	Self-employment spells		
	All	High-skilled	Low-skilled
Prior unemployment (dummy variable)	0.4742 (0.4995)	0.4814 (0.5000)	0.4673 (0.4993)
Prior paid employment (dummy variable)	0.7660 (0.4236)	0.7795 (0.4149)	0.7530 (0.4316)
Prior self-employment (dummy variable)	0.2918* (0.4548)	0.3323 (0.47140)	0.2530 (0.4350)
Prior household/child care work (dummy variable)	0.2082 (0.4062)	0.1832 (0.3872)	0.2321 (0.4225)
Prior state-regulated maternity leave (dummy variable)	0.3100* (0.4062)	0.3012 (0.4592)	0.3185 (0.4662)
Duration of prior unemployment (years)	0.9608 (2.3065)	0.9420 (2.2376)	0.9788 (2.3723)
Duration of prior paid employment (years)	7.1013 (8.1491)	6.9370 (8.0508)	7.2588 (8.2452)
Duration of prior self-employment (years)	1.3616* (3.4624)	1.5620 (3.7335)	1.1696 (3.1720)
Duration of prior household/child care work (years)	1.3186* (4.0172)	1.0010 (3.2904)	1.6230 (4.5893)
Duration of prior state-regulated maternity leave (years)	0.9317 (2.1813)	0.8800 (2.1940)	0.9812 (2.1695)
Number of observations	1,316	644	672

Standard deviation (in parentheses)

* T-test suggests significant differences between highly and low skilled entrepreneurs at the 5% level.

RESULTS

The results of our estimations are presented in Table 2. Specification I of our model measures the influence of the previous employment history in terms of dummy variables whereas specification II considers the duration of prior employment history episodes. Both specifications are identical with respect to the set of control variables.

As shown in the left part of Table 2 (Specification I), women who interrupt their employment for household and child care without employment guarantee and financial allowance have higher start-up probability than other women. Hence, the estimates suggest that employment breaks of this particular type increase the likelihood of self-employment. As expected, we find positive effects for both, high-skilled and low-skilled self-employment. These findings are in line with hypothesis 1.

Furthermore, coefficients for low-skilled self-employment are higher than coefficients for high-skilled self-employment. This supports our hypothesis 2, which postulates stronger effects of parental leave without employment protection on entering into low-skilled self-employment. Further, we find evidence for a negative relationship between state-regulated parental leave and women's transition into self-employment. As expected in hypothesis 3, the identified negative effects of policy regulations are stronger for entering into high-skilled self-employment than for entering into low-skilled self-employment.

As shown in Specification II, the length of parental leaves without employment protection has a positive effect only for low-skilled occupations, whereas effects for high-skilled occupations are negative (although not significant). Hence, we find evidence for hypothesis 4 only for low-qualified self-employment. Against our expectation, parental leaves with employment protection show similar signs as household/childcare episodes without employment protection. Hence, the probability to start up in a high-skilled occupation is in general lower, the longer parental leave lasts.

Table 2: Multinomial probit estimations for the probability to switch into self-employment

	Specification I		Specification II	
Variables	High-skilled	Low-skilled	High-skilled	Low-skilled
Prior unemployment (1 if yes; 0 else)	0.00373	0.0271		
	(0.0594)	(0.0548)		
Prior paid employment (as employee) (1 if yes; 0 else)	-0.319***	-0.261***		
	(0.0857)	(0.0784)		
Prior self-employment (1 if yes; 0 else)	0.745***	0.732***		
	(0.0728)	(0.0757)		
Prior household/child care work (1 if yes; 0 else)	0.179**	0.314***		
	(0.0755)	(0.0695)		
Prior state-regulated maternity leave (1 if yes; 0 else)	-0.145*	-0.0580		
	(0.0755)	(0.0725)		
Duration of prior unemployment (in years)			-0.0210	0.00804
			(0.0130)	(0.0113)
Duration of prior paid employment (as employee) (in years)			-0.0375***	-0.00689
			(0.00733)	(0.00738)
Duration of prior self-employment (in years)			0.0540***	0.0705***
			(0.0106)	(0.0115)
Duration of prior household/child care work (in years)			-0.0128	0.0266***
			(0.00952)	(0.00865)
Duration of prior state-regulated maternity leave (in years)			-0.0237	0.00531
			(0.0150)	(0.0125)
Apprenticeship (1 if yes; 0 else)	-0.281***	-0.214***	-0.301***	-0.249***
	(0.0698)	(0.0607)	(0.0747)	(0.0620)
Vocational and technical training (1 if yes; 0 else)	0.0123	-0.135*	-0.00439	-0.128*
	(0.0736)	(0.0738)	(0.0775)	(0.0753)
Craft master (1 if yes; 0 else)	0.396*	0.558***	0.385	0.533***
	(0.233)	(0.152)	(0.243)	(0.157)
Academic degree (1 if yes; 0 else)	0.759***	-0.00516	0.701***	0.0387
	(0.0735)	(0.0742)	(0.0817)	(0.0815)
Age at the beginning of the spell (in years)	0.108***	0.0363*	0.116***	0.0331
	(0.0243)	(0.0210)	(0.0226)	(0.0201)
Age at the beginning of the spell squared (in years)	-0.00108***	-0.000238	-0.000824***	-0.000178
	(0.000323)	(0.000282)	(0.000300)	(0.000269)
Born in Germany (1 if yes; 0 else)	0.0834	0.0811	0.0559	0.0668
	(0.0922)	(0.0809)	(0.0954)	(0.0846)
Born between 1944-1953 (1 if yes; 0 else)	-0.548***	-0.628***	-0.619***	-0.716***
	(0.151)	(0.137)	(0.152)	(0.143)
Born between 1954-1963 (1 if yes; 0 else)	-0.455***	-0.493***	-0.523***	-0.562***
	(0.141)	(0.133)	(0.144)	(0.140)
Born between 1964-1973 (1 if yes; 0 else)	-0.396***	-0.459***	-0.472***	-0.519***
	(0.146)	(0.131)	(0.149)	(0.139)
Born between 1974-1983 (1 if yes; 0 else)	-0.459***	-0.248*	-0.511***	-0.293**
	(0.153)	(0.136)	(0.156)	(0.146)
Born between 1984-1989 (1 if yes; 0 else)	reference category			
Living together with child younger than 6 years old (1 if yes; 0 else)	0.0579	0.0632	-0.00336	0.0435
	(0.0942)	(0.0889)	(0.0888)	(0.0816)
Living together with child aged between 6 and 16 (1 if yes; 0 else)	-0.0409	0.00428	-0.0492	-0.00166
	(0.0974)	(0.0915)	(0.0945)	(0.0856)
Living together with child aged 16 or older (1 if yes; 0 else)	-0.152*	-0.255***	-0.212***	-0.288***
	(0.0834)	(0.0858)	(0.0810)	(0.0802)
Living together with partner (1 if yes; 0 else)	-0.177**	-0.0630	-0.168**	-0.0734
	(0.0696)	(0.0678)	(0.0694)	(0.0684)
Partner is fulltime-employed (1 if yes; 0 else)	0.0795	-0.0612	0.0608	-0.0769
	(0.0755)	(0.0766)	(0.0762)	(0.0769)
Constant	-4.542***	-2.992***	-4.796***	-2.934***
	(0.388)	(0.344)	(0.380)	(0.354)
Log pseudolikelihood	-5,723.917		-5,788.124	
Observations	29,002			

Base outcome: Not self-employed
Robust standard errors clustered for 5,943 clusters/individuals (in parentheses)
*** p<0.01, ** p<0.05, * p<0.1

DISCUSSION AND CONCLUSIONS

Our findings show that availability of official maternity or parental leave which provide employment protection and financial support decreases the start-up propensity of women after child birth. By contrast, women who cannot use state support during family-induced employment interruption have a significantly higher probability to start-up. These two results apply both to high-qualified as well as to low-qualified self-employment. However, negative effects of legal regulations are weaker and not statistically significant for start-ups in low-skilled occupations. This indicates that maternity and parental leave regulations reduce factors which force mothers, especially those with low-qualifications, into self-employment but they are not able to overcompensate them. Low-qualified women are more strongly pushed into self-employment because of fewer resources to reconcile family and paid work as employee. It is an interesting result if taking into account that low-qualified women benefit on average relatively more from paid maternity or parental leave in the time period under consideration.

The lack of public child care provision in West Germany may provide one important explanation for our findings. For example, only since 1996 parents have legal claims for a kindergarten place for children aged 3 years or older. On the other hand, the supply of low priced private childcare is scarce. Hence, child bearing at home may be often worthwhile, especially for low-income families. At least, tax and health insurance policies in Germany stimulate this behavior: In opposition to the development of the family policy towards the dual-earner model, these policies are still oriented towards a traditional male-breadwinner model.[9] In addition, cultural factors may play a role because working young mothers are still seen as bad mothers.

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9 We have in mind, first, the joint taxation of spouses (Ehegattensplitting) which is especially beneficial in the cases with large income disparities between spouses. Secondly, economic inactiveness of women is promoted by the health insurance system because non-working spouses are coved by statutory health insurance for free (Familienversicherung). Further, widow's pension which provides income support after a spouse's death may stimulate non-working behavior of women.

This holds at least for West Germany which, however, represents the majority of German population. Anyway, this societal attitude can be expected to be stronger for women with low qualification degrees. Mothers, who invested more in their qualification and career have higher opportunity costs of not being in the labor force.

Due to the reasons mentioned above, women - among them in particular those with lower qualifications - may often stay at home for a longer period of time after child birth. In this situation, self-employment can be a worthwhile opportunity to increase family income by working from home. On the other hand, longer periods of non-employment can hinder getting a job as employee, so that women are pushed into self-employment. Based on our calculations, we cannot differentiate between these two motivations. But we find a general support for these explanations because our estimations reveal positive effects of the length of family-induced employment breaks on female's propensity to start a business in low-skilled occupations.

Because of methodological differences, our results are not directly comparable with previous research. However, our findings illustrate the complexity of the relationship between family policies and female self-employment. It can only be analyzed and understood against the background of many different economical, institutional and cultural factors. This makes international comparisons difficult and may probably explain mixed results of previous studies.

Our estimations show negative effects of maternity and parental leave on female transition into self-employment for a comprehensive period of time. The latter covers all family policy regulations since the 1950s in the Federal Republic of Germany. However, we did not consider different policy regimes. Future research can deepen our findings by analyzing effects of different regulations on female entrepreneurship. Special attention should be paid to new parental leave regulations being implemented in 2007 (i.e. Elterngeld), which for the first time provides financial assistance for self-employed persons.

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Appendix

Table A1: Maternity/parental leave regulations in Germany

Time period	Name of regulation	Length of employment protection in months	Duration of financial benefits in months	Amount of financial benefits	Eligibility
Federal Republic of Germany (FRG; West Germany)					
since 1952	Pregnancy Leave (Mutterschutz)	1.4; since 1965: 1.8	Same	Average wage in the last 3 months of employment	Mothers in paid employment
07/1979-12/1985	Maternity Leave (Mutterschaftsurlaub)	4 (following pregnancy leave)	Same	Proportionate to previous wage, but maximum: 750 DM, since 1984: 510 DM	Mothers in paid employment
01/1986-12/1991	Parental Leave (Erziehungsurlaub) short	10-18 (stepwise prolongation)	Same	600 DM for the first 6 months, further assistance is means-tested, but maximum: 600 DM	Mothers and fathers independent of their employment status
01/1992-12/2000	Parental Leave (Erziehungsurlaub) long	36	24 (36 in five federal states)[1)]	600 DM for the first 6 months, further assistance is means-tested, but maximum: 600 DM	Mothers and fathers independent of their employment status
01/2001-12/2006	Parental Leave (Elternzeit)	36	12 or 24 (alternatively)	460 € or 300 € (for 12 or 24 months respectively), means-tested	Mothers and fathers independent of their employment status (simultaneous participation possible)
since 01/2007	Parental Leave (Elterngeld)	36	12 or 14 (if both parents participate)	normally approx. 2/3 of previous net wage, but maximum: 1.800 €; for low income earners up to 100%; for unemployed: 300 €	Mothers and fathers independent of their employment status
German Democratic Republic (GDR, East Germany; reunification with FRG in October 1990)					
1976	Pregnancy Leave	6	Same	Net wage	Mothers in paid employment
1976	Maternity Leave (Babyjahr)	12	Same	Transfer in the amount of sick pay	Mothers in paid employment or other relatives who look after the child
1984	Maternity Leave (Babyjahr)	18	Same	Transfer in the amount of sick pay	Mothers in paid employment or other relatives who look after the child
01/1986-12/1990	Maternity Leave (Babyjahr)	12	Same	Transfer in the amount of sick pay	Mothers in paid employment or other relatives who look after the child

[1)] Baden-Württemberg, Bavaria, Mecklenburg-Western Pomerania, North Rhine-Westphalia and Thuringia

Table A2: Descriptive statistics for the sample of multinomial probit estimates

Variables	Mean	Sd	Min	Max
No self-employment	0.955	0.208	0	1
High-skilled self-employment	0.022	0.147	0	1
Low-skilled self-employed	0.023	0.150	0	1
Prior unemployment (1 if yes; 0 else)	0.405	0.491	0	1
Prior paid employment (as employee) (1 if yes; 0 else)	0.405	0.491	0	1
Prior self-employment (1 if yes; 0 else)	0.316	0.465	0	1
Prior household/child care work (1 if yes; 0 else)	0.786	0.410	0	1
Prior state-regulated maternity leave (1 if yes; 0 else)	0.150	0.357	0	1
Duration of prior unemployment (in years)	0.756	2.066	0	32
Duration of prior paid employment (as employee) (in years)	7.001	7.942	0	58
Duration of prior self-employment (in years)	0.380	1.809	0	41
Duration of prior household/child care work (in years)	0.854	3.090	0	38
Duration of prior state-regulated maternity leave (in years)	0.839	1.922	0	34
Apprenticeship (1 if yes; 0 else)	0.580	0.494	0	1
Vocational and technical training (1 if yes; 0 else)	0.177	0.381	0	1
Craft master (1 if yes; 0 else)	0.013	0.112	0	1
Academic degree (1 if yes; 0 else)	0.199	0.399	0	1
Age at the beginning of the spell	30.044	9.650	18	66
Age at the beginning of the spell squared	995.743	675.404	324	4356
Born in Germany (1 if yes; 0 else)	0.901	0.299	0	1
Born between 1944-1953 (1 if yes; 0 else)	0.216	0.411	0	1
Born between 1954-1963 (1 if yes; 0 else)	0.365	0.481	0	1
Born between 1964-1973 (1 if yes; 0 else)	0.284	0.451	0	1
Born between 1974-1983 (1 if yes; 0 else)	0.111	0.314	0	1
Born between 1984-1989 (1 if yes; 0 else)	0.025	0.155	0	1
Living together with child younger than six years old (1 if yes; 0 else)	0.139	0.346	0	1
Living together with child aged between 6 and 16 (1 if yes; 0 else)	0.125	0.330	0	1
Living together with child aged 16 or older (1 if yes; 0 else)	0.188	0.391	0	1
Living together with partner (1 if yes; 0 else)	0.489	0.500	0	1
Partner is fulltime-employed (1 if yes; 0 else)	0.204	0.403	0	1
Number of observations		29,002		