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## The Effect of Child Benefits on Financial Difficulties and Spending Habits: Evidence from Poland's Family 500+ Program

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## ABSTRACT

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# The Effect of Child Benefits on Financial Difficulties and Spending Habits: Evidence from Poland's Family 500+ Program

In response to the low fertility rate and high child poverty in Poland, the government implemented the Family 500+ program which provides cash transfers to families with two or more children, and low-income, one-child families. Using a difference-in-differences approach, we explore the causal effect of this policy on expenditure and financial difficulties of beneficiaries relative to non-eligible families. The findings suggest that after the introduction of the program, expenditures on food and cultural activities increased, and the likelihood of experiencing a hardship paying for utilities and medical care declined for the treatment relative to the control group. These results imply a beneficial effect of child benefits on tackling financial difficulties of families with children. From a policy perspective, the findings indicate that cash transfers can alleviate child poverty concerns and financial constraints to having children.

**JEL Classification:** I38, D10, P46, J13

**Keywords:** cash benefits, child allowance, expenditures, financial difficulties, poverty

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## 1. Introduction

In 2015, Poland was the second country in Europe after Portugal with the lowest fertility rate of 1.32 children per woman (European Commission 2018). In addition, 24.2% of Polish children suffered from poverty in 2016 (Eurostat 2020). In response, the government implemented the Family 500+ program in April 2016. Under the program, families with two or more children are eligible for a tax-free allowance for the second and all higher-order children under the age of 18.

Previous literature finds a positive effect of family allowances and child tax credit on fertility (Zhang et al. 1994, Gauthier et al. 1997, Gabos et al. 2009, Gonzalez 2013, Milovanska-Farrington 2019), time spent with children rather than working (Milligan et al. 2009, Gonzalez 2013), maternal mental health (Milligan et al. 2011), child longevity (Aizer et al. 2016<sup>1</sup>), and child mental, physical, and test scores (Milligan et al. 2009, Milligan et al. 2011) in different countries. Research explores two channels through which child benefits can improve child outcomes: (1) an indirect (“family process”) channel, that is higher family income reduces stress and improves parents-children interaction, which improves family well-being and facilitates learning, which on its part, improves child outcomes; and (2) a direct (“family resources”) channel, that is higher family income allows families to provide adequate resources for the children (Yeung et al. 2002, Milligan et al. 2011). The latter has an effect on both educational (Almond et al. 2011<sup>2</sup>) and health outcomes of children (Hoynes et al. 2016<sup>3</sup>). Research for Poland finds that Family 500+ reduced income inequality for families with children (Brzeziński et al. 2017, Paradowski et al. 2020). Premik (2017) and Magda et al. (2018)<sup>4</sup> explore the impact of this allowance on maternal labor market participation, and Myck et al. (2019) examine its extension to full universality.

However, there is no existing article on the impact of Family 500+ on consumption and financial concerns of families<sup>5</sup>. We extend prior literature by investigating the effect of the introduction of a cash transfer for families with children in Poland on spending on basic goods and services and difficulties

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<sup>1</sup> Aizer et al. (2016) show that cash transfers to poor families with children are associated with child longevity in these families.

<sup>2</sup> Almond et al. (2011) show that poor nutrition is related to lower test scores of children.

<sup>3</sup> Hoynes et al. (2016) document a positive effect of the Food Stamp Program during childhood on long-term health outcomes, including lower risk of obesity, diabetes and high blood pressure.

<sup>4</sup> Through a difference-in-differences approach, Magda et al. (2018) find that the benefit reduced labor market participation of women with children compared to those without. The effect of the program was more pronounced for less educated women and those who live in small cities.

<sup>5</sup> There is a similar study for Spain conducted by Gonzalez (2013) who finds no significant change in the consumption of child-related goods and services as a result of the introduction of child benefits in the country.

covering essential expenses. Specifically, using a difference-in-differences method, we examine the differential effect of the policy on spending on food and cultural activities and the likelihood of experiencing financial hardship purchasing food, utilities and medical care of families who have enjoyed the benefits relative to those who have not experienced them.

In the rest of this paper, we provide background information about Family 500+ in Section 2, specify the model in Section 3, and discuss the data in Section 4. Section 5 presents the results. Section 6 discusses policy implications and concludes the paper.

## **2. Background**

Family 500+ (Rodzina 500+) program in Poland, passed in April 2016, provides a tax-free child benefit of PLN 500 (appr. \$127) per month for second and higher-order children until each child turns 18, regardless of household income and marital status. Families whose household income is below PLN 800 per family member, or below PLN 1200 per member but have a disabled child, are also eligible for a benefit for their first child.

The main purpose of the program is to encourage families to have more children by reducing the cost of raising a child. According to Poland's Statistics office, the program fulfilled this goal, as child births increased by 13-15% in 2016. The program also aims to reduce child poverty in the country although it is likely to have an adverse effect on the labor market, especially for low-income mothers who postpone returning to work after giving birth due to the program (European Commission 2018).

To receive child benefits, families have to submit an application to Poland's authorities, welfare or benefits centers, either in person or online, and must re-apply every year. Supporting documents proving income do not have to be submitted for second and subsequent children because of the universal nature of the allowance. However, if parents request support for their first child, they must provide proofs of income.

There are no restrictions on how beneficiaries spend the child benefits. However, provided that parents utilize the allowance for food, utilities, childcare, and cultural activities for children, the program can reduce child poverty and improve children's later outcomes.

The program was extended to cover all children (regardless of household income), including the first one, in July 2019. The extension is not of interest in this study due to lack of data after 2018, but is an area of future investigation.

### 3. Empirical methodology

We use a difference-in-differences framework to identify the causal effect of the Family 500+ program on spending habits and financial difficulties of Polish families. The program provides a natural experiment in which only a subgroup of families is eligible for child allowances. To generate a difference-in-differences estimate, we identify two groups of families: (1) a treatment group which consists of families eligible for benefits, that is parents who have two or more children and at least one of the children is under the age of 18, and parents who have at least one child under 18 and household income below the threshold PLN 800 per family member (although no respondents in our sample have household income below this threshold), and (2) a control group of families ineligible for child support. We create an indicator *Treatment* equal to 1 if a family belongs to the treatment group, and zero, otherwise. An indicator variable *Post* takes a value of 1 for time periods after the introduction of the program in 2016 (i.e., wave 7, or year 2018), or 0 for the pre-reform period (i.e., waves 5 and 6, or years 2008 and 2013). We estimate the following equation for the outcomes capturing spending habits:

$$Spending_{it} = \beta_1 Post_{it} + \beta_2 Treatment_{it} + \beta_{DD}(Post * Treatment)_{it} + \gamma X + \xi_i + \varepsilon_{it} \quad (\text{Eq. 1})$$

In this equation, subscripts *i* refer to individuals and subscripts *t* denote time. The term *X* is a set of covariates, and  $\varepsilon_{it}$  is a stochastic error term. Individual random effects  $\xi_i$  are included to control for unobserved, time-invariant heterogeneity between families. The coefficient  $\beta_{DD}$  on the interaction term of *Treatment* and *Post* is the difference-in-differences estimator which captures the causal effect of the program on the outcomes by comparing the average outcomes of the two groups after relative to prior the implementation of the program. The outcomes include the natural logarithm of two variables which reflect spending habits: spending on food and spending on cultural activities.

Because of the dichotomous nature of the dependent variables eliciting information about financial hardships of families, we modify eq. (1) for these outcomes and estimate the following logistic regressions using maximum likelihood estimation:

$$Prob(FinDifficulty_{it} = 1 | X_{it}) = Prob[\beta_1 Post_{it} + \beta_2 Treatment_{it} + \beta_{DD}(Post * Treatment)_{it} + \gamma X + \xi_i > 0 | X_{it}] \quad (\text{Eq. 2})$$

Here, the binary outcomes *FinDifficulty* include financial difficulties with food, utility bills, and medical care. Marginal effects are estimated after running each Logit regression. Additionally, in all models in (1) and (2), we first estimate parsimonious regressions, and then, add controls.

The forementioned difference-in-differences approach relies on the underlying parallel trends assumption that in the absence of the program, there would have been no difference in the average change in the spending habits and the financial difficulties between eligible and ineligible families. We graphically compare the fitted trends pre-intervention, and additionally show the means of the outcomes in the years under investigation.

A complication that might bias the results emerges from the possibility that a low-income, one-child parent whose household income is close to the cutoff for receiving benefits for a first child might choose to stop working or start working fewer hours (if possible) to become eligible for an allowance for the first child. To explore this possibility, we consider a specification in which we exclude families with one child. We further perform the analysis for various subsamples based on household income bracket.

#### **4. Data and descriptive statistics**

This study utilizes longitudinal data extracted from waves 5 to 7 (2008 to 2018) of the Polish Panel Survey (POLPAN) conducted every five years. To explore social changes in Poland, the Polish Academy of Sciences in cooperation with other academic institutions surveys a representative sample of adults randomly chosen from the Universal Electronic System for Registration of the Population (the PESEL register).

The dataset contains variables which elicit information about families' spending habits on food and cultural activities, as well as the incidence of financial difficulties with food, utilities, and medical care. The forementioned variables are the outcomes in this study. Data on the number of children and their age allows us to construct a group of individuals who are eligible for child benefits under the Family 500+ program. Although none of the respondents in the sample has a household income below the PLN 800 per family member to be eligible for an allowance for the first child, 29.17% of the respondents represent the treatment group in this study, that is have at least 2 children and at least one of them is under the age of 18.

The following variables are available in the dataset and serve as conditioning variables: age, gender (female = 1, male = 0), number of children in the household under 18, marital status (married = 1, and 0, otherwise), number of household members, employment status of the respondent (employed = 1, and 0, otherwise), employment status of the spouse (employed = 1, and 0, otherwise), and highest educational attainment (Bachelor's degree, Master's or doctoral degree, and high school or lower education is the omitted category). Monthly household income is also provided and used to run regressions for subsamples of individuals belonging to various household income brackets.



Table 1 provides summary statistics of the variables used in the empirical analysis. The average age of the respondents in the sample is 57.82, and 53% of the participants are women. On average, a family consists of 3.10 members with 0.14 children. More than half (58%) of the respondents are married, 58% are employed, and the spouse of 62% of the respondents works. As for educational attainment, 8% have a Bachelor's degree, 16% have a graduate degree, and the rest have a high school diploma or lower education. The average household income is 3988.94 PLN per month. Families spend PLN 1205.71 and PLN 133.26 on average per month on food and cultural activities, respectively. Financial difficulties with food, utilities and medical care are faced correspondingly by 11.93%, 13.30% and 15.51% of the respondents in the survey.

<b>Variable</b>	<b>Mean/ Percent</b>	<b>Std. deviation</b>
Age	57.82	21.09
Female	0.53	
Number of children under 18	0.14	0.50
Married	0.58	
Number of household members	3.10	
Employed	0.58	
Spouse employed	0.62	
Highest educational attainment		
High school or below	0.76	
Bachelor's degree	0.08	
Master's or a doctoral degree	0.16	
Post-Family 500	33.33%	
Treatment	29.17%	
Monthly household income (in PLN)	3988.94	3736.99
Average spending on food	1205.71	704.54
Average spending on cultural activities	133.26	174.29
FinProblemFood	11.93%	
FinProblemUtilities	13.30%	
FinProblemMedCare	15.51%	

*Notes:* Source: Polish Panel Survey (POLPAN), Waves 5 – 7 (2008 – 2018)

## **5. Results**

We present major findings from the empirical analysis in this section. Although our focus is on families whose household income is below PLN 5,000 (i.e., not high-income households), we present some findings in the whole sample for comparison purposes.

Table 2 presents results from parsimonious regressions regardless of household income level (Panel A), regressions including conditioning variables again irrespective of income (Panel B), and regressions with controls estimated in a subsample of families whose household income is below PLN 5,000. The differential effect of the Family 500+ program is captured by the coefficient on the interaction term between the post-treatment and the treatment group indicator variables. Marginal effects after the logistic regressions in columns (3) to (5) are shown in square parenthesis. We observe a statistically significant positive impact of the program on spending on food and cultural activities of beneficiaries and a statistically significant reduction in difficulties with paying utility bills and medical expenses. Adding control variables eliminates the impact of the program on food expenditure<sup>6</sup>. However, when we restrict the sample only to families with household income below PLN 5,000, the results indicate that after the implementation of Family 500+, beneficiaries started to spend on average 19% more on food and 38.4% more on cultural activities relative to non-eligible families. The program also led to a decline in the likelihood of experiencing difficulties with covering utility bills and medical expenses respectively by 11.3% and 16.5% for beneficiaries relative to non-eligible families, after compared to prior to the intervention. These effects on expenditures are highly statistically significant at any significance level while the ones on financial difficulties are statistically significant at 5%. We do not observe a significant differential effect of the program between eligible and non-eligible families on difficulties covering food expenses.

<b>Table 2. Effect of Family 500+ on spending habits and financial difficulties</b>					
	(1)	(2)	(3)	(4)	(5)
	Ln (Spending on food)	Ln (Spending on cultural activities)	Difficulty with food	Difficulty with utilities	Difficulty with medical care
<i>Panel A. Parsimonious regressions (all income levels)</i>					
Post	0.140*** (0.016)	0.116*** (0.035)	-1.176*** (0.135) [-0.085***]	-1.430*** (0.135) [-0.111***]	-0.752*** (0.110) [-0.068***]
Treatment	0.137*** (0.023)	-0.074 (0.069)	0.384** (0.152) [0.028**]	0.561*** (0.147) [0.043***]	-0.128 (0.151) [-0.012]
Post*Treatment	0.183*** (0.012)	0.261*** (0.084)	-0.340 (0.312)	-0.627* (0.323)	-0.566** (0.286)

<sup>6</sup> For the outcomes capturing expenditure on food and cultural activities, clustering standard errors at occupation, or occupation and age level alter the results extracted from the whole sample only slightly, but reduces the sample size by about half, so we chose to use only individual-level robust standard errors.

			[-0.025]	[-0.049*]	[-0.051**]
Obs.	5,146	3,059	6,632	6,641	6,467
<i>Panel B. Regressions with controls (all income levels)</i>					
Post	0.232*** (0.018)	0.171*** (0.048)	-1.229*** (0.204)	-1.398*** (0.206)	-1.178*** (0.174)
			[-0.070***]	[-0.084***]	[-0.083***]
Treatment	0.008 (0.034)	-0.092 (0.108)	0.324 (0.272)	0.708** (0.289)	0.179 (0.304)
			[0.019]	[0.042**]	[0.013]
Post*Treatment	0.036 (0.036)	0.210** (0.093)	-0.165 (0.390)	-0.734* (0.419)	-0.783* (0.403)
			[-0.009]	[-0.044*]	[-0.055**]
Obs.	3,300	1,947	3,750	3,747	3,748
<i>Panel C. Regressions with controls in a subsample of families with monthly household income below PLN 5,000</i>					
Post	0.181*** (0.025)	0.058 (0.067)	-0.954*** (0.251)	-1.068*** (0.247)	-1.142*** (0.211)
			[-0.081***]	[-0.094***]	[-0.117***]
Treatment	-0.014 (0.040)	-0.228* (0.137)	0.385 (0.323)	0.603* (0.310)	0.187 (0.354)
			[0.033]	[0.053*]	[0.019]
Post*Treatment	0.190*** (0.051)	0.384*** (0.144)	-0.200 (0.525)	-1.278** (0.637)	1.618** (0.735)
			[-0.017]	[-0.113**]	[-0.165**]
Obs.	1,945	1,052	2,093	2,091	2,089

*Notes:* The table reports the effect of Family 500+ on family expenditure habits and financial difficulties covering basic bills. All regressions include random effects. The results in Columns (3), (4) and (5) are obtained from logistic regression models. The results in Panel A are extracted from parsimonious regressions estimated in the whole sample, while the ones in Panel B include controls. The results in Panel C are obtained from regression analyses performed in a subsample of families with monthly household income lower than PLN 5,000. The controls used in the regressions in Panels B and C are the following: Age, Gender (1 if female, and 0 if male), number of children under the age of 18, marital status (1 if married, and 0, otherwise), number of household members, employment status (1 if employed, and 0, otherwise), spouse employment status (1 if employed, and 0, otherwise), an indicator for respondent's highest educational attainment being a Bachelor's degree, and a dummy variable for respondent's highest educational attainment being a Master's or a doctoral degree. Robust standard errors are reported in parentheses. Marginal effects after logistic regressions are presented in square parentheses in Columns (3), (4) and (5). \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

To check the sensitivity of the forementioned findings, we change the selected threshold for non-high-income families. This experiment produces similar results but as we increase the cutoff household income, the magnitudes of the average effects of the program on the outcomes of interest decline.

We also estimate all regressions in subsamples of families with monthly household income between PLN 5,000 and PLN 10,000, as well as above PLN 10,000. The program does not lead to significant differences in the changes of the outcomes of interest between the treatment and the control groups within the latter two income brackets. However, we caution the reader that we have power concerns about this result because the sample size is reduced to below 1,000 observations when we restrict it in the forementioned manner. Richer data are necessary to examine higher-income families. This is an area of future exploration. However, we do show that the Family 500+ program has a significant impact on families in the lowest income bracket.

Likewise, restricting the sample only to individuals at the age between 20 and 50 when they are most likely to have children eligible for allowances produces similar to the above-mentioned results, but makes the sample size much smaller so we prefer using the entire sample. Similarly, estimates obtained from regressions estimated only in a subsample of parents (i.e., respondents with at least one child) have the same significance and similar magnitudes to the ones from regressions in the entire sample.

It is worth mentioning that since one-child families are also eligible for a child benefit provided that the household income is below PLN 800 per family member per month, some low-income parents might voluntarily choose to leave their job or to work fewer hours to become eligible for a benefit for their first child. If this is the case, the previous results would be biased. In our sample, there are no observations which qualify for a first-child allowance based on the low-income criteria. This might indicate that the sample is not representative of the Polish population, or that the threshold for eligibility for first-child benefit is low enough to not incentivize families to change their employment choices to qualify for federal support. In either case, we perform further investigation of the effect of the policy by estimating all previous regressions in a subsample which excludes one-child families, that is those who might change work behavior to qualify for a benefit for the first child, and in a subsample of families with a household income less than PLN 5,000 (the cutoff income level we used in the previous analysis) who have one child. The results are shown in Table 3 – Panels A and B, respectively. Excluding families with one child does not lead to changes in the significance and the signs of the prior findings. Excluding families with household income above PLN 5,000 and single child families produces similar results as well. Comparing the latter findings with the ones restricting only income level but not number of children provides evidence that Family 500+

does lead to an increase in the expenditure on food and cultural activities and a reduction in the likelihood of experiencing financial hardship with utility bills and medical expenses of beneficiaries relative to non-eligible families, after compared to prior to the implementation of the program. Specifically, compared to non-eligible families, recipients of child allowances (excluding one-child families) started to spend 22.8% more on food (compared to the previous finding of 19%, not restricting number of children) and 30.6% more on cultural activities (compared to the previous finding of 38.4%), and became 13% less likely to experience a difficulty covering utility bills (compared to the previous result of 11.3%) and 18.8% less likely to have issues paying medical bills (compared to 16.5% in the previous findings) after relative to before the introduction of the program. Therefore, excluding families with one child from the sample produces a slightly greater effect of the Family 500+ program on all outcomes except for cultural activities expenditures. We do not observe a significant effect of the program on difficulties paying for food in any of the subsamples.

**Table 3. Effect of Family 500+, excluding families with one child**

	(1)	(2)	(3)	(4)	(5)
	Ln(Spending on food)	Ln(Spending on cultural activities)	Difficulty with food	Difficulty with utilities	Difficulty with medical care
<i>Panel A. Subsample of all families, excluding those with one child</i>					
Post	0.208*** (0.021)	0.196*** (0.062)	-1.346*** (0.248) [-0.079***]	-1.376*** (0.231) [-0.086***]	-1.113*** (0.190) [-0.079***]
Treatment	-0.020 (0.044)	-0.035 (0.144)	0.220 (0.343) [0.013]	0.683** (0.338) [0.043**]	0.208 (0.373) [0.015]
Post*Treatment	0.062* (0.037)	0.177* (0.100)	-0.067 (0.415) [-0.004]	-0.762* (0.441) [-0.048*]	-0.959** (0.432) [-0.068**]
Obs.	2,786	1,439	3,153	3,151	3,151
<i>Panel B. Subsample of families with monthly household income below PLN 5,000, excluding one-child families</i>					
Post	0.146*** (0.028)	0.078 (0.080)	-1.064*** (0.299) [-0.088***]	-0.918*** (0.265) [-0.083***]	-1.036*** (0.234) [-0.103***]
Treatment	-0.018 (0.053)	-0.264 (0.184)	0.261 (0.415) [0.022]	0.393 (0.378) [0.036]	0.178 (0.457) [0.018]
Post*Treatment	0.228***	0.306**	-0.165	-1.439**	-1.893**

	(0.053)	(0.150)	(0.563)	(0.653)	(0.758)
			[-0.014]	[-0.130**]	[-0.188**]
Obs.	1,662	794	1,782	1,781	1,779

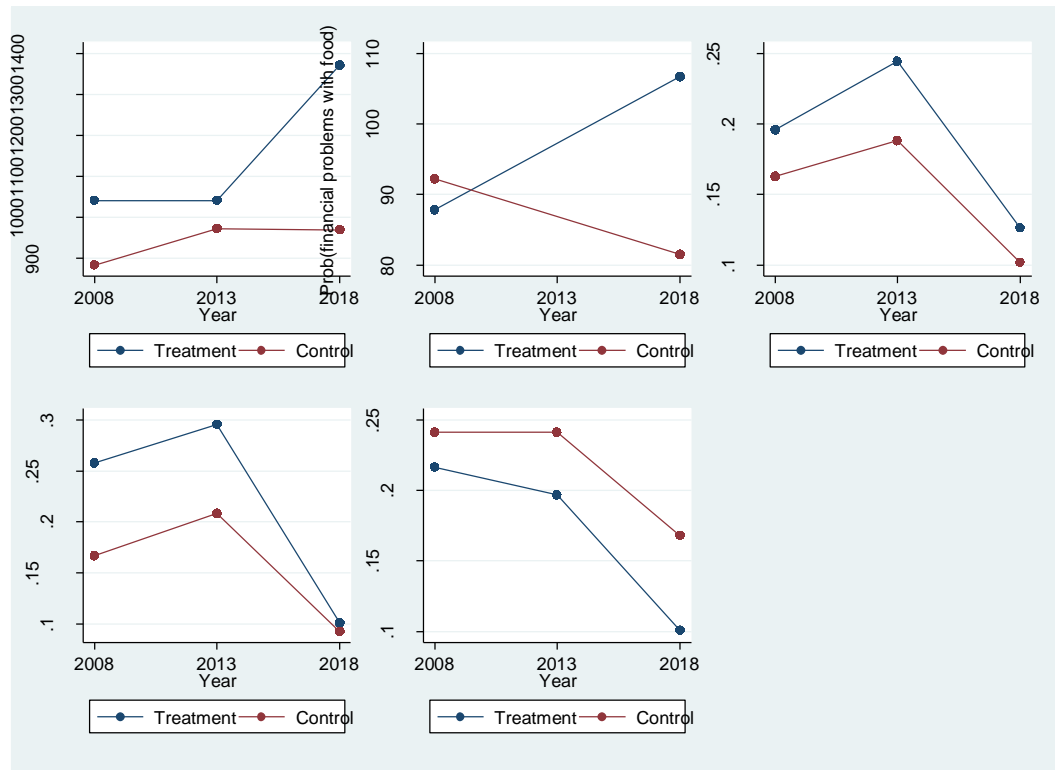
*Notes:* The table reports the effect of Family 500+ on family expenditure habits and financial difficulties covering basic bills, excluding families with one child. All regressions include random effects. The results in Columns (3), (4) and (5) are obtained from logistic regression models. In Panel A, we do not restrict the sample based on income level, while the regressions in Panel B are estimated in a subsample of single-child families with monthly household income below PLN 5,000. The controls used in all regressions are the following: Age, Gender (1 if female, and 0 if male), number of children under the age of 18, marital status (1 if married, and 0, otherwise), number of household members, employment status (1 if employed, and 0, otherwise), spouse employment status (1 if employed, and 0, otherwise), an indicator for respondent’s highest educational attainment being a Bachelor’s degree, and a dummy variable for respondent’s highest educational attainment being a Master’s or a doctoral degree. Robust standard errors are reported in parentheses. Marginal effects after logistic regressions are presented in square parentheses in Columns (3), (4) and (5). \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

The identifying assumption underlying the difference-in-differences estimates is the parallel trends assumption that in the absence of the intervention, the treatment and the control group would have evolved similarly in terms of spending habits and financial difficulties. To examine the validity of this assumption, we present fitted trends of the outcomes of the two groups and the average outcomes over time in Panels A and B of Figure 1. Both figures use data for the families of interest in this research, that is those with household income lower than PLN 5,000. A graphical display of the fitted trends (Panel A) shows that before the implementation of the program, the treatment and the control groups followed similar patterns in terms of spending and financial problems, that is the trends did not differ across groups. An exception is the likelihood of experiencing financial hardship with food for which the difference in the fitted values between the two groups does not seem to change significantly. This is consistent with our finding that the Family 500+ program does not have a statistically significant impact on this outcome. For the remaining outcomes, the graphs suggest that the fitted values for the outcomes showing expenditures of the treatment and the control group follow similar trends, but after the implementation of the program the differences increased significantly. We observe a clear parallel trend for the likelihood of experiencing financial difficulties with covering utility bills. The difference in this outcome between the two groups seems to almost disappear after the introduction of the allowance. This indicates that the program helped to eliminate inequality between the two groups, which coincides with the findings from the regression analysis. For the likelihood of experiencing difficulties with medical expenses, the graph shows a similar trend in the fitted values between groups. After the introduction of the policy, we do observe a larger reduction in these difficulties for the treatment groups and an increase in the gap between the treatment and the control groups although the difference seems smaller and thus less explicit than the effect of the program on the other outcomes. The

means of all outcomes over time plotted in Panel B of Figure 1 show trends consistent with the forementioned ones.



**Figure 1 – Panel A: Fitted trends of the outcomes for the treatment and the control group**



**Figure 1 – Panel B: Means of the outcomes over time for the treatment and the control group**

## 6. Discussion and conclusion

This study finds that the introduction of a child allowance in Poland is associated with an increase in the expenditures on food and cultural activities and a reduction in the hardship managing utility bills and medical expenses of beneficiaries relative to non-eligible families. These findings have at least three policy implications. First, cash benefits for families with children provide an opportunity to reduce child poverty rates. Second, if financial constraints provide a disincentive to families to have more children, a child allowance is a potential remedy of this concern. This, on its part, is likely to alleviate the low fertility rate problem in Poland and other countries. Third, spending more on cultural activities and higher likelihood of being able to cover medical expenses is likely to improve child well-being. If this is true, child benefits can indirectly improve children’s health outcomes, educational attainment, personal development and overall well-being. Additionally, if greater food expenditures imply better-quality, more nutritious food and healthier diet for children, then a child benefits program might indirectly have a positive impact on children’s health, healthy body weight and later health outcomes.

Possible extensions of this research can examine regional differences in the effect of the program in alleviating poverty rates. Using quantile regression analysis, the impact of Family 500+ on family



expenditure can also be explored more precisely for families who spend different amounts on food and cultural activities. Provided that richer data are available, one can estimate the effect of the program on more outcomes eliciting information about expenditures and financial difficulties. Future research can also examine the effect of the extension of the program to all children in 2019, an analysis which requires data after 2019.

## References

- Aizer, A., Eli, S., Ferrie, J., & Lleras-Muney, A. (2016). The long-run impact of cash transfers to poor families. *American Economic Review*, 106(4), 935 – 971. Doi: 10.1257/aer.20140529
- Almond, D., Mazumder, B., & Van Ewijk, R. (2011). Fasting during pregnancy and children's academic performance. *NBER Working Paper No. 17713*. Retrieved from [https://www.nber.org/system/files/working\\_papers/w17713/w17713.pdf](https://www.nber.org/system/files/working_papers/w17713/w17713.pdf)
- Brzeziński, M., & Najsztub, M. (2017). The impact of “Family 500+” programme on household incomes, poverty and inequality. *Polityka Społeczna*, 44(1), 16 – 25. Retrieved from <http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight-deefeab8-a9b2-453e-8b87-ea956fa38e74>
- European Commission. (2018). First results of Poland’s Family 500+ programme released. Retrieved from <https://ec.europa.eu/social/main.jsp?langId=en&catId=1246&newsId=9104&furtherNews=yes>
- Eurostat. (2020). People at risk of poverty or social exclusion by age and sex. Retrieved from <https://ec.europa.eu/eurostat>
- Gabos, A., Gal, R., & Kezdi, G. (2009). The effects of child-related benefits and pensions on fertility by birth order: A test on Hungarian data. *Population Studies*, 63(3), 215 – 231. Doi: 10.1080/00324720903215293
- Gauthier, A., & Hatzius, J. (1997). Family benefits and fertility: An econometric analysis. *Population Studies*, 51(3), 295 – 306. Doi: 10.1080/0032472031000150066
- Gonzalez, L. (2013). The effect of a universal child benefit on conceptions, abortions, and early maternal labor supply. *American Economic Journal: Economic Policy*, 5(3), 160 – 188. Doi: 10.1257/pol.5.3.160
- Hoynes, H., Schanzenbach, D., & Almond, D. (2016). Long run impacts of childhood access to the safety net. *American Economic Review*, 106(4), 903 – 934. Doi: 10.1257/aer.20130375

- Magda, I., Kielczewska, A., & Brandt, N. (2018). The “Family 500 +” child allowance and female labour supply in Poland. IBS Working Paper 01/2018, Warsaw, Instytut Badan Strukturalnych. Retrieved from [http://ibs.org.pl/app/uploads/2018/03/IBS\\_Working\\_Paper\\_01\\_2018.pdf](http://ibs.org.pl/app/uploads/2018/03/IBS_Working_Paper_01_2018.pdf)
- Milligan, K., & Stabile, M. (2009). Child benefits, maternal employment, and children’s health: Evidence from Canadian child benefit expansions. *The American Economic Review*, 99(2), 128 – 132. Doi: 10.1257/aer.99.2.128
- Milligan, K., & Stabile, M. (2011). Do child benefits affect the well-being of children? Evidence from Canadian child benefit expansions. *American Economic Journal: Economic Policy*, 3(3), 175 – 205. Doi: 10.1257/pol.3.3.175
- Milovanska-Farrington, S. (2019). The effect of family welfare support on the likelihood of having another child and parents’ labor supply. *Research in Economics*, 73(3), 243 – 263. Doi: 10.1016/j.rie.2019.07.005
- Myck, M., & Trzciński, K. (2019). From partial to full universality: The Family 500+ programme in Poland and its labor supply implications. ifo DICE Report, Leibniz-Institut für Wirtschaftsforschung an der Universität München, München, 17(3), 36 – 44. Retrieved from <https://www.econstor.eu/bitstream/10419/216278/1/ifodice-2019-03-p36-44.pdf>
- Paradowski, P., Wolszczak-Derlacz, J., & Sierminska, E. (2020). Inequality, poverty and child benefits: Evidence from a natural experiment. Working paper No. 799, Luxembourg Income Study (LIS). Retrieved from <https://www.lisdatacenter.org/wps/liswps/799.pdf>
- POLPAN. (2020). Polish Panel Survey. Waves 5-7 (2008 – 2018), v. 200129-U-1234567. Warsaw: Institute of Philosophy and Sociology, Polish Academy of Sciences.
- Premik F. (2017). Child support instruments and labor supply: Evidence from a large scale child benefit program. *Narodowy Bank Polski, Warsaw School of Economics*. Retrieved from [https://www.nbp.pl/badania/konferencje/2017/summer/papers/9\\_Premik.pdf](https://www.nbp.pl/badania/konferencje/2017/summer/papers/9_Premik.pdf)
- Yeung, J., Linver, M., & Brooks-Gunn. (2002). How money matters for young children’s development: Parental investment and family processes. *Child Development*, 73(6), 1861 – 79. Doi: 10.1111/1467-8624.t01-1-00511
- Zhang, J., Quan, J., & van Meerbergen, P. (1994). The effect of tax-transfer policies on fertility in Canada, 1921 – 88. *The Journal of Human Resources*, 29(1), 181 – 201.

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The authors declare that this article does not contain any studies with human participants or animals performed by any of the authors.

### **Authors' Contributions**

The author declares that no one else has participated in the development of this manuscript. The author approves the current version of the article, and is responsible for all aspects of this research.