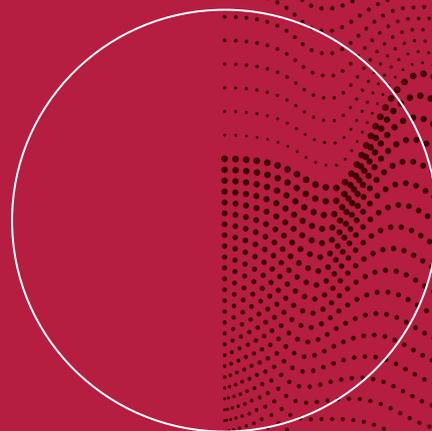


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LABOR SUPPLY EFFECTS OF A UNIVERSAL CASH TRANSFER

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Jan Gromadzki[†]

Abstract

Unconditional cash transfers in the form of a universal basic income, a universal basic pension or a universal child benefit are increasingly being discussed in many countries. In this article, I investigate the labor supply effects of the introduction of a large unconditional cash benefit. I exploit the unique design of the child benefit program in Poland to identify the pure income effect of the monthly transfer. I find very small labor supply effects on both the intensive and extensive margin. Additional evidence shows that instead of extending their free time, households receiving the benefit substantially increased their consumption and savings.

Keywords: unconditional cash transfer, universal basic income, income elasticity, labor supply, child benefit, difference-in-differences

JEL Classification: I38, J21, J22

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1 Introduction

Unconditional cash transfers, such as universal basic income (UBI) programs, are increasingly being discussed in many countries (Banerjee, Niehaus, and Suri, 2019; Hoynes and Rothstein, 2019). UBI pilot projects are planned or have already been launched in selected regions in Brazil, Canada, Finland, and the Netherlands. Do unconditional transfers discourage work? Because such policies are still rare, especially in developed countries, and studying their effects presents methodological challenges (e.g., if everyone receives the transfer, there is no plausible control group), this question remains largely unanswered.

In this paper, I seek to answer the question of how unconditional cash benefits affect individual labor supply by analyzing the labor supply effects of introducing a large child benefit with an unconditional component in Poland. The child benefit in Poland was designed as an unconditional transfer to parents for their second and each subsequent child (unconditional transfer), and a means-tested transfer to parents for their first child (depending on income level). Thus, I compare the labor supply responses of two very similar groups using a difference-in-differences setup: namely, mothers of one child and mothers of two children. When comparing these two groups in the pre-treatment and the post-treatment period, the only difference between them was that mothers of two children received an additional unconditional cash transfer. Therefore, any differences in the labor supply responses of these two groups of mothers can be attributed to the income effect of this transfer. In addition, as the child benefit was exempt from income tax, the additional income provided by the child benefit was the same for low- and high-income parents. Finally, the tax system in Poland remained unchanged despite the new large transfer. Therefore, the unique design of the program allows me to identify the pure income effect of the child benefit.

The contribution of my paper is twofold. First, I estimate the income effect of a cash transfer by comparing the labor supply responses of two similar groups who differed only in the unconditional child benefit amounts they received. In addition, my findings, which show that the large unconditional child benefit did not affect the labor supply of parents, contribute to the literature on the labor market effects of family policies.

Previous estimates of the income elasticity of labor supply have been inconclusive (see e.g., Blundell, Duncan, and Meghir, 1998; Chetty et al., 2011; Devereux, 2004; Saez, 2002). A few recent quasi-experimental studies have analyzed the effects of unconditional cash transfers on labor supply. These studies can be broken down into three main types: evaluations of state-wide universal cash transfer programs (Jones and Marinescu, 2018; Salehi-Isfahani and Mostafavi-Dehzoeei, 2018), examinations of lotteries (Cesarini et al., 2017), and evaluations of small-sized experiments (Akee et al., 2010; Banerjee et al., 2017; Price and Song, 2018). However, the identification of the effects of such transfers poses several challenges. First, evaluations of state-wide universal cash transfer programs lack a plausible control group because all residents are entitled to the transfers. Second, while studies of lotteries and small-sized experiments can precisely estimate the income effects of the transfers, whether a state-wide program would trigger the same responses remains unclear (Hoynes and Rothstein, 2019). In addition, in cases in which the cash transfers are subject to progressive income tax or have an impact on eligibility for other social programs the estimated effects cannot be interpreted as pure income effects. These issues relate have arisen in both experiments and studies of state-wide programs. Progressive income tax implies that the additional income from transfers varies depending on the total level of household income. If, in turn, the additional income reduces social assistance households receive from other programs, the estimated effects would include both the income effect and the effect of losing eligibility for alternative social programs.

Milligan and Stabile (2009) investigated the effects of the introduction of a child benefit in Manitoba (Canada). They found that the labor supply responses were only significant for parents with low levels of education. However, as the reform also affected the entitlements to other social benefits, the estimated effects cannot be interpreted as purely income effects. Schirle (2015) analyzed the effects of the introduction of a universal child benefit in Canada, and concluded that it led to a significant reduction in maternal labor supply. Again, however, these effects cannot be interpreted as pure income effects, as the child benefit was subject to progressive income tax. Finally, Magda, Brandt, and Kielczewska (2020) provided the most comprehensive evaluation to date of the Polish child benefit program's effects on maternal labor supply. They found that, overall, the introduction of the child benefit had a significant negative impact on maternal labor supply. However, they were unable to disentangle the substitution and income effects of the child benefit program, as they analyzed joint effects of the conditional and unconditional component of the

transfer.

In my study, I exploit the unique design of the child benefit program in Poland to address the challenges outlined above. The program was implemented across the country, and the monthly child benefit amount per child was relatively large (34% of the average per capita disposable income). This benefit was a pure demogrant, as it was provided to all parents for their second and every subsequent child, regardless of their income or employment status. The discontinuity in the number of children in each household created a plausible control group: namely, parents with one child. The child benefit was exempt from income tax, and had no impact on the households' entitlement to other social benefits (it was excluded from the income measure used to verify a households' the eligibility for social benefits). Finally, the availability of rich survey datasets allows me to test the identifying assumptions, and to estimate the labor supply responses on the extensive and the intensive margin.

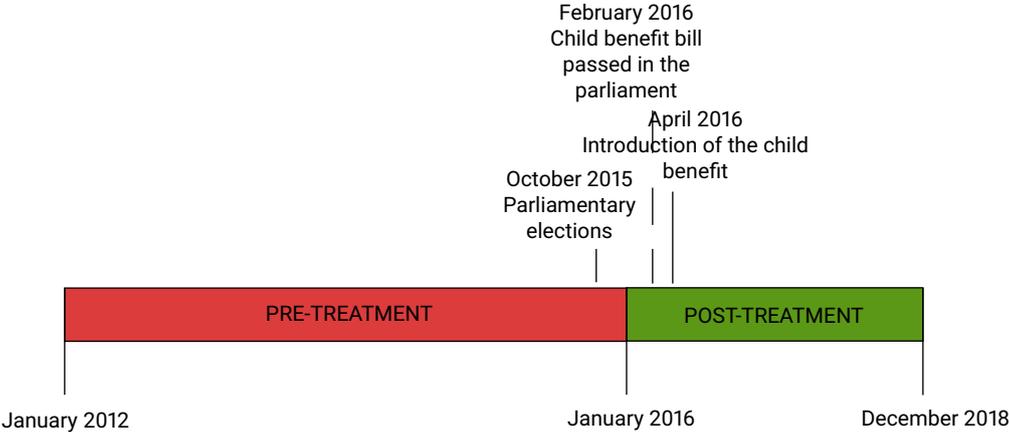
My findings show that the estimated labor supply effects of receiving the unconditional transfer were very small and statistically insignificant on both the intensive and extensive margin. The results remain robust to a battery of robustness tests, and are similar for fathers. Hence, I find that the total household earnings were not substantially affected by the introduction of child benefit. The additional household-level evidence confirms these findings: the introduction of child benefit had no significant impact on the household earnings. Instead, household substantially increased their spending and savings. The unconditional transfer led to a significant increase in household income and a reduction in poverty of families with children.

The remainder of this paper proceeds as follows. Section 2 summarizes the existing literature about the effects of unconditional cash transfers and family policies; section 3 describes the institutional background of the child benefit program in Poland; section 4 describes the data used in this study; section 5 introduces the empirical strategy used in this study; section 6 presents the results of the analysis; and section 7 concludes.

2 Institutional background

2.1 Timeline

Figure 1. Simplified timeline of the introduction of the child benefit program in Poland



The universal child benefit was introduced in Poland following the election of new government in October 2015. In early 2014, the largest opposition party in Poland, *Law and Justice*, announced plans to introduce a monthly child benefit if elected. In Poland’s parliamentary elections in October 2015, *Law and Justice* unexpectedly won the majority of seats¹. In February 2016, the parliament passed the law introducing the child benefit program. Starting in April 2016, parents could apply for the child benefit, and received the first transfers for the month in which they applied for it. Figure 1 presents a simplified timeline of the program.

Initially, the child benefit program was advertised as a means to increase fertility. After the introduction of child benefit, the government’s rhetoric changed, emphasizing the role of child benefit in improving the well-being of families, and in reducing poverty (‘the program aims to restore dignity to families’²).

In the baseline empirical analysis, I treat the years 2012-2015 as the pre-treatment period, and the years 2016-2018 as the post-treatment period. Although the first transfers to parents were

¹The results of the parliamentary elections were unexpected. The 2015 elections marked the first time in the history of modern Poland that a single party won the majority of seats in the parliament. This occurred because two minor parties received levels of support that were just below the national electoral threshold (of less than 0.45 pp) and thus did not enter the parliament.

²<https://www.gov.pl/web/rodzina/minister-elzbieta-rafalska-w-radiu-zachod-11032019-r>

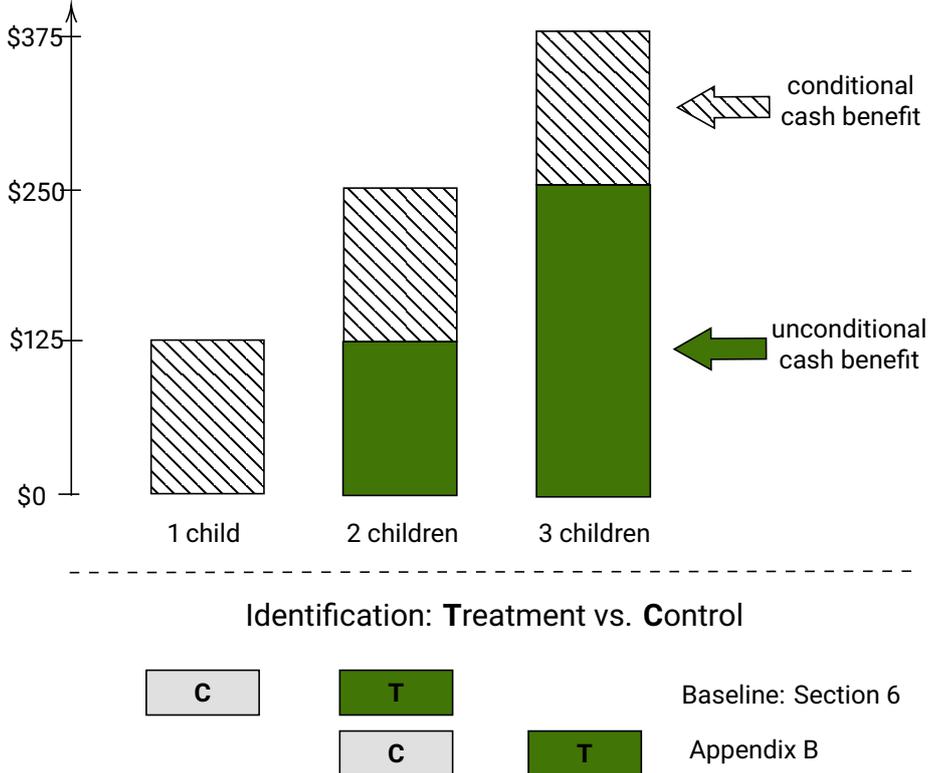
received in April 2016, the introduction of the program was announced by the government at the beginning of 2016. Therefore, households may have adjusted their labor supply a few months before receiving the cash transfers. Alternatively, I define the beginning of the post-treatment period as April 2016 and September 2016³, and show that the results of the analysis remain the same.

2.2 Design of the child benefit program

The design of the child benefit program is illustrated in Figure 2. After the introduction of the program, all households were entitled to a monthly cash transfer of approximately \$125 (500 PLN) per child for the second child, and for each subsequent child, from birth to the age of 18. Hence, over a period of 18 years, the total payments a family could expect to receive for a child amounted to nearly \$30 000. Additionally, there was a means-tested component of the child benefit whereby households were entitled to a child benefit of the same amount for their first child as well if their per person household income did not exceed \$215. The amount of the benefit per child was relatively large, as it was equal to 34% of the per capita disposable income in Poland. The program has doubled government spending on family support (Magda, Brandt, and Kielczewska, 2020). Receiving the child benefits did not affect the eligibility of households for the existing social assistance programs, and the additional income was not subject to income tax. Moreover, the Polish tax system remained unchanged. Hence, the child benefit amounts parents received for their second and each subsequent child were the same, regardless of their income levels. The process of the distribution of the child benefit was handled by local authorities (municipalities), who received earmarked grants for the child benefit program directly from the federal budget. Over 2.5 million households in Poland received the child benefits. The design of the program remained unchanged until July 2019, when it was extended to all children under the age of 18.

³The child benefit program was introduced in April 2016, but the program did not achieve full coverage until September 2016. This was probably due to administrative delays and errors in applications.

Figure 2. Child benefit design



Notes: Figure summarizes the design of the child benefit program in Poland. Parents receive a monthly cash benefit of \$125 for their second and each subsequent child (unconditional cash benefit). Additionally, they may receive a monthly cash benefit of \$125 for their first child if their income per household member does not exceed \$215 (conditional cash benefit). In the baseline specification, I compare the labor supply of mothers of two children (treatment group: receive the unconditional cash benefit) and mothers of one child (control group). Additionally, I estimate results for an alternative treatment definition: mothers of three children vs. mothers of two children (variation in the amount of unconditional benefit received).

3 Data and identification strategy

I use data from two large surveys conducted by Statistics Poland: the Labor Force Survey and the Household Budget Survey. I use the Labor Force Survey as a primary dataset because it is the largest survey available, and it contains detailed information about the labor market situations of households. However, the Labor Force Survey provides very limited information on the income and earnings of households. Moreover, it does not allow for the direct identification of households who were receiving the child benefit in the first year after the introduction of the family benefit. Therefore, I have supplemented the results of my analysis of the Labor Force Survey data with an analysis of data from the Household Budget Survey, which include detailed information on household income broken down by the source (including from the child benefit). The Labor Force Survey and the Household Budget Survey have separate samples (I cannot match individuals from two

surveys). Hence, I perform regressions separately using the Labor Force Survey and the Household Budget Survey sample. I harmonize the use of control variables and sample restrictions in two surveys, and I report the survey used in regressions in the notes of tables and figures. The additional advantage of using two datasets is that it enables me to validate the baseline results from the Labor Force Survey analysis with the results from the Household Budget Survey analysis.

The Labor Force Survey provides detailed information on the labor market situations of households, and on their composition (types of relationships between household members, numbers of children, presence of grandparents in the household). The survey also includes information on the individual characteristics of household members, such as age, gender, and education. Finally, it provides information on the household members' labor market status (employment, unemployment, inactivity), number of hours worked, type of employment contract, sector, and occupation.

The Household Budget Survey tracks the income and expenses of each household over one month. The respondents are asked questions about the income they received in a given month, and are instructed to record all expenditures. Both the income and the expenditures are further divided into detailed categories. In 2016, a separate category for the child benefit was added to the income form. Hence, I can directly observe whether a household was receiving the child benefit. Moreover, the survey data contain information on household and individual characteristics, such as age, gender, and labor market status. However, the data do not provide information on the number of hours worked. In the original dataset, all variables related to income and expenditures are expressed in national currency (PLN). I have converted those values into US dollars using the annual average exchange rate for 2016, and adjusting the observations from other years for inflation.

I analyze data from the 2012-2018 period due to the limited availability of data from the Household Budget Survey. In the baseline specification, I use repeated cross-section data to analyze the employment probabilities of mothers aged between 29 and 49 at the time of the introduction of the child benefit (born between 1967 and 1987). I focus on women in light of evidence that female labor supply is more elastic than male labor supply. I exclude single mothers and mothers of children with disabilities, based on the assumption that mothers in these two groups have a much more limited ability to adjust their labor supply than partnered mothers of children without disabili-

ities. Single mothers are the sole source of income for their families, and mothers of children with disabilities often have to provide child care themselves due to the lack of sufficient institutional childcare for children with disabilities in Poland. I also exclude mothers from households that own a farm because measuring labor supply in the small-size agriculture sector using survey data is difficult. In the appendix, I relax these restrictions and present the results based on alternative sample selections.

I use the difference-in-differences approach, and estimate the following equation:

$$L_{it} = \alpha_0 + \gamma T_i + \phi Y_t^{post} + \theta T_i * Y_t^{post} + \beta X_{it} + \epsilon_{it} \quad (1)$$

where L_{it} measures individual labor supply. In the baseline specification, I analyze the labor supply responses on the extensive margin using a linear probability model. In this case, L_{it} equals one if a person is employed and zero otherwise. I define employment as working at least one hour in the previous week (LFS data) or having non-zero earnings (monthly wage earnings, income from self-employment, and income support due to paid leave, HBS data)⁴. Additionally, I analyze the responses on the intensive margin. L_{it} then measures hours worked (LFS) or individual earnings (HBS). T_i is the treatment variable: it equals one for the parents of two children and zero for the parents of one child. Y^{post} is a dummy variable, which equals one for the post-treatment period and zero for the pre-treatment period. Additionally, I control for a set of individual characteristics, including age, education, disability, and the type of the area of residence (X_{it}).

There were two ways in which households could self-select into treatment. First, they could reduce their earnings to become eligible for the conditional child benefit for the first child. However, this applies to parents both in the treatment and in the control group. Hence, the selection to the conditional cash transfer should not affect the difference-in-differences estimates. Second, parents could select into treatment by increasing their fertility. Ideally, the treatment variable should be constructed based on the number of children in the household before the introduction of the child benefit (in 2015). As I am using repeated cross-section data, I have limited information about the

⁴While this is a standard definition of employment in the empirical literature, it differs from the definition of employment used by Eurostat. Eurostat classifies workers who did not work in the previous week but were on leave (including parental leave) as employed. See Appendix F for a detailed discussion of the various definitions of employment.

number of children in 2015. For example, the 2012 data only provide information about the children born up to 2012. Thus, I construct the treatment variable based on the number of children aged 3-17 in the household. For example, in the 2015 data, the treatment group consists of mothers with two children born between 1998 and 2012, and the control group consists of mothers with one child born between 1998 and 2012. Since the last year of analysis is 2018, the treatment variable is not affected by potentially endogenous births after the introduction of the child benefit (in the 2018 data, the treatment group consists of mothers with two children born between 2001 and 2015, and the control group consists of mothers with one child born between 2001 and 2015). Since the datasets include short panel dimension, I assign the treatment variable based on the maximum value of the number of children aged 3-17 in the household, and I cluster standard errors at the level of the household.

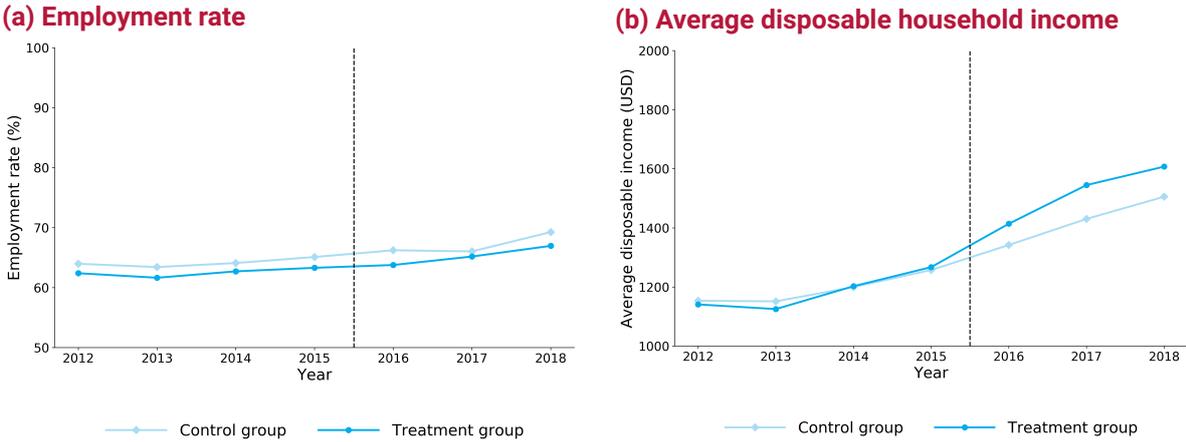


Figure 3. Employment rate and average household income: mothers of two children vs. mothers of one child

Notes: Figure 3a shows the employment rate for mothers of two children aged 3-17 (treatment group) and mothers of one child aged 3-17 (control group). Figure 3b shows the average disposable income for households with two children aged 3-17 (treatment group) and households with one child aged 3-17 (control group). I define the employment rate as the fraction of individuals who are employed. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities.

Data: Labor Force Survey and Household Budget Survey

Figure 3a shows trends in the employment rate in the treatment group (mothers of two children aged 3-17) and the control group (mothers of one child aged 3-17). We can see that employment rates were very similar in the two groups both before and after the introduction of the child benefit. The absence of changes in employment rate trends was in a stark contrast to the evolution of the

household income (see Figure 3b). Before the introduction of the child benefit, the average total household income was virtually the same for households with one child and two children. In the post-treatment period, the increase in the household income was clearly higher in the treated group than in the control group, with the difference being very close to the child benefit amount. Table A.6 in the appendix shows the summary statistics for all variables included in the regressions.

4 Results

Maternal labor supply

The labor supply responses to the universal child benefit were very small and insignificant (see Table 1). Without controls, the estimated effect amounted to -0.2 percentage points. After controlling for additional variables, the effects amount to 0.3 percentage points, and remain statistically insignificant. In further checks, I treat the specification shown in Column 5 as the baseline. In this specification, I control for individual characteristics (age, education, disability, and the type of residence area), year and region fixed effects; and the monthly regional unemployment rate, which approximates regional labor demand. In Column 6, I additionally show the results after including the interaction of the region and year fixed effects. The estimated results are also small and statistically insignificant. In all specifications, the estimated effects remain precise. These findings suggest that the introduction of a sizable unconditional cash transfer had very small (if any) effects on the labor supply of mothers in Poland. The income elasticity of labor supply on the extensive margin was negligible.

I formally verify the parallel trend assumption by estimating the equation, in which I include interactions of all year dummies with the treatment variable. The coefficients on interactions for the pre-treatment period are statistically insignificant which suggests that the parallel trend assumption holds (see Figure 4). Figure shows that the confidence intervals for both pre-treatment and post-treatment coefficients are very narrow⁵. These results suggest that the lack of significance of the treatment effect is driven by its low magnitude.

⁵Table B.12 shows that baseline standard errors are conservative among alternatives: alternative standard error estimators would lead to even narrower confidence intervals.

Table 1. Effects on maternal employment

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.002	0.004	0.003	0.003	0.003	0.003
× Post-treatment period	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.09	0.09	0.09	0.09	0.09
Mean of outcome	0.63	0.63	0.63	0.63	0.63	0.63
N	134399	134399	134399	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from estimating a linear probability model. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period. The probit results are virtually identical see Table B.1).

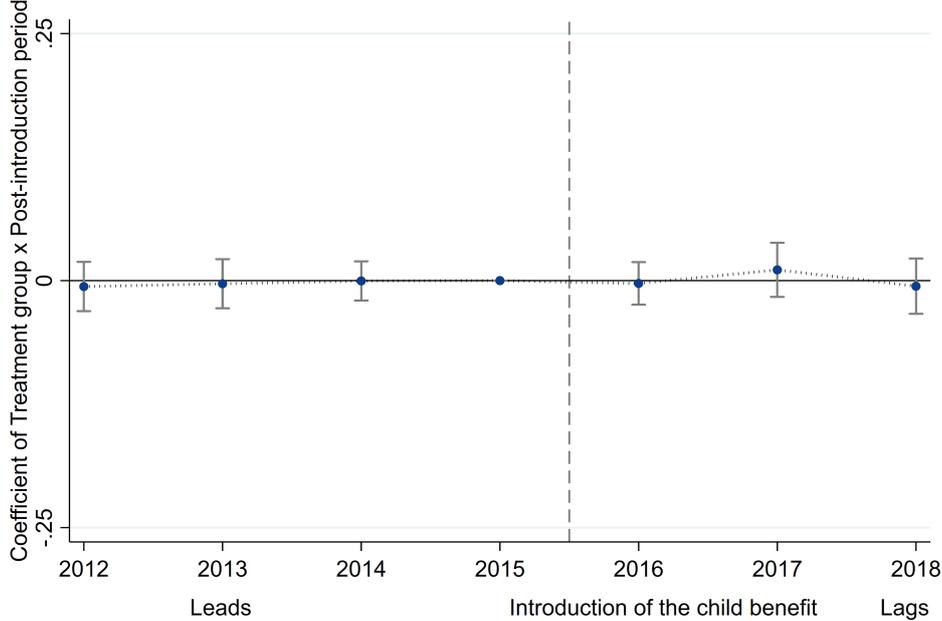
* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Although the increase in household income due to the child benefit is the main difference between the treatment and control group (see Figure A.1a), Table D.1 suggests one additional channel of the effect. After the introduction of the child benefit, the mothers in the control group increased their fertility more than the mothers in the treatment group. After excluding mothers of children aged 0-1, the effects are slightly larger in magnitude (but are still not statistically significant, see Table D.2).

In the next step, I analyze the pure income effect of the child benefit on the intensive margin. Table 2 presents the results of the analysis in which independent variable is defined as hours worked. The estimated effects are close to zero, and statistically insignificant. In addition, I find no significant effects on the individual monthly earnings of mothers (Table D.4). These findings imply that the labor supply was unaffected by the universal child benefit on the intensive margin as well.

Figure 4. Leads and lags of the effects on maternal employment



Notes: Each data point represents the point estimate and the 95% confidence interval of the coefficient on interaction of the treatment group dummy and year. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. I control for individual characteristics (age, educational level, disability, and the type of residence area), year fixed effects, region fixed effects (NUTS-2 regions), and monthly regional unemployment rate. The confidence intervals are based on standard errors that are clustered at the level of the household.
 Data: Labor Force Survey

Robustness tests and heterogeneity of effects

I carry out a series of additional checks to verify the robustness of the estimated effects. The probit model generates results that are virtually the same as those of the baseline linear probability model results (see Table B.1). The estimates obtained from the doubly robust estimator following Sant’Anna and Zhao (2020) are slightly more negative but remain statistically significant (Table B.2). The results without using sample weights are similar to the baseline results (Table B.3). Randomization inference test shows that the statistical significance of the estimated pure income effect is smaller than 74% of cases, in which individuals were randomly assigned to a control or treatment group (Figure B.2). Table B.4 shows that the effects are also insignificant and negligible when exploiting the discontinuity in the child benefit amount at an alternative level: i.e., mothers of two children (control group) and mothers of three children (treatment group). Alternative def-

Table 2. Effects on the intensive margin

	(1)	(2)	(3)	(4)	(5)	(6)
	Hours worked					
Treatment group	-0.056	0.204	0.201	0.202	0.194	0.184
× Post-treatment period	(0.381)	(0.364)	(0.364)	(0.364)	(0.364)	(0.364)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.08	0.08	0.08	0.08	0.08
Mean of outcome	23.71	23.71	23.71	23.71	23.71	23.71
N	133631	133631	133631	133631	133631	133631

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on hours worked in the previous week. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodships). The standard errors are clustered at the level of the household. Mean of outcome is the average number of hours worked in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

initions of the start of the treatment period in April 2016 or in September 2016 do not affect the results (see Tables B.5 and B.6). Short-term effects (effects that could not have been affected by fertility effects) are in line with the baseline results. The results remain unchanged when the selection to sample is based on the age group instead of year of birth (Table B.9). Alternative children's age thresholds used to construct treatment variable also do not affect the findings (Figure B.1). The results remain stable after observations from the 2008-2011 period (Table B.7) or of mothers from households that own a farm (Table B.10) were added. Moreover, I find no significant effects for single mothers (Table B.11). The baseline standard errors are the largest among alternatives (Table B.12). Finally, the results remain stable after controlling for the treatment group-specific time trend (Table B.13).

The results of the heterogeneity analysis suggest that small average treatment effects may mask somewhat stronger responses among mothers with low socioeconomic status. The effects were larger in magnitude for mothers with lower educational attainment (Table C.2), and for mothers living in rural areas (Table C.3). Because of the lack of panel data, I was unable to analyze the heterogeneity of effects depending on income level. I address this problem by analyzing the variation of the pure income effects depending on the occupation of the partner. Table C.4 shows that the estimated effects are greater for the partners of middle- and low-skilled workers than the

partners of high-skilled workers which indicated that the relative impact of the cash transfer on the household income was greater in poorer households.

Importantly, I replicate the results using the Household Budget Survey. The results are virtually identical to those obtained using the primary data source, the Labor Force Survey (see Table D.5). Finally, I analyze the labor supply responses of the fathers and I find no significant labor supply responses among the fathers (see Appendix E).

Effects at the household level

The unconditional child benefit had small effects on the parental labor supply. In this subsection, I draw on additional insights from the analysis of income and spending based on data from the Household Budget Survey. First, I analyze the impact of child benefits on household earnings. The estimated effects are relatively small, in line with the results on labor supply effects. The child benefit of \$125 reduced household earnings by around \$5 (or 0.5% of the average earnings level in the pre-treatment period, see Table 3). A detailed analysis shows that the small negative earnings effects are driven not by the responses of parents, but rather by a reduced labor supply of other household members (grandparents and children, see Figure D.1⁶).

Table 3. Effects on household earnings

	(1)	(2)	(3)	(4)	(5)	(6)
	Household earnings					
Treatment group	-5.274	-5.075	-5.015	-5.083	-5.050	-4.280
× Post-treatment period	(12.174)	(12.002)	(11.996)	(11.951)	(11.949)	(11.948)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	yes	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE × Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.03	0.03	0.04	0.04	0.04
N	47838	47838	47838	47838	47838	47838

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on total household earnings. The treatment group consists of households with two children aged 3-17. The control group consists of households with one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

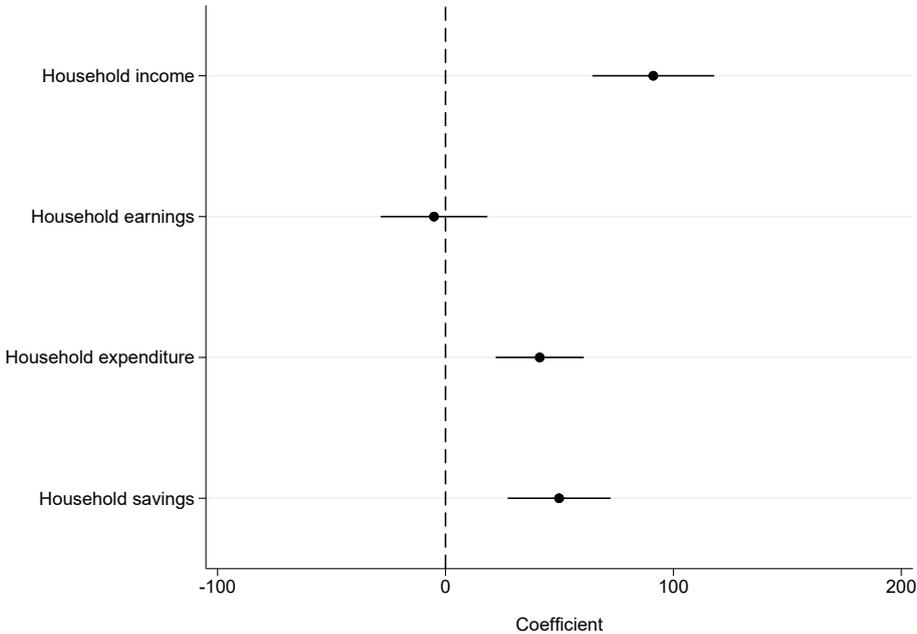
⁶In Poland, individuals aged over 15 may be legally employed. Earnings of other household members include earnings of grandparents, adult children, and underage children living in the household.

Figure 5 summarizes the effects of the unconditional cash benefit on household income, earnings, expenditures, and savings. On average, the introduction of the child benefit increased the household incomes by \$90 (or 8% of the average income level in the pre-treatment period). The households used the additional money to increase their consumption by \$40 (4%), and savings by \$50 (21%). In the case of savings, I found a significant positive effect on the extensive margin as well, as the probability that a household had savings greater than zero increased by around 2.5 percentage points (see Table D.6). The effects on household income, spending, and savings would be even stronger if I would define the pre-treatment period as starting in September 2016 when the child benefit program achieved full coverage.

A detailed analysis of the spending effects reveals that the unconditional cash transfer had the largest relative impact on spending related to education (an increase of 13%) and home appliances (an increase of 11%). The child benefit had little or no effect on spending on culture or alcohol and cigarettes (see Figure D.5 and Tables D.9-D.10). I also find that the introduction of child benefit had no effect on household income from other sources, e.g., other social transfers, tax refunds or loans (Figure D.4).

Finally, I analyze the effects of the introduction of the unconditional child benefit on poverty. Due to the unconditional component of the transfer alone, extreme poverty among households with two children was reduced by 30% (Table D.7), and relative poverty (having a disposable income below 60% of the national median disposable income) was reduced by almost 20% of the pre-treatment poverty rate (Table D.8).

Figure 5. Effects on income, earnings, spending and savings



Notes: Figure shows the effects of the introduction of the unconditional child benefit on household income, earnings, spending and savings (point estimates and the 95% confidence intervals). The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. I control for individual characteristics (age, educational level, disability, and the type of residence area), year fixed effects, region fixed effects (NUTS-2 regions), and monthly regional unemployment rate. The confidence intervals are based on standard errors that are clustered at the level of the household. The effects on log outcomes are presented in Figure D.3.
Data: Household Budget Survey

5 Conclusions

The introduction of the child benefit in Poland created a unique opportunity to estimate the income effect of a large unconditional cash transfer on labor supply of recipients. I have shown that this income effect was very small and statistically insignificant, for both women and men. My results suggest that estimates of income effects obtained previously in small-sized experiments are very similar to the estimates of the effects of a state-wide program analyzed in this quasi-experimental study. This is particularly important in the context of recent debates about universal basic income programs, as my study shows that recipients of such unconditional cash transfers are unlikely to reduce their labor supply. Instead of reducing their labor supply, recipients of the transfer substantially increased their consumption and savings. Consequently, the unconditional transfer led

to a significant reduction in poverty.

The goal of my study was to estimate the labor supply effects of receiving additional income from an unconditional cash transfer. The general equilibrium effects of the unconditional cash transfers on labor supply may differ from those estimated in this study. This is, however, unlikely, as Jones and Marinescu (2018) have shown. Moreover, this study does not answer the question of whether universal basic income programs are the most efficient tools to reduce poverty. Nevertheless, I show that an unconditional cash transfer may effectively increase the income of the recipients without distorting their labor supply decisions.

The main limitation of this study is the lack of the longitudinal dimension. Future studies should use longitudinal administrative data, as the use of such data would provide a better understanding of labor market flows, and allow for detailed heterogeneity analysis. The latter type of analysis is particularly relevant, as the effects of transfers seem to be stronger for parents with low socioeconomic status.

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Appendix A Descriptive statistics

Table A.1. Variable descriptions: Labor Force Survey

Variable	Description	Source
Treatment Variables		
Treatment group	dummy variable, 1: mother of two children aged 3-17, 2: mother of one child aged 3-17	LFS
Post-treatment	dummy variable, 1: 2016-2018, 0: 2012-2015	LFS
Dependent Variables		
Hours worked	the number of hours worked in the previous week	LFS
Employed	dummy variable, 1: at least 1 hours worked in the previous week, 0: zero hours worked in the previous week	LFS
Control Variables		
Age	age in years	LFS
Education: primary	the highest level of education that a person has successfully completed: basic vocational (zasadnicze zawodowe), elementary education (gimnazjum / podstawowe / niepełne podstawowe) or no education	LFS
Education: secondary	the highest level of education that a person has successfully completed: general secondary (średnie ogólnokształcące), vocational secondary (średnie zawodowe) or post-secondary (policealne / pomaturalne)	LFS
Education: tertiary	the highest level of education that a person has successfully completed: college degree (wyższe)	LFS
Disable	dummy variable, 1: a person with a formal disability status, 0: a person without a formal disability status	LFS
Rural area	a person living in a village	LFS
Small town	a person living in a small town (2,000 - 100,000 inhabitants)	LFS
Large town	a person living in a large town (over 100,000 inhabitants)	LFS

Notes: Description of variables used in the analysis.

Table A.3. Variable descriptions: Household Budget Survey

Variable	Description	Source
Treatment Variables		
Treatment group	dummy variable, 1: mother / household with two children aged 3-17, 2: mother / household with one child aged 3-17	HBS
Post-treatment	dummy variable, 1: 2016-2018, 0: 2012-2015	HBS
Dependent Variables		
Individual earnings	sum of net wage earnings, severance pay, income from self-employment, and income support due to paid leave (in a given month)	HBS
Employed	dummy variable, 1: non-zero individual earnings, 0: zero individual earnings	HBS
Child benefit amount	income from the child benefit introduced in 2016 (świadczenie wychowawcze)	HBS
Household disposable income	sum of current household income (in a given month) less prepayments of personal income tax paid by the payer on behalf of the taxpayer (on income from employment and on certain social security and other benefits), taxes on property income, taxes paid by self-employed persons, social and health insurance contributions.	HBS
Household total earnings	sum of individual earnings of household members (in a given month)	HBS
Household expenditure	sum of expenditures on consumer goods and services, private transfers, and taxes paid directly by individuals (in a given month).	HBS
Household savings	the difference between household disposable income and household expenditure	HBS
Relative poverty	dummy variable, 1: household with per capita disposable income below 60% of the national median per capita disposable income (the national median published annually by Statistics Poland), 0: otherwise	HBS
Extreme poverty	dummy variable, 1: household with per capita disposable income below the national poverty line for households consisting of married couple and a child (minimum egzystencji, published annually by the IPISS Institute of Labour and Social Studies), 0: otherwise	HBS
Control Variables		
Age	age in years	HBS
Education: primary	the highest level of education that a person has successfully completed: basic vocational (zasadnicze zawodowe), elementary education (gimnazjum / podstawowe / niepełne podstawowe) or no education	HBS
Education: secondary	the highest level of education that a person has successfully completed: general secondary (średnie ogólnokształcące), vocational secondary (średnie zawodowe) or post-secondary (policealne / pomaturalne)	HBS
Education: tertiary	the highest level of education that a person has successfully completed: college degree (wyższe)	HBS
Disable	dummy variable, 1: a person with a formal disability status, 0: a person without a formal disability status	HBS
Rural area	a person living in a village	HBS
Small town	a person living in a small town (2,000 - 100,000 inhabitants)	HBS
Large town	a person living in a large town (over 100,000 inhabitants)	HBS

Notes: Description of variables used in the analysis.

Table A.5. Summary statistics

	Obs.	Mean	Std. Dev.	Min.	Max.
DID Variables					
Treatment group	134399	0.45	0.50	0.00	1.00
Post-treatment	134399	0.44	0.50	0.00	1.00
Dependent Variables					
Employed	134399	0.65	0.48	0.00	1.00
Hours worked	134399	24.66	19.55	0.00	140.00
Control Variables					
Age	134399	37.12	5.28	19.00	76.00
Education: primary (ref. level)	134399	0.21	0.40	0.00	1.00
Education: secondary	134399	0.34	0.47	0.00	1.00
Education: tertiary	134399	0.46	0.50	0.00	1.00
Not disable (ref. level)	134399	0.97	0.16	0.00	1.00
Disable	134399	0.03	0.16	0.00	1.00
Rural area (ref. level)	134399	0.33	0.47	0.00	1.00
Small town	134399	0.36	0.48	0.00	1.00
Large town	134399	0.32	0.46	0.00	1.00

Notes: Table reports the summary statistics (number of observations, mean, standard deviation, minimum, maximum) of the DID, dependent and control variables.

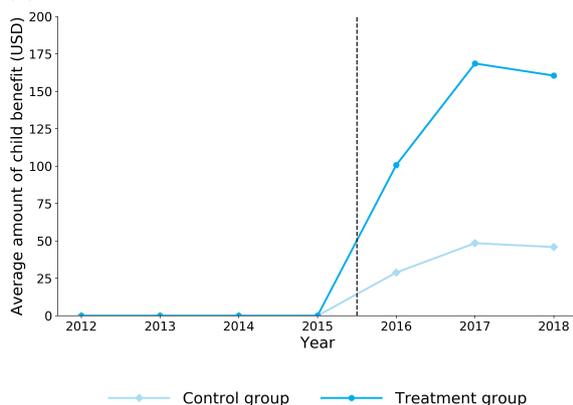
Data: Labor Force Survey

Table A.6. Balance table: pre-treatment vs post-treatment

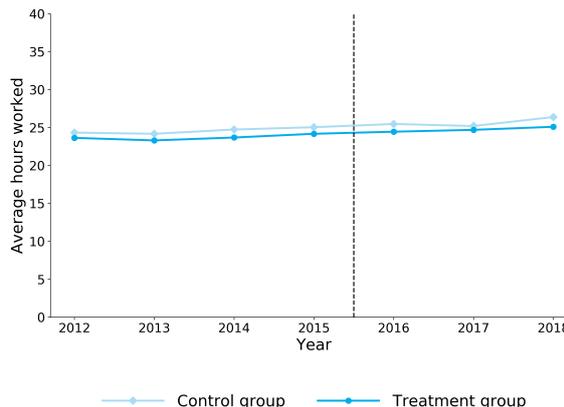
	Mothers of one child		Mothers of two children	
	Pre-treatment (mean)	Post-treatment (mean)	Pre-treatment (mean)	Post-treatment (mean)
DID Variables				
Treatment group	0.00	0.00	1.00	1.00
Post-treatment	0.00	1.00	0.00	1.00
Dependent Variables: Labor Force Survey				
Employed	0.64	0.67	0.63	0.65
Hours worked	24.58	25.68	23.71	24.75
Control Variables: Labor Force Survey				
Age	36.05	38.44	36.52	37.95
Education: primary (ref. level)	0.20	0.18	0.25	0.19
Education: secondary	0.35	0.32	0.36	0.32
Education: tertiary	0.45	0.50	0.40	0.49
Not disable (ref. level)	0.97	0.97	0.98	0.98
Disable	0.03	0.03	0.02	0.02
Rural area (ref. level)	0.29	0.31	0.36	0.38
Small town	0.36	0.36	0.36	0.33
Large town	0.34	0.34	0.28	0.29
N	45681	28111	36878	23729
Dependent Variables: Household Budget Survey				
Employed	0.67	0.69	0.63	0.64
Individual earnings	343.55	405.05	323.61	377.17
Household disposable income	1191.73	1427.90	1187.46	1505.01
Household total earnings	141.84	179.77	159.07	190.61
Household expenditure	929.65	1007.20	948.36	1065.16
Household savings	262.08	420.70	239.09	439.85
Relative poverty	0.15	0.10	0.25	0.17
Extreme poverty	0.05	0.02	0.09	0.03
N	15798	10319	13012	8709

Notes: Table reports average values of the DID, dependent and control variables in the treatment group (mothers of two children aged 3-17) and control group (mothers of one child aged 3-17), in the pre-treatment (2012-2015) and the post-treatment period (2016-2018). The sample includes mothers in prime-age (aged between 29 and 49 at the time of the introduction of the child benefit years old) who live with a partner. I exclude mothers from households that own a farm and mothers of disable children. Data: Labor Force Survey and Household Budget Survey

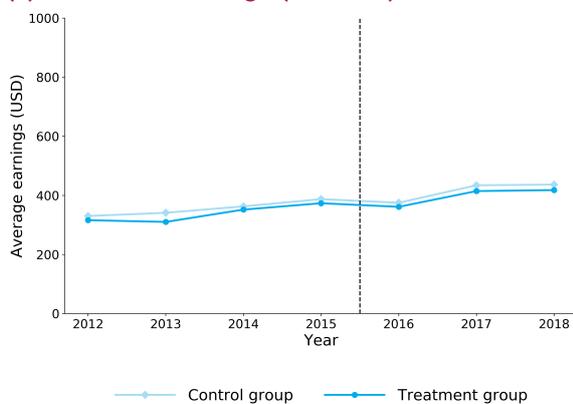
(a) Child benefit amount



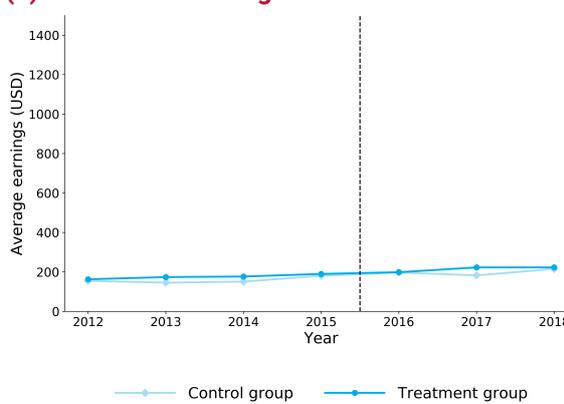
(b) Hours worked



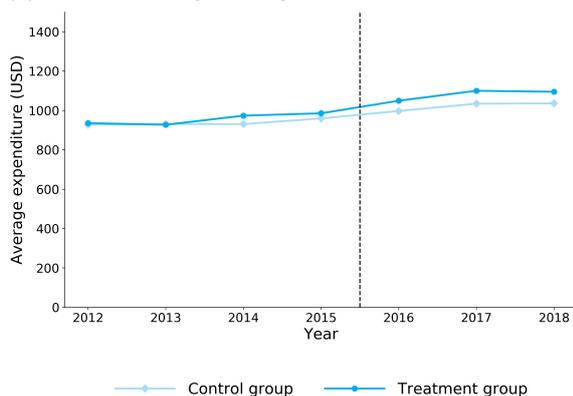
(c) Individual earnings (mothers)



(d) Household earnings



(e) Household spending



(f) Household savings

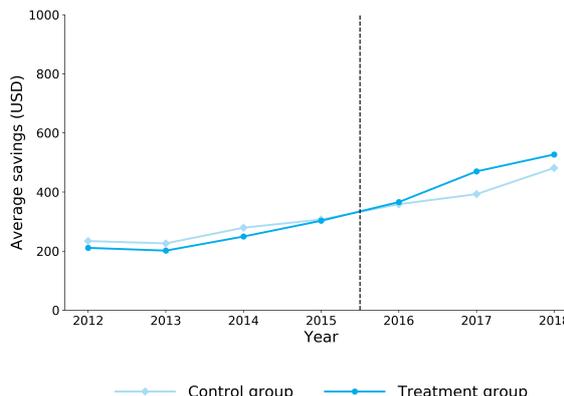
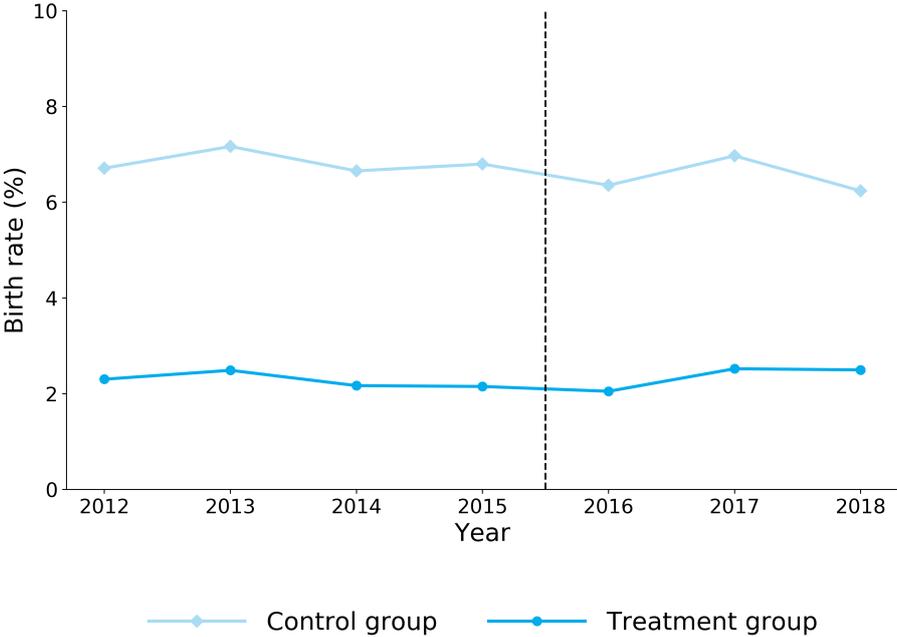


Figure A.1. The evolution of selected characteristics over time

Notes: Figure shows the average values of selected characteristics in the treatment and control groups. The treatment group consists of mothers of three children aged 3-17. The control group consists of mothers of two children aged 3-17. The sample includes mothers in prime-age (aged between 29 and 49 at the time of the introduction of the child benefit years old) who live with a partner. I exclude mothers from households that own a farm and mothers of disable children. Child benefit, earnings, spending, and savings are expressed in US dollars.

Data: Labor Force Survey and Household Budget Survey

Figure A.2. Birth rate



Notes: Figure shows the share of mothers with a child aged 0 years old in the treatment and control groups. The treatment group consists of mothers of three children aged 3-17. The control group consists of mothers of two children aged 3-17. The sample includes mothers in prime-age (aged between 29 and 49 at the time of the introduction of the child benefit years old) who live with a partner. I exclude mothers from households that own a farm and mothers of disable children.
Data: Labor Force Survey

Appendix B Sensitivity analysis

Table B.1. Effects on maternal employment: probit

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed Coef./SE	Employed Coef./SE	Employed Coef./SE	Employed Coef./SE	Employed Coef./SE	Employed Coef./SE
Treatment group	-0.002	0.005	0.004	0.004	0.004	0.004
× Post-treatment period	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Observations	134399	134399	134399	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment using probit model (contrasts of marginal effects of treatment group dummy over post-treatment period dummy). The treatment group consists of mothers of three children aged 3-17. The control group consists of mothers of two children aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.2. Effects on maternal employment: doubly robust estimator

	(1)	(2)	(3)	(4)
ATT	-0.002 (0.006)	-0.001 (0.006)	-0.001 (0.006)	-0.002 (0.006)
Ind. characteristics	no	yes	yes	yes
Region FE	no	no	yes	yes
Regional unemployment rate	no	no	no	yes
N	125475	125475	125475	125475

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from the doubly robust estimator which uses weighted least squares to estimate the outcome regressions and inverse probability tilting to estimate the propensity score, leading to the improved locally efficient doubly robust difference-in-differences estimator proposed by Sant'Anna and Zhao (2020). The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is birth rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.3. Effects on maternal employment: without sample weights

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.007	-0.003	-0.003	-0.003	-0.003	-0.003
× Post-treatment period	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.09	0.09	0.10	0.10	0.10
Mean of outcome	0.61	0.61	0.61	0.61	0.61	0.61
N	136146	136146	136146	136146	136146	136146

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period. Unlike in all other regressions, I do not apply sample weights. The difference in the number of observations between the weighted and unweighted regressions is caused by observations with zero weights.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.4. Effects on maternal employment: mothers of 3 children vs. 2 children

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.004	-0.002	-0.002	-0.003	-0.003	-0.004
× Post-treatment period	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)	(0.017)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.12	0.12	0.12	0.12	0.12
Mean of outcome	0.48	0.48	0.48	0.48	0.48	0.48
N	68736	68736	68736	68736	68736	68736

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of mothers of three children aged 3-17. The control group consists of mothers of two children aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate among mothers of three children in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.5. Effects on maternal employment: treatment period starting in April 2016

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.003	0.003	0.003	0.002	0.002	0.002
× Post-treatment period	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.09	0.09	0.09	0.09	0.09
Mean of outcome	0.63	0.63	0.63	0.63	0.63	0.63
N	134399	134399	134399	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the period 01/2012-03/2016, and the post-treatment period includes observations from the period 04/2016-12/2018. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.6. Effects on maternal employment: treatment period starting in September 2016

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	0.001	0.005	0.005	0.005	0.005	0.004
× Post-treatment period	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.09	0.09	0.09	0.09	0.09
Mean of outcome	0.63	0.63	0.63	0.63	0.63	0.63
N	134399	134399	134399	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the period 01/2012-08/2016, and the post-treatment period includes observations from the period 09/2016-12/2018. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.7. Effects on maternal employment: longer time period, 2008-2018 (1 child vs. 2 children)

	(1)	(2)	(3)	(4)	(5)
	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.003	0.005	0.005	0.005	0.004
× Post-treatment period	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes
Region FE	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	yes
Adj. R-Squared	0.00	0.09	0.09	0.09	0.09
Mean of outcome	0.62	0.62	0.62	0.62	0.62
N	155314	155314	155314	155314	155314

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the period 2008-2015, and the post-treatment period includes observations from the period 2016-2018. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.8. Effects on maternal employment: short-term effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.010	-0.000	-0.000	-0.000	-0.001	-0.000
× Post-treatment period	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.09	0.09	0.09	0.10	0.10
Mean of outcome	0.59	0.59	0.59	0.59	0.59	0.59
N	106593	106593	106593	106593	106593	106593

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from estimating a linear probability model. The treatment group consists of mothers of two children aged 0-17. The control group consists of mothers of one child aged 0-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016 only. Since the post-treatment period includes only one year, the number of children aged 0-17 may be exogenous to treatment (births in the first year of the treatment are based on pre-treatment decisions). The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period. See Figure 4 for short-term effects using the baseline definition of the exogenous treatment variable.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.9. Effects on maternal employment: age group approach

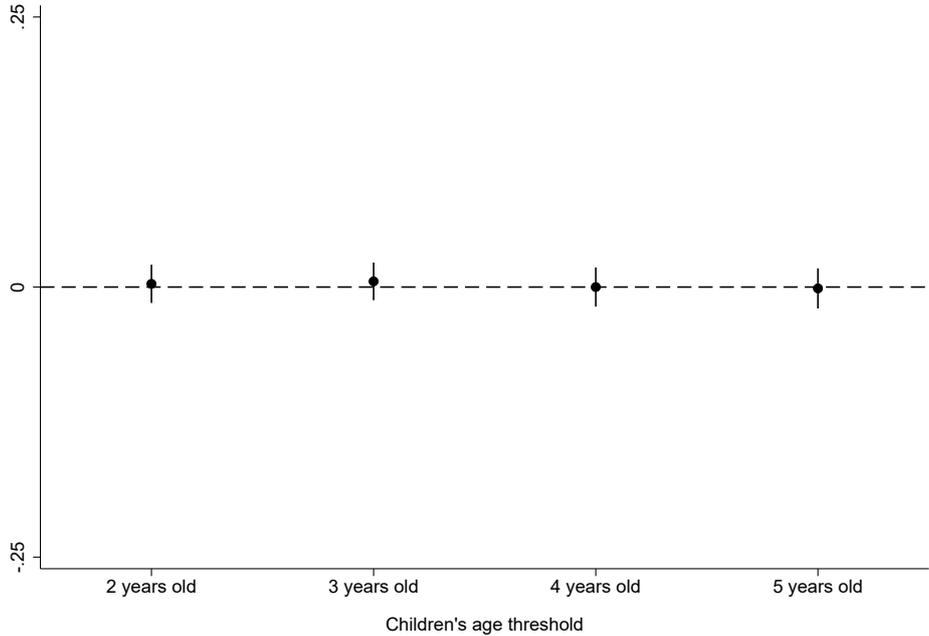
	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	0.008	-0.001	-0.001	-0.001	-0.002	-0.002
× Post-treatment period	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.10	0.10	0.10	0.10	0.10
Mean of outcome	0.62	0.62	0.62	0.62	0.62	0.62
N	147893	147893	147893	147893	147893	147893

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from estimating a linear probability model. The treatment group consists of mothers of two children aged 0-17. The control group consists of mothers of one child aged 0-17. The pre-treatment period includes observations from the period 2008-2015, and the post-treatment period includes observations from the period 2016-2018. Since the post-treatment period includes only one year, the number of children aged 0-17 may be exogenous to treatment (births in the first year of the treatment are based on pre-treatment decisions). The sample includes prime-age mothers (aged between 25 and 49 in a given year, as opposed to the baseline birth cohort criterion) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period. See Figure 4 for short-term effects using the baseline definition of the exogenous treatment variable.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Figure B.1. Effects on maternal employment: sensitivity to alternative children’s age thresholds used to construct treatment variable



Notes: Figure shows the effects of the introduction of the unconditional child benefit on the probability of employment of mothers for four treatment variable definitions. According to the first definition, the treatment group consists of mothers of two children aged 2-17, and the control group consists of mothers of one child aged 2-17 (partly endogenous, as births in the last quarter of 2016 may already be affected by the introduction of the child benefit). According to the second definition, the treatment group consists of mothers of two children aged 3-17, and the control group consists of mothers of one child aged 3-17 (baseline definition, exogenous to treatment). According to the third definition, the treatment group consists of mothers of two children aged 4-17, and the control group consists of mothers of one child aged 4-17 (exogenous to treatment). According to the fourth definition, the treatment group consists of mothers of two children aged 5-17, and the control group consists of mothers of one child aged 5-17 (exogenous to treatment). The pre-treatment period includes observations from the period 2008-2015, and the post-treatment period includes observations from the period 2016-2018. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. I control for individual characteristics (age, educational level, disability, and the type of residence area) and region fixed effects (NUTS-2 regions). 95%-level The confidence intervals are based on standard errors that are clustered at the level of the household.

Data: Labor Force Survey

Table B.10. Effects on maternal employment: including households that own a farm (1 child vs. 2 children)

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.007	-0.000	-0.000	-0.000	-0.001	0.000
× Post-treatment period	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.07	0.07	0.07	0.07	0.07
Mean of outcome	0.66	0.66	0.66	0.66	0.66	0.66
N	161008	161008	161008	161008	161008	161008

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.11. Effects on maternal employment: single mothers (1 child vs. 2 children)

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.001	0.003	0.003	0.003	0.003	0.003
× Post-treatment period	(0.024)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.12	0.12	0.13	0.13	0.13
Mean of outcome	0.61	0.61	0.61	0.61	0.61	0.61
N	21156	21156	21156	21156	21156	21156

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of single mothers of two children aged 3-17. The control group consists of single mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit). I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.12. Effects on maternal employment: alternative standard errors

	(1)	(2)	(3)
	Robust	Cluster: household	Cluster: NUTS-2 Region
Treatment group	0.003	0.003	0.003
× Post-treatment period	(0.006)	(0.009)	(0.006)
Ind. characteristics	yes	yes	yes
Year FE	yes	yes	yes
Region FE	yes	yes	yes
Regional unemployment rate	yes	yes	yes
Adj. R-Squared	0.09	0.09	0.09
Mean of outcome	0.63	0.63	0.63
N	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit for various standard errors estimators. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). In column 1, robust standard errors are reported. In column 2, standard errors are clustered at the level of the household (baseline). In column 3, standard errors are clustered at the level of the NUTS-2 region. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table B.13. Effects on maternal employment: controlling for treatment group-specific linear time trend

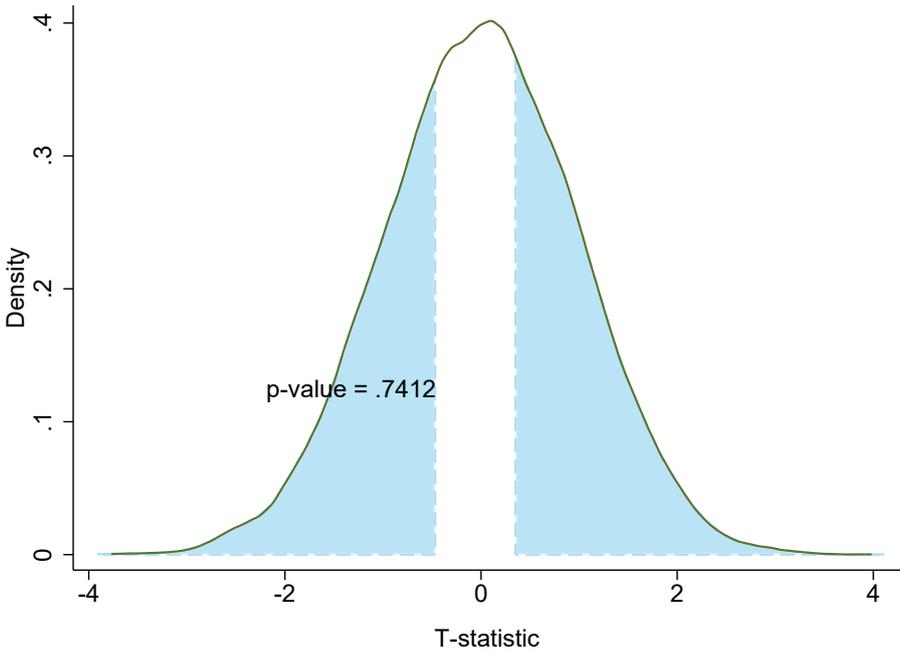
	(1)	(2)
	Employed	Hours worked
Treatment group	-0.002	0.242
× Post-treatment period	(0.013)	(0.551)
Ind. characteristics	yes	yes
Year FE	yes	yes
Region FE	yes	yes
Treatment group-specific time trend	yes	yes
Adj. R-Squared	0.09	0.08
Mean of outcome	0.62	23.68
N	155314	155314

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on four outcomes. Column 1 shows the results for probability of being employed, column 2 shows the results for probability of being in labor force (Eurostat definition), and column 3 shows the results for being unemployed (Eurostat definition). In all regression, I control for baseline controls as well as treatment group-specific linear time trend. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the period 2008-2015, and the post-treatment period includes observations from the period 2016-2018. I use a longer time window to better estimate the coefficient on time trend. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Figure B.2. DID results: randomization inference



Notes: Figure shows kernel density plot of t-statistics from a randomization test with 10000 permutations. In each permutation, mothers were assigned randomly to the treatment and control group and baseline difference-in-differences regressions were estimated. For 74.12% of random permutations, the absolute value of estimated t-statistic was greater than the absolute value of the baseline t-statistic. Sample consists of mothers of one child and mothers of two children. I control for individual characteristics (age, education level, disability, and the type of residence area (urban/rural), as well as regional unemployment rate, and fixed region and year effects. The standard errors are clustered at the level of the household.
Data: Labor Force Survey

Appendix C Heterogenous treatment effects

Table C.1. Effects on maternal employment: age of the youngest child

	(1)	(2)	(3)
	0-5 years	6-11 years	12-18 years
Treatment group	0.027*	-0.008	-0.027
× Post-treatment period	(0.015)	(0.014)	(0.018)
Ind. characteristics	yes	yes	yes
Year FE	yes	yes	yes
Region FE	yes	yes	yes
Regional unemployment rate	yes	yes	yes
Adj. R-Squared	0.10	0.09	0.08
Mean of outcome	0.55	0.68	0.71
N	54403	45102	34497

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment depending on the age of the youngest child. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). Column 1 shows the results for mothers with the youngest child between 0 to 5 years old. Column 2 shows the results for mothers with the youngest child between 6 to 11 years old. Column 3 shows the results for mothers with the youngest child between 12 to 18 years old. The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table C.2. Effects on maternal employment: education level

	(1)	(2)	(3)
	Primary	Secondary	Tertiary
Treatment group	-0.023	-0.011	0.009
× Post-treatment period	(0.022)	(0.017)	(0.012)
Ind. characteristics	yes	yes	yes
Year FE	yes	yes	yes
Region FE	yes	yes	yes
Regional unemployment rate	yes	yes	yes
Adj. R-Squared	0.06	0.07	0.04
Mean of outcome	0.44	0.59	0.77
N	29113	46075	59211

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment depending on the education level of the mother. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. Individual characteristics include age, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). Column 1 shows the results for mothers with primary education. Column 2 shows the results for mothers with secondary education. Column 3 shows the results for mothers with tertiary education. The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table C.3. Effects on maternal employment: type of area of living

	(1)	(2)	(3)
	Rural areas	Town below 100 000	Town above 100 000
Treatment group	-0.004	0.008	0.005
× Post-treatment period	(0.017)	(0.015)	(0.015)
Ind. characteristics	yes	yes	yes
Year FE	yes	yes	yes
Region FE	yes	yes	yes
Regional unemployment rate	yes	yes	yes
Adj. R-Squared	0.10	0.08	0.05
Mean of outcome	0.55	0.64	0.70
N	45932	47641	40826

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment depending on the area of living. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). Column 1 shows the results for mothers living in rural areas. Column 2 shows the results for mothers living in small towns (below 100 000 inhabitants). Column 3 shows the results for mothers living in large towns (above 100 000 inhabitants). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table C.4. Effects on maternal employment: partner's occupation

	(1)	(2)	(3)
	High-skill	Middle-skill	Low-skill
Treatment group	0.015	-0.002	-0.029
× Post-treatment period	(0.014)	(0.015)	(0.031)
Ind. characteristics	yes	yes	yes
Year FE	yes	yes	yes
Region FE	yes	yes	yes
Regional unemployment rate	yes	yes	yes
Adj. R-Squared	0.05	0.09	0.08
Mean of outcome	0.73	0.57	0.63
N	43152	54024	12577

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment depending on the area of living. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). Column 1 shows the results for mothers, whose partners work in high-skill occupations (ISCO 1, ISCO 2, ISCO 3). Column 2 shows the results for mothers, whose partners work in middle-skill occupations (ISCO 4, ISCO 7, ISCO 8). Column 3 shows the results for mothers, whose partners work in low-skill occupations (ISCO 5, ISCO 9). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Appendix D Additional results

Table D.1. Effects on fertility

	(1)	(2)	(3)	(4)	(5)	(6)
	Fertility	Fertility	Fertility	Fertility	Fertility	Fertility
Treatment group	0.004	-0.004	-0.004	-0.004	-0.004	-0.004
× Post-treatment period	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.04	0.04	0.04	0.04	0.04
Mean of outcome	0.02	0.02	0.02	0.02	0.02	0.02
N	134399	134399	134399	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of having a child aged 0 years old obtained from estimating a linear probability model. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is birth rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table D.2. Effects on maternal employment, excluding mothers of children aged 0-1 years old

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.006	-0.008	-0.008	-0.008	-0.008	-0.008
× Post-treatment period	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.09	0.09	0.09	0.09	0.09
Mean of outcome	0.65	0.65	0.65	0.65	0.65	0.65
N	120601	120601	120601	120601	120601	120601

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from estimating a linear probability model. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. I exclude mothers who had at least one child aged 0 or 1 years old. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table D.3. Effects on maternal employment: endogenous treatment

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.021**	-0.012	-0.012	-0.012	-0.012	-0.012
× Post-treatment period	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.09	0.09	0.09	0.09	0.09
Mean of outcome	0.59	0.59	0.59	0.59	0.59	0.59
N	140902	140902	140902	140902	140902	140902

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from estimating a linear probability model. The treatment group consists of mothers of two children aged 0-17. The control group consists of mothers of one child aged 0-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table D.4. Effects on individual earnings

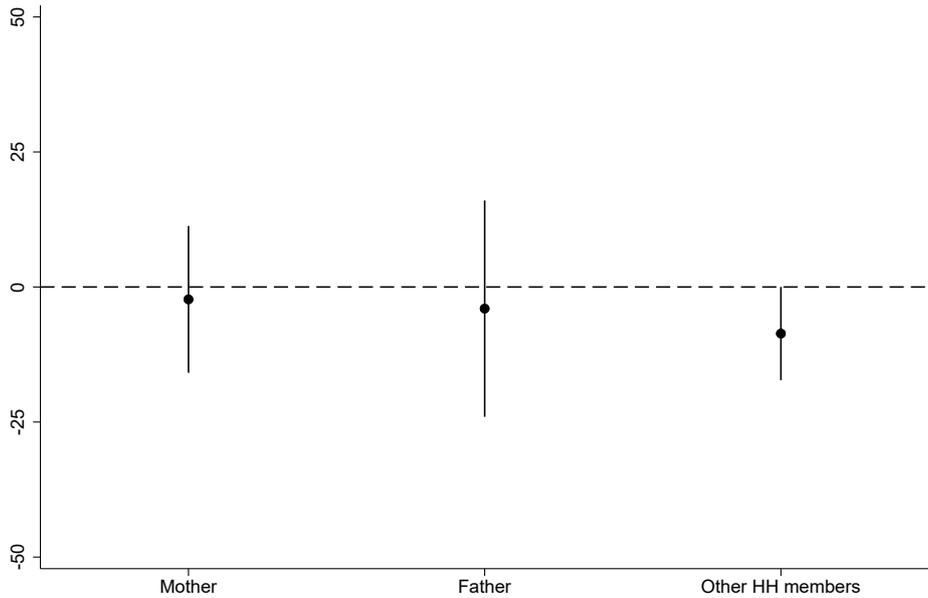
	(1)	(2)	(3)	(4)	(5)	(6)
	Individual earnings					
Treatment group	-5.241	-3.671	-3.621	-2.261	-2.293	-1.587
× Post-treatment period	(8.055)	(6.984)	(6.985)	(6.938)	(6.937)	(6.947)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.24	0.24	0.25	0.25	0.25
Mean of outcome	322.38	322.38	322.38	322.38	322.38	322.38
N	47838	47838	47838	47838	47838	47838

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the individual earnings of mothers (wage earnings, income from self-employment, and income support due to paid leave). The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is the average individual earnings of mothers in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

Figure D.1. Effects on individual earnings by the type of household members



Notes: Figure shows the effects of the introduction of the unconditional child benefit on individual earnings of mothers, fathers, and other household members (including children and grandparents). The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. I control for individual characteristics (age, educational level, disability, and the type of residence area) and region fixed effects (NUTS-2 regions). 95%-level The confidence intervals are based on standard errors that are clustered at the level of the household.

Data: Household Budget Survey

Table D.5. Effects on maternal employment (Household Budget Survey)

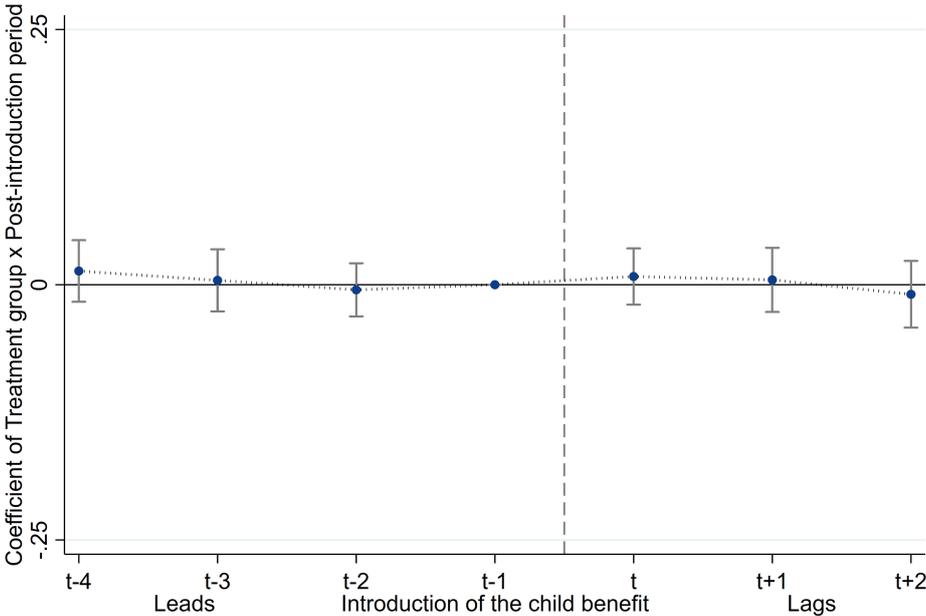
	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.006	-0.003	-0.004	-0.002	-0.002	-0.002
× Post-treatment period	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.12	0.12	0.13	0.13	0.13
Mean of outcome	0.63	0.63	0.63	0.63	0.63	0.63
N	47838	47838	47838	47838	47838	47838

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

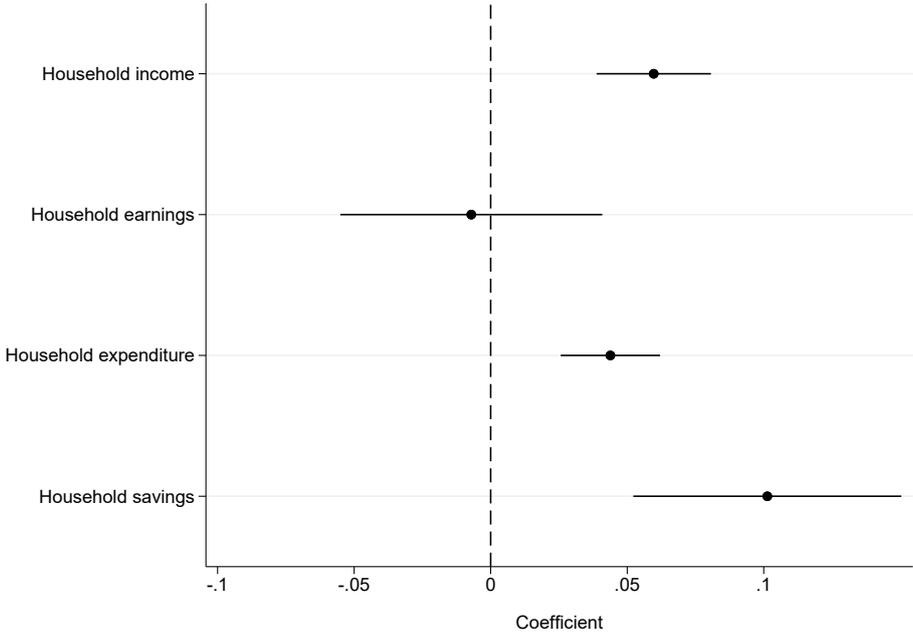
Figure D.2. Leads and lags of the effects on maternal employment (Household Budget Survey)



Notes: Each data point represents the point estimate and the 95% confidence interval of the coefficient on an interaction of the treatment group dummy and year. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. I control for individual characteristics (age, educational level, disability, and the type of residence area) and region fixed effects (NUTS-2 regions). The confidence intervals are based on standard errors that are clustered at the level of the household.

Data: Household Budget Survey

Figure D.3. Effects on log income, earnings, spending and savings



Notes: Figure shows the effects of the introduction of the unconditional child benefit on the log household income, earnings, spending and savings (point estimates and the 95% confidence intervals). The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. I control for individual characteristics (age, educational level, disability, and the type of residence area), year fixed effects, region fixed effects (NUTS-2 regions), and monthly regional unemployment rate. The confidence intervals are based on standard errors that are clustered at the level of the household.

Data: Household Budget Survey

Table D.6. Effects on the probability of non-zero household earnings and savings

	(1)	(2)	(3)	(4)
	Household Earnings	Household earnings	Household savings	Household savings
Treatment group	-0.002	-0.002	0.023***	0.022***
× Post-treatment period	(0.007)	(0.007)	(0.008)	(0.008)
Ind. characteristics	no	yes	no	yes
Year FE	no	yes	no	yes
Region FE	no	yes	no	yes
Regional unemployment rate	no	yes	no	yes
Adj. R-Squared	0.00	0.02	0.01	0.02
N	47838	47838	47838	47838

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability that the household has non-zero earnings or savings. The treatment group consists of households with two children aged 3-17. The control group consists of households with one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

Table D.7. Effects on extreme poverty

	(1)	(2)	(3)	(4)	(5)	(6)
	Extreme poverty					
Treatment group	-0.028***	-0.027***	-0.027***	-0.027***	-0.027***	-0.026***
× Post-treatment period	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.02	0.05	0.05	0.05	0.06	0.06
Mean of outcome	0.09	0.09	0.09	0.09	0.09	0.09
N	47642	47642	47642	47642	47642	47642

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of household living in extreme poverty (disposable income below the poverty line in Poland). The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is poverty rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

Table D.8. Effects on relative poverty

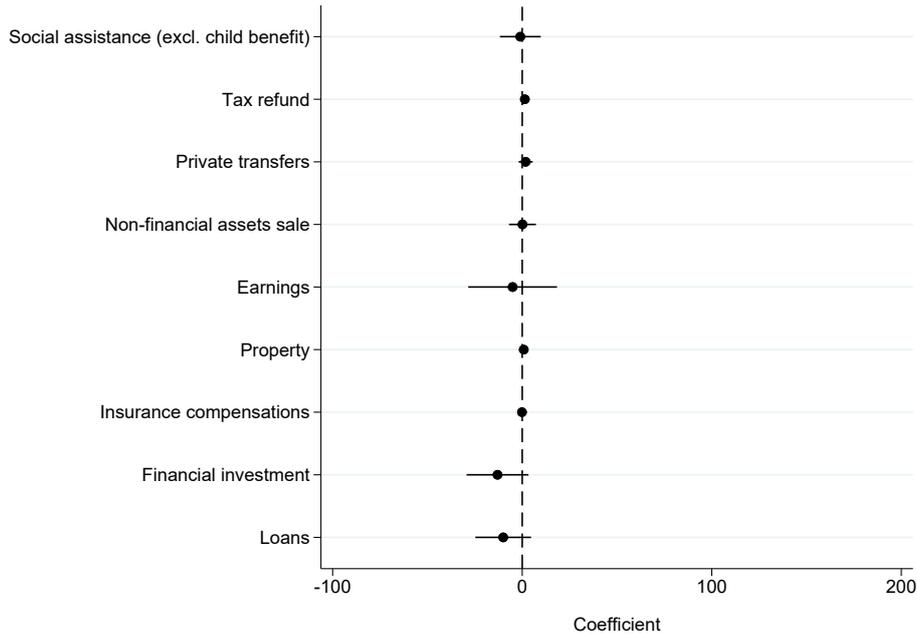
	(1)	(2)	(3)	(4)	(5)	(6)
	Relative poverty					
Treatment group	-0.043***	-0.041***	-0.041***	-0.042***	-0.042***	-0.040***
× Post-treatment period	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.02	0.12	0.12	0.13	0.13	0.13
Mean of outcome	0.25	0.25	0.25	0.25	0.25	0.25
N	47642	47642	47642	47642	47642	47642

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of household living in relative poverty. Relative poverty (at-risk-of-poverty) is defined by Eurostat as having disposable income below 60% of the national median disposable income. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is poverty rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

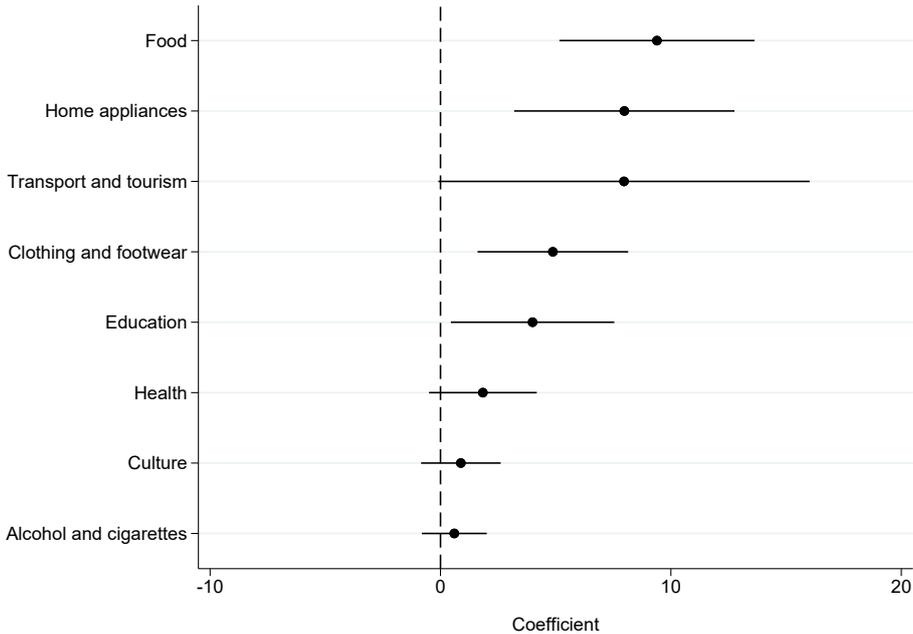
Figure D.4. Effects on income from sources other than child benefit



Notes: Figure shows the effects of the introduction of the unconditional child benefit on household income divided into categories (point estimates and the 95% confidence intervals). The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. I control for individual characteristics (age, educational level, disability, and the type of residence area) and region fixed effects (NUTS-2 regions). The confidence intervals are based on standard errors that are clustered at the level of the household.

Data: Household Budget Survey

Figure D.5. Spending effects by spending category



Notes: Figure shows the effects of the introduction of the unconditional child benefit on household spending divided into categories (point estimates and the 95% confidence intervals). The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. I control for individual characteristics (age, educational level, disability, and the type of residence area) and region fixed effects (NUTS-2 regions). The confidence intervals are based on standard errors that are clustered at the level of the household.

Data: Household Budget Survey

Table D.9. Spending effects by spending category (i.)

	(1)	(2)	(3)	(4)
	Food	Home appliances	Transport and tourism	Clothing and footwear
Treatment group	9.395***	7.979***	7.966*	4.877***
× Post-treatment period	(2.160)	(2.439)	(4.111)	(1.667)
Ind. characteristics	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Region FE	yes	yes	yes	yes
Regional unemployment rate	yes	yes	yes	yes
Adj. R-Squared	0.07	0.04	0.09	0.06
Mean of outcome	240.70	71.96	153.98	62.15
N	47838	47838	47838	47838

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the spending divided into categories. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is average spending in a given category in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

Table D.10. Spending effects by spending category (ii.)

	(1)	(2)	(3)	(4)
	Education	Health	Culture	Alcohol
Treatment group	3.996**	1.841	0.885	0.599
× Post-treatment period	(1.809)	(1.193)	(0.881)	(0.719)
Ind. characteristics	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Region FE	yes	yes	yes	yes
Regional unemployment rate	yes	yes	yes	yes
Adj. R-Squared	0.03	0.05	0.09	0.01
Mean of outcome	29.64	36.45	40.23	21.05
N	47838	47838	47838	47838

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the spending divided into categories. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes households with prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude households that own a farm and households with children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is average spending in a given category in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Household Budget Survey

Appendix E Fathers

E.1 DID

Table E.1. Balance table: pre-treatment vs post-treatment

	Pre-treatment		Post-treatment	
	Fathers of one child (mean)	Fathers of two children (mean)	Fathers of one child (mean)	Fathers of two children (mean)
DID Variables				
Treatment group	0.00	0.00	1.00	1.00
Post-treatment	0.00	1.00	0.00	1.00
Dependent Variables				
Employed	0.89	0.89	0.88	0.90
Hours worked	37.79	37.66	37.93	38.22
Control Variables				
Age	36.82	39.08	38.02	39.34
Education: primary (ref. level)	0.32	0.31	0.38	0.32
Education: secondary	0.36	0.35	0.33	0.33
Education: tertiary	0.31	0.34	0.30	0.35
Not disable (ref. level)	0.98	0.97	0.98	0.98
Disable	0.02	0.03	0.02	0.02
Rural area (ref. level)	0.28	0.30	0.35	0.37
Small town	0.37	0.36	0.36	0.34
Large town	0.34	0.34	0.29	0.28
N	40262	25991	32604	22051

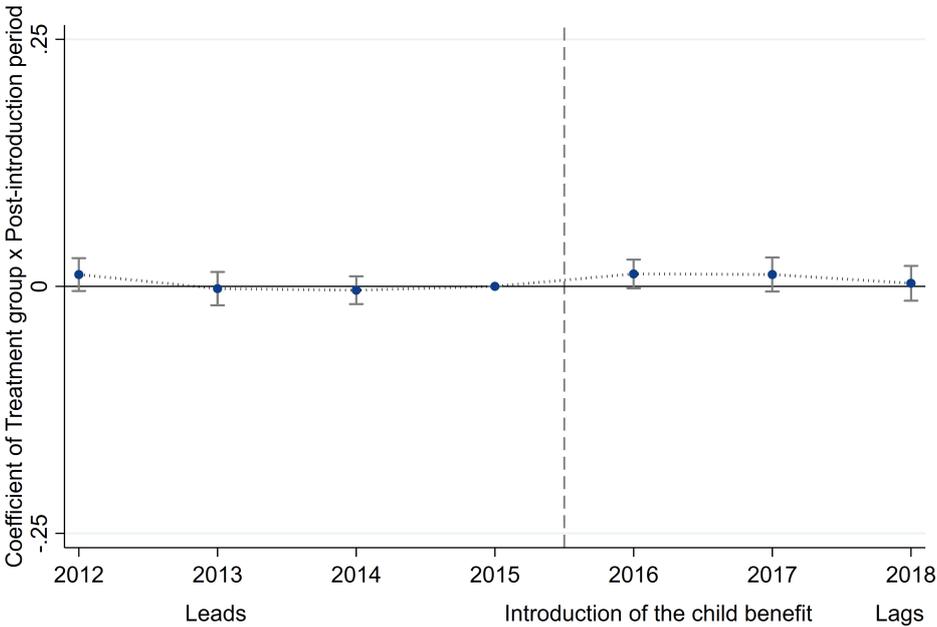
Notes: Table reports average value of the DID, dependent and control variables in the treatment group (fathers of two children aged 3-17) and control group (fathers of one child aged 3-17), in pre-treatment (2011-2015) and in post-treatment period (2016-2018). The sample includes fathers in prime-age (aged between 29 and 49 at the time of the introduction of the child benefit years old), who live with a partner. I exclude fathers from households that own a farm, and fathers of disable children.

Data: Labor Force Survey

Table E.2. Effects on employment of fathers

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	0.013**	0.008	0.008	0.008	0.008	0.008
× Post-treatment period	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.06	0.06	0.06	0.06	0.06
Mean of outcome	0.88	0.88	0.88	0.88	0.88	0.88
N	120908	120908	120908	120908	120908	120908

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment. The treatment group consists of fathers of two children aged 3-17. The control group consists of fathers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age fathers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude fathers from households that own a farm and fathers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.
 * p<.10; ** p<.05; *** p<.01
 Data: Labor Force Survey



Notes: Each data point represents the point estimate and the 95% confidence interval of the coefficient on an interaction of the treatment group dummy and year. The treatment group consists of fathers of two children aged 3-17. The control group consists of fathers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. I control for individual characteristics (age, educational level, disability, and the type of residence area) and region fixed effects (NUTS-2 regions). The confidence intervals are based on standard errors that are clustered at the level of the household.
 Data: Labor Force Survey

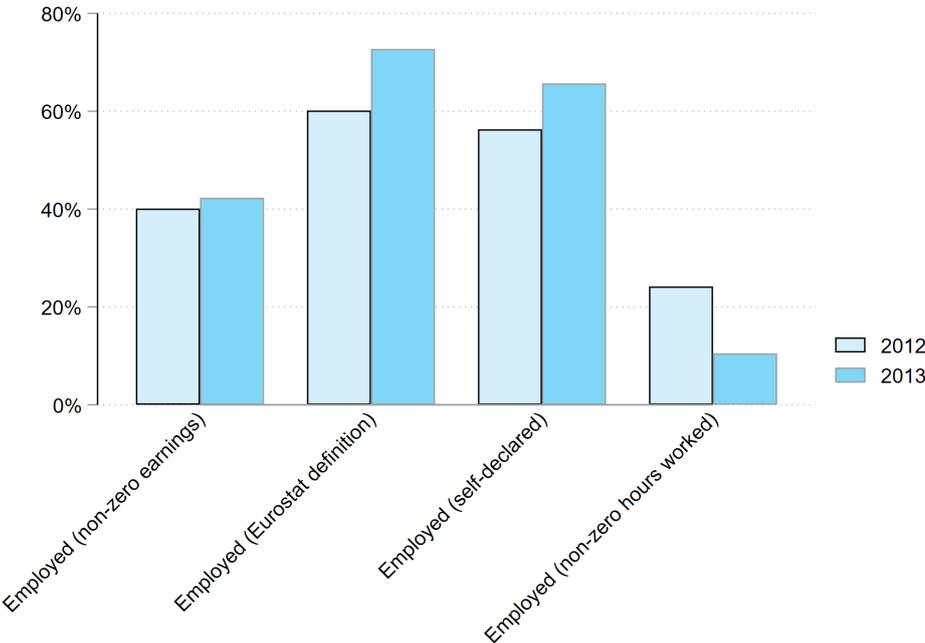
Appendix F Employment definitions

In this paper, I define employment as working at least one hour in the previous week (Labor Force Survey) or having non-zero earnings (labor and business income, Household Budget Survey). This definition is more restrictive than the Eurostat definition, which is based on a number of additional detailed questions, and also includes workers who did not work in the previous week, but were on leave (including parental leave) or declared that they were temporarily absent due to other reasons⁷.

I do not use the employment variable defined by Eurostat for two reasons. First, previous studies have measured labor supply using earnings and working hours (Cesarini et al., 2017; Lalive and Zweimüller, 2009; Price and Song, 2018; Salehi-Isfahani and Mostafavi-Dehzoeei, 2018). Second, there is no comparable measure in the Household Budget Survey, because it includes only the respondent's self-declared labor market status (without the detailed questions that Labor Force Survey asks). More importantly, the Eurostat employment variable is not comparable over time due to the 2013 parental leave reform, which extended the duration of parental leave from six to 12 months. The parental leave extension automatically increased the number of mothers defined as employed according to the Eurostat definition simply because mothers on parental leave are classified as employed.

⁷The Eurostat definition follows guidelines of the International Labour Organization (ILO).

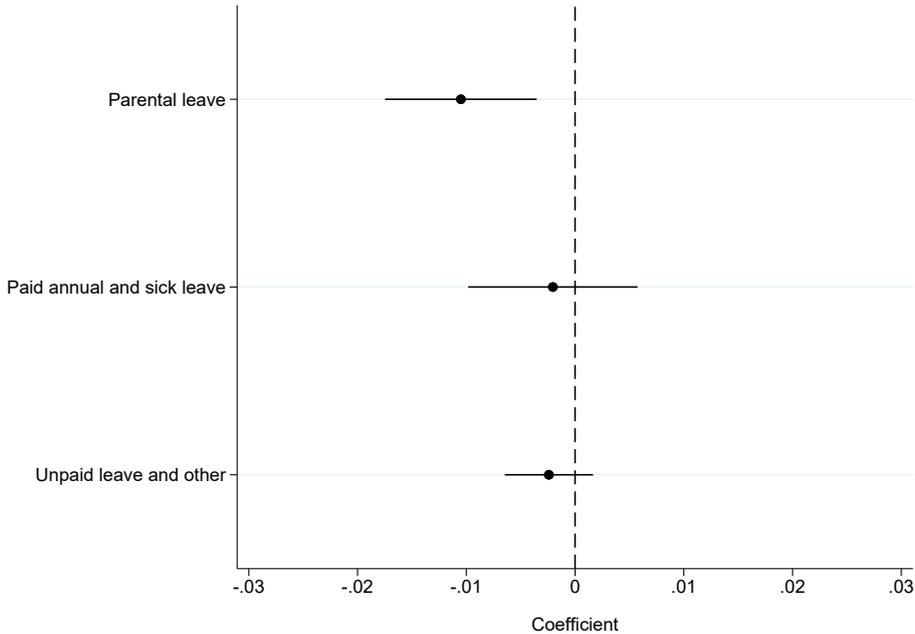
Figure F.1. Changes in labor market outcomes of new mothers (2012-2013)



Notes: Bars show the percentages of employed mothers according to various definitions in the sample of mothers with at least one child born in 2012 and 2013 during the first year after giving a birth.
Data: Labor Force Survey and Household Budget Survey

Empirically, Figure F.1 shows that there was a large increase (of around 10 pp.) in the employment rate according to the Eurostat definition or self-declared employment. By contrast, the share of mothers with non-zero working hours declined in this period, which is in line with the expected effects of parental leave extension. There was no change in the number of mothers with non-zero earnings. Importantly, birth rates seem to be unaffected by the parental leave extension (see Figure A.2).

Figure F.2. Treatment effects: absenteeism in the workplace by reason



Notes: Figure shows the effects of the introduction of the unconditional child benefit on the probability of absenteeism in the workplace among mothers classified as employed according to the Eurostat definition (point estimates and the 95% confidence intervals). I control for individual characteristics (age, educational level, disability, and the type of residence area), year fixed effects, region fixed effects (NUTS-2 regions), and monthly regional unemployment rate. The confidence intervals are based on standard errors that are clustered at the level of the household. Data: Household Budget Survey

The parental leave extension has important implications for the choice of the labor supply variable. Figure F.2 shows that in comparison to mothers in the control group, mothers in the treatment group were absent significantly less often due to parental leave in the post-treatment period than in the pre-treatment period. Absences for other reasons were not affected. Hence, the results obtained from the regression with the employment variable defined by Eurostat would be confounded by the parental leave reform. This is largely due to the interaction of two factors: the constantly higher fraction of new mothers in the control than in the treatment group, the automatic effect of the parental leave extension evidenced above, and the larger fertility effects in the control group than the treatment group (see Table D.1). While the last factor should be accounted for as it was caused by treatment, the first two factors caused a downward bias in the estimation. Table F.1 shows the biased results obtained from the regression that uses the Eurostat employment variable.

Table F.1. Effects on maternal employment (Eurostat definition)

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed (Eurostat)					
Treatment group	-0.010	-0.011	-0.011	-0.011	-0.011	-0.012
× Post-treatment period	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.13	0.13	0.13	0.13	0.13
Mean of outcome	0.68	0.68	0.68	0.68	0.68	0.68
N	134399	134399	134399	134399	134399	134399

Notes: Table shows the difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from estimating a linear probability model. Employment is defined according to the Eurostat definition. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

The interaction of the parental leave reform and the fertility differences between the treatment and control group that had already been present in the pre-treatment period could also confound the baseline results as the parental leave had negative effects on working hours. To address this issue, I restrict the pre-treatment period to the years after the parental leave reform (2014-2015). Table F.2 shows that the results remain similar after excluding the first two years from the sample.

Table F.2. Effects on maternal employment, 2014-2018

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Employed	Employed	Employed	Employed	Employed
Treatment group	-0.003	0.002	0.002	0.002	0.001	0.001
× Post-treatment period	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.08	0.08	0.08	0.08	0.09
Mean of outcome	0.63	0.63	0.63	0.63	0.63	0.63
N	91328	91328	91328	91328	91328	91328

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of employment obtained from estimating a linear probability model. Employment is defined according to the Eurostat definition. The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is employment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table F.3. Effects on maternal labor force participation (Eurostat definition)

	(1)	(2)	(3)	(4)	(5)	(6)
	Active	Active	Active	Active	Active	Active
Treatment group	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
× Post-treatment period	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.00	0.11	0.11	0.11	0.11	0.12
Mean of outcome	0.75	0.75	0.75	0.75	0.75	0.75
N	134399	134399	134399	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of being in labor force (working or actively looking for a job). The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is labor force participation rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey

Table F.4. Effects on maternal unemployment (Eurostat definition)

	(1)	(2)	(3)	(4)	(5)	(6)
	Unemployed	Unemployed	Unemployed	Unemployed	Unemployed	Unemployed
Treatment group	0.001	0.001	0.002	0.001	0.001	0.001
× Post-treatment period	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Ind. characteristics	no	yes	yes	yes	yes	yes
Year FE	no	no	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Regional unemployment rate	no	no	no	no	yes	yes
Region FE x Year FE	no	no	no	no	no	yes
Adj. R-Squared	0.01	0.02	0.02	0.02	0.02	0.02
Mean of outcome	0.07	0.07	0.07	0.07	0.07	0.07
N	134399	134399	134399	134399	134399	134399

Notes: Table shows difference-in-differences estimates of the effects of introducing the universal child benefit on the probability of being unemployed (not working and actively looking for a job). The treatment group consists of mothers of two children aged 3-17. The control group consists of mothers of one child aged 3-17. The pre-treatment period includes observations from the 2012-2015 period, and the post-treatment period includes observations from the 2016-2018 period. The sample includes prime-age mothers (aged between 29 and 49 at the time of the introduction of the child benefit) who are living with a partner. I exclude mothers from households that own a farm and mothers of children with disabilities. The individual characteristics include age, educational level, disability, and the type of residence area (urban/rural). The region fixed effects are the fixed effects for NUTS-2 regions (16 voivodeships). The standard errors are clustered at the level of the household. Mean of outcome is unemployment rate in the treated group in the pre-treatment period.

* p<.10; ** p<.05; *** p<.01

Data: Labor Force Survey



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