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The dog that did not bark: The EITC for single mothers in the Netherlands

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ABSTRACT

We study the extension of an EITC for single mothers in the Netherlands to mothers with a youngest child 12 to 15 years of age. This reform increased the net income gain of moving into employment for the treatment group by 31%. Using both DD and RD we show that this reform had a negligible effect on labour participation, with tight confidence intervals around zero. Our results are at odds with a number of related studies. This finding may be due to our treatment group of single mothers of which the youngest child is relatively old, or because the reform we consider was less salient. Furthermore, related studies typically study changes in a tax credit which was part of a broader reform package, making it harder to isolate the effect of the tax credit. Also, we show that using single women without children as the control group, as is commonly done in related studies, can be problematic.

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1. Introduction

The share of single parents is on the rise. In the Netherlands their number has increased from 360 thousand in 1995 to 500 thousand in 2011.[1] Single parents are of particular interest to policy makers as evidenced by the large number of subsidies and tax credits targeted at this group. In designing income support for single parents, the responsiveness of labour participation by single parents to financial incentives plays a crucial role.

Until 2001, working single parents in the Netherlands received a tax credit, the *Aanvullende Alleenstaande Ouderkorting* (Additional Credit for Single Parents), if the youngest child was younger than 12 years of age. In 2002 this age limit was raised to 16 years. The goal was to stimulate the labour participation of single parents (Ministry of Finance, 2001). We use this change in the age limit as a natural experiment to determine the labour supply responsiveness of single mothers to financial incentives.

We use difference-in-differences (DD) and regression discontinuity (RD) to estimate the effect of the policy reform on the participation rate of single mothers. In the DD analysis we use single mothers with a youngest child that is younger (8–11 years of age) or older (16–19 years of age) than the treatment group (12–15 years of age) as the control group. In the RD analysis we focus on single mothers with a youngest child 14–17 years of age, with the cutoff at single mothers with a youngest child that turned 16 in December in the preceding year. Both the DD and RD analyses show that the policy reform had a small effect on the participation rate of single mothers. Indeed, we cannot reject that the effect on the participation rate was zero. This is not due to a lack of statistical power, as the 95% confidence intervals of both the DD and RD estimates are quite tight. Furthermore, an extensive robustness analysis shows that our results are robust.

Our results are at odds with the findings of a number of related quasi-experimental studies on single mothers in other countries. Table 1 gives an overview of these studies. There is an extensive literature on the impact of the *Earned Income Tax Credit* (EITC) in the US, introduced in 1975. Eissa and Liebman (1996) is one of the earlier studies that applies the DD methodology to labour supply responses. They estimate the impact of the EITC-expansion in 1987, combined with other elements of the Tax Reform Act of 1986, by comparing the change in labour supply of single mothers to the change in labour supply of single women without children. They find that the EITC-expansion increased the participation rate of single mothers by 2.8%-points. Meyer and Rosenbaum (2001) examine the effects of changes in both welfare and tax policies in the US during the 1984–1996 period on the labour supply of single mothers. DD estimates, using single women without children as the control group, suggest that the changes in income taxes in work (mostly changes in the EITC) raised the participation rate of single mothers by 7.2%-points. Hotz et al. (2010), not in

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[1] Source: Statistics Netherlands.

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Table 1
Overview of related studies[a].

Study	Country	Reform	Sample period	Impulse in %[b]	Treatment group	Control group	RCS or panel[c]	Method[d]	Diff. trends[e]	IPR in %[f]	TE in ppt[g]	Elast.[h]	$[\eta_l, \eta_h]$[i]
Eissa and Liebman (1996)	US	EITC[j]	84–90	13.2	Single moth.	Single women w/o children	RCS	DD	No	72.9	2.8 (0.9)	0.29 (0.10)	[0.25,0.34]
Meyer and Rosenbaum (2001)	US	EITC[j]	84–96	44.8	Single moth.	Single women w/o children	RCS	DD	No	73.2	7.2[k] –	0.43 (0.05)	[0.41,0.45]
Gregg and Harkness (2003)	UK	WFTC[l]	92–02	17.1	Single moth.	Single women w/o children[m]	RCS	DD	Yes	46.6	4.9 (1.2)	0.61 (0.15)	[0.55,0.70]
Blundell et al. (2005)	UK	WFTC[l]	96–02	17.1	Single moth.	Single women w/o children	RCS	DD	No	47.0	3.6 (0.5)	0.45 (0.06)	[0.40,0.51]
Francesconi and Van der Klaauw (2007)	UK	WFTC[l]	91–01	17.1	Single moth.	Single women w/o children	Panel	DD	Yes	56.6	5.8 (2.2)	0.60 (0.23)	[0.54,0.68]
Leigh (2007)	UK	WFTC[l]	99–00	17.1	Single moth.	Single women w/o children	Panel	DD	No	47.0	0.6 (1.5)	0.07 (0.18)	[0.07,0.08]
Stancanelli (2008)	FR	PPE[n]	99–02	–	Single moth.	Single women w/o children	RCS	DD	No	68.0	−0.1 (1.3)	–	–
This study (2014)	NL	AAO[o]	99–05	30.6	Single moth. Young. child 12–15y	Single moth. Young. child 8–11/16–19y	Panel	DD	No	71.0	−0.4 (0.6)	−0.02 (0.03)	[−0.02,−0.02]
			02–08	30.6	Single moth. Young. child 14–15 years	Single moth. Young. child 16–17 years	Panel	RD	No	75.2[p]	−0.4[q] (1.1)	−0.02 (0.06)	[−0.02,−0.02]

[a] Additional information on the sources and calculations is given in the Online Appendix.
[b] Percentage change in the average net income gain when moving from welfare to work.
[c] Repeated cross-section or panel.
[d] DD denotes difference-in-differences and RD denotes regression discontinuity.
[e] Differential trends included for treatment and control groups.
[f] Initial participation rate of the treatment group.
[g] Treatment effect on the participation rate in percentage points.
[h] Elasticity of participation rate with respect to the net income gain when moving from welfare to work.
[i] Lower and upper limit of the true elasticity given the point estimate and assuming 1% friction costs, using the methodology outlined in Chetty (2012, Section 3.3), see the Online Appendix.
[j] EITC = Earned Income Tax Credit.
[k] Treatment effect of change in "Income taxes if work (Meyer and Rosenbaum, 2001, Table VI, column 4).
[l] WFTC = Working Families' Tax Credit.
[m] Control group is constructed using propensity score matching.
[n] PPE = Prime Pour l'Emploi.
[o] AAO = Aanvullende Alleenstaande Ouderkorting.
[p] Participation rate of the treatment group just before the discontinuity.
[q] To ease the comparison we put a minus sign in front of the estimated coefficient, we are measuring a discontinuity when moving from the treatment group ('to the left' of the discontinuity) to the control group ('to the right' of the discontinuity).

the table)[2] also find sizeable treatment effects on labour participation for an expansion of the EITC for single parents with two or more children, using single parents with one child as the control group.

Several studies examine the introduction of the *Working Families' Tax Credit* (WFTC) in 1999 in the UK. The increase in the participation rate varies from an insignificant 0.6%-points in Leigh (2007) to 5.8%-points in Francesconi and Van der Klaauw (2007). Gregg and Harkness (2003) and Blundell et al. (2005) report intermediate treatment effects of 4.9 and 3.6%-points, respectively. All these studies on the WFTC use single women without children as the control group.

Finally, Stancanelli (2008) studies the impact of the *Prime Pour l'Emploi* (Work Premium) in France, introduced in 2001. She finds no significant effect of the reform on single mothers when compared to single women without children.

Most related studies find sizeable labour supply responses by single mothers to changes in financial incentives (see column "elast." in Table 1). Indeed, there appears to be a consensus in the literature that the participation elasticity for single mothers is among the highest of all demographic groups (Meghir and Phillips, 2010). However, we find only a small response by single mothers to the reform we consider. In Section 7 we consider possible explanations for this discrepancy in depth.

The rest of the paper is structured as follows. Section 2 discusses the policy reform that we use in our empirical strategy. Section 3 outlines our empirical methodology. Section 4 describes the data used in the analysis. Section 5 presents the estimation results of the DD analysis, and Section 6 presents the estimation results of the RD analysis. Section 7 discusses our findings and concludes. Supplementary material is given in the Online Appendix.

2. The natural experiment

All working individuals in the Netherlands receive a general tax credit, the *Arbeidskorting* (Working Credit). Working single parents receive an additional tax credit, the *Aanvullende Alleenstaande Ouderkorting* (Additional Credit for Single Parents). Until 2001, single parents with a (dependent) child younger than 12 years of age[3] received this additional tax credit. In 2002 this age limit was raised to 16 years of age, to promote the labour participation of single parents (Ministry of Finance, 2001).[4]

The tax credit for working single parents is income dependent and amounts to 4.3% of gross income up to a maximum credit of 1301 euro in 2002, see Fig. 1. As can be seen, the phase-in is up to a gross income of approximately 30,000 euro, which is about twice the minimum wage. The credit is not phased out. Fig. 1 also shows the distribution of earnings for working single mothers with a youngest child 12 to 15 years of age. A single mother at the mode of the income distribution of the treatment group has gross income of 17,500 euro. The tax credit

[2] We did not include Hotz et al. (2010) in Table 1 because we could not calculate the impulse for the treatment relative to the control group.

[3] On the 1st of January.

[4] Apart from the increase of the age limit in 2002, the credit is adjusted to the growth of average gross wages annually. There are no jumps in the credit in real terms in our data period.

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