Is child benefit reducing relative and subjective poverty? Evidence from a „natural experiment"

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Motivation

- to evaluate in depth and overtime poverty and inequality by employing monthly micro-data from HBS
- examination of various inequality and poverty indicators and their decomposition by effects, sources, and demographic characteristics
- to assess the effects of Polish child programme: 500+ (very much debated and present in media)
- to draw policy implication

General information about the "Family 500 +" programme

- According to the Ministry of Family, Labour and Social Policy there are three main aims of the programme
  - improving the Polish demographic situation
  - investment in human capital
  - reduction of poverty among children (MRPiPS, 2017)
- is untaxed PLN 500 per month for each second and subsequent child up to 18 years old, regardless of family's income
- low-income families (with monthly income per person not higher than 800 PLN net) receive support also for the first or only child
- introduced on April 1, 2016 based on the State law: State aid in raising children [Act No. 1851 of 11 Feb. 2016] as the realization of pre-election promises of PiS (Law and Justice party)

Empirical studies referring to the effects of programme: Family 500 +"

- Myck (2016), Magda et al. (2018) and Premik (2017) impact on the women participation in the labour market
- Myck (2016), Magda et al. (2018): labour market participation rates of women with children decrease after the introduction of the benefit compared to childless women. Premik (2017): minor impact on the labor supply in periods following its introduction
- Goraus and Inchauste (2016), Brzeziński and Najsztub (2017) and Szarfenberg (2017): simulations concerning the impact of the programme on the poverty, the impact will be substantial, with the strongest impact on the incomes of households at the lower end of income distribution
- Magda et. al (2019) 500+ is not efficient since the reduction in poverty is lower then expected
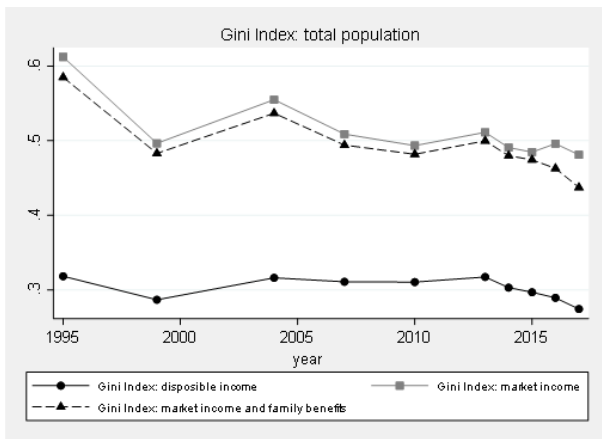
Data

- Polish Household Budget Surveys
    - monthly: 2013 - 2017 (GUS)
    - yearly: 1994 - 2013 (harmonised HBS from Luxembourg Income Study)
- crucial variables
    - incomes: disponsable income, labour income, capital income, social transfers (including 500+), private transferes
    - social-economic characteristics of households

Motivation and background
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Poverty

- relative poverty: monetary perspective: household is considered poor if its income is less than 60 percent of median disposable income of the weighted sample of households
- subjective poverty: we define a household to be "poor" if it meets the following three conditions:
  - their economic situation is "bad" or "rather bad" (the other possibilities are "very good," "rather good," "neither good or bad")
  - it needs to watch the daily budget very carefully while spending money on basic needs
  - it does not have enough money for daily basic needs
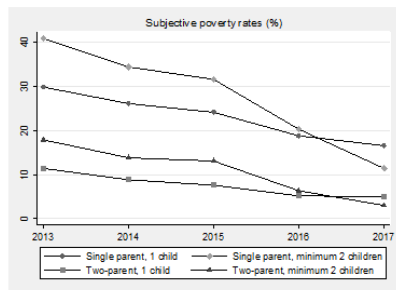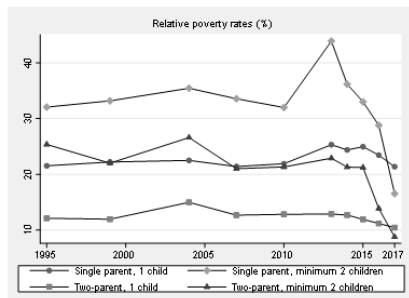
Gini index over time

Notes: own elaboration based on data from Polish Household Budget Survey/Luxembourg Income Study

Relative and subjective poverty: population, children and elderly over time

Motivation and background
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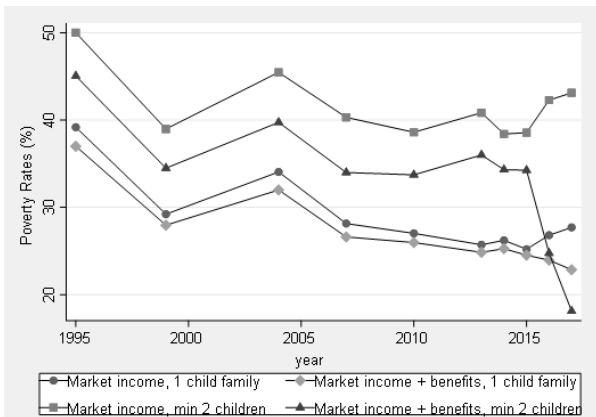ooooooooooo

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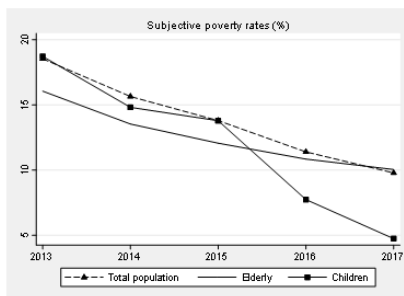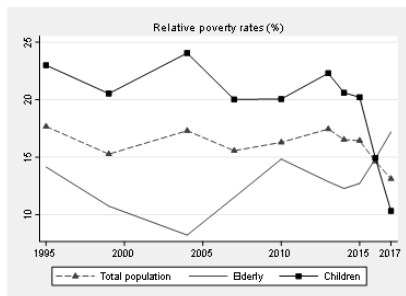
Relative and subjective poverty by population sub-groups

Notes: own elaboration based on data from Polish Household Budget Survey/Luxembourg Income Study

Relative children poverty rates by population sub-groups and source of income

Notes: own elaboration based on data from Polish Household Budget Survey/Luxembourg Income Study

Motivation and background
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Relative Poverty decomposition into growth and redistribution based on disposable income (total population): 2013-2017, 2014-2017, 2015-2017 and 2016-2017

Time period	FGT	Growth	Distribution	Total change in p.p
2013-2017	FGT0	-6.18	-4.86	-11.04
	FGT1	-1.51	-1.39	-2.91
	FGT2	-0.6	-0.6	-1.2
2014-2017	FGT0	-5.8	-3.69	-9.5
	FGT1	-1.41	-1.00	-2.41
	FGT2	-0.54	-0.41	-0.95
2015-2017	FGT0	-4.89	-3.44	-8.33
	FGT1	-1.19	-0.97	-2.15
	FGT2	-0.45	-0.44	-0.89
2016-2017	FGT0	-1.83	-2.11	-3.95
	FGT1	-0.43	-0.58	-1.01
	FGT2	-0.16	-0.26	-0.42

Source: Own elaboration based on data from Polish Household Budget Survey and Luxembourg Income Study (LIS) Database

Note: FGT0 –headcount ratio; FGT1 – poverty gap index; FGT2 –poverty depth

Notes: own elaboration based on data from Polish Household Budget Survey/Luxembourg Income Study

Decomposition by components of welfare measures: subsample of households with children less than 18 years old (2013-2017)
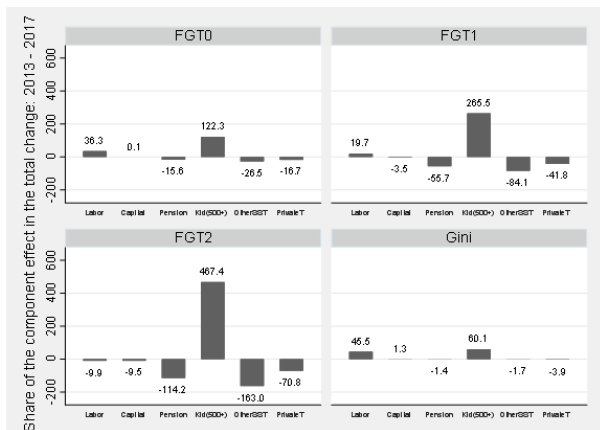
Notes: own elaboration based on data from Polish Household Budget Survey/Luxembourg Income Study

Parallel trends with quarterly data (unsmoothed): relative (left panel) and subjective (right panel) poverty

Notes: The Parallel trends are estimated by LPM with robust standard errors and sample weights and shown as linear predictions with the utilization of marginal effects.
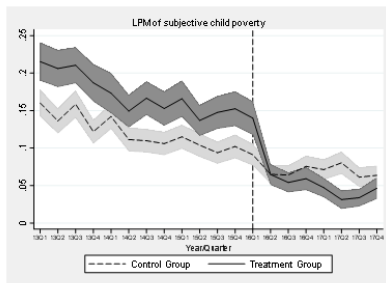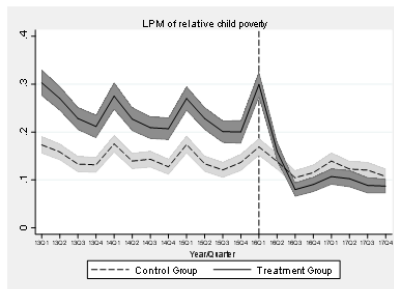Source: Own elaboration based on data from Polish Household Budget Survey and Luxembourg Income Study (LIS) Database

Difference-in-Difference estimations

$$y_{it} = \beta_0 + \beta_1 dB_{it} + \delta_0 d2_{it} + \delta_1 d2 \times dB_{it} + \alpha_{it} X_{it} + u_{it}$$

where: dB_i is an indicator variable equal to 1 for the treatment group (those eligible for the benefit) and 0 otherwise,

$d2$ is a dummy for time period, equal to 1 after the policy implementation and 0 otherwise, and

$d2 \times dB$ is the interaction term representing treatment group in the second period.

The parameter δ_1 is the difference-in-difference estimator that captures the impact of the Family 500+ program on poverty.

Linear Probability Models: Difference-in-Difference estimations

	Difference-in-Difference Estimators without covariates				Difference-in-Difference Estimators with covariates			
	Relative poverty		Subjective Poverty		Relative poverty		Subjective poverty	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Period	0.017*** [0.002]	0.018*** [0.002]	-0.013*** [0.003]	-0.014*** [0.003]	0.037*** [0.009]	0.004*** [0.005]	0.017** [0.008]	-0.051*** [0.005]
Treated	0.261*** [0.003]	0.259*** [0.004]	0.123*** [0.004]	0.127*** [0.004]	0.262*** [0.004]	0.258*** [0.004]	0.103*** [0.004]	0.107*** [0.005]
Period×Treated	-0.156*** [0.005]	-0.154*** [0.005]	-0.113*** [0.005]	-0.117*** [0.005]	-0.137*** [0.005]	-0.134*** [0.005]	-0.104*** [0.005]	-0.107*** [0.005]
Other controls	No	No	No	No	Full Set	Full Set	Full Set	Full Set
R-squared	0.074	0.073	0.039	0.041	0.236	0.230	0.176	0.175
Observations	62564	57327	62564	57327	62564	57327	62562	57325

Notes: regression with robust standard errors (in parentheses) with sample weights; *p ≤ .10, **p ≤ .05, ***p ≤ .01. Covariates include: (1) household head characteristics: sex, age, age-squared, education, permanent job, part-time job, disability; (2) household level characteristic: household type, socio-economic group, number of earners, number of household member older than 65, home ownership, locality size, region.

Period 1: pre-treatment period: January 2013-March 2016; post-treated period: April 2016-December 2017
Period 2: pre-treatment period: January 2013-October 2015; post-treated period: April 2016-December 2017

Source: Own elaboration based on data from Polish Household Budget Survey and Luxembourg Income Study (LIS) Database

Probit Models: Difference-in-Difference estimations

	Difference-in-Difference Estimators with covariates			
	Relative poverty		Subjective poverty	
	Period 1	Period 2	Period 1	Period 2
	(1)	(2)	(3)	(4)
Period	-0.089*** [0.004]	-0.085*** [0.004]	-0.094** [0.003]	-0.097*** [0.003]
Treated	0.222*** [0.004]	0.215*** [0.004]	0.060*** [0.004]	0.059*** [0.003]
Period×Treated	-0.135*** [0.005]	-0.131*** [0.005]	-0.094*** [0.005]	-0.098*** [0.005]
Other controls	Full Set	Full Set	Full Set	Full Set
Pseudo R-squared	0.284	0.281	0.226	0.227
Observations	62562	57327	62562	57325

Notes: Probit marginal effects with robust standard errors (in parentheses) with sample weights; *p ≤ .10, **p ≤ .05, ***p ≤ .01.

Period 1: pre-treatment period: January 2013-March 2016; post-treated period: April 2016-December 2017
Period 2,: pre-treatment period: January 2013-October 2015; post-treated period: April 2016-December 2017

Source: Own elaboration based on data from Polish Household Budget Survey and Luxembourg Income Study (LIS) Database

Robustness

- Difference-in-Difference estimations; Sample restricted to low educated heads of households
- Difference-in-Difference estimations; Sample restricted to single parents
- Difference-in-Difference estimations: Treated group are households with two or more children
- Difference-in-Difference-in-Difference estimations: low educated

Conclusions

- for the whole population decrease in inequality and poverty rates
- poverty rates: highest for families with single-parent households
- poverty rates: decrease more pronounced for families with 2 or more children (versus family with one child)
- drop in relative and subjective poverty, especially for children
- poverty decomposition: growth more important than distribution effect in poverty reduction (2013-2017, 2014-2017, 2015-2017)
- DD shows the 500+ reducing the relative and subjective poverty for the treatment group in the post-treatment period (family benefits significantly reduce poverty rates for families with children)
- sensitivity analyses confirm main results

Thank you for your attention.

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