



Childcare subsidies and labour supply – Evidence from a large Dutch reform[☆]



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HIGHLIGHTS

- Using DD we study the effect of a recent childcare reform on female labour supply.
- The effect on the participation rate is +3.0%, and on hours worked +6.2%.
- The reform was rather costly, 90 thousand euro per additional FTE.

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ABSTRACT

After the introduction of the Law on Childcare in 2005, childcare subsidies in the Netherlands became much more generous. Public spending on childcare increased from 1 to 3 billion euro over the period 2004–2009. Using a differences-in-differences strategy we find that, despite the substantial budgetary outlay, this reform had only a modest impact on employment. Furthermore, the rather small effects we find are likely confounded by a coincident increase in the EITC for parents with young children of 0.6 billion euro, which presumably also served to increase the labour supply of the group. The joint reform increased the maternal employment rate by 2.3 percentage points (3.0%) and maternal hours worked by 1.1 h per week (6.2%). The results further suggest that the reform slightly reduced hours worked by fathers.

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1. Introduction

Many countries seek to increase the labour force participation of mothers with young children. Policymakers often point to Scandinavia,

where public spending on childcare is high and participation rates of mothers are high as well. Indeed, several countries and regions have adopted part of the Scandinavian model by providing generous childcare subsidies to parents with young children (e.g. the Netherlands, Quebec) or are in the process of doing so (e.g. Germany).

In this paper we study the causal effect of childcare subsidies on labour supply by means of a large, recent reform in the Netherlands. After the introduction of the Law on Childcare in 2005, childcare subsidies in the Netherlands became much more generous. The average effective parental fee for formal childcare was cut in half, and subsidies were extended to so-called guestparent care (small-scale care at the home of the 'guestparent' or at the home of the children). As a result, public spending on childcare skyrocketed, from 1 billion euro in 2004 to 3 billion euro (0.5% of GDP) in 2009. Over the same period, the government also increased targeted earned income tax credits (EITCs) for the same parents. Budgetary outlays of these EITCs increased from

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0.7 billion euro in 2004 to 1.3 billion euro in 2009. Since both policies target the same treatment group, the modest labour supply effects we find are the combined treatment effects of the childcare and the EITC reform.

We estimate the effect of the joint reform using data from the Labour Force Survey of Statistics Netherlands for the period 1995–2009, employing a differences-in-differences (DD) strategy. We estimate the effect on the participation rate and hours worked per week. The treatment group consists of parents 20 to 50 years of age with a youngest child up to 12 years of age. As a control group we use parents 20 to 50 years of age with a youngest child 12 to 17 years of age. This control group is chosen because the trends in participation and average hours worked per week of the treatment and control group are very similar before the reform, and placebo treatment dummies are insignificant. Unfortunately, we do not have linked individual data on labour supply and the use of childcare. Hence, we estimate an intention-to-treat effect.

Our main findings are as follows. First, we find that the reform increased the participation rate of women in the treatment group by 2.3 percentage points (3.0%). Second, the reform increased the average number of hours worked per week by women in the treatment group by 1.1 h per week (6.2%), and reduced the hours worked per week by men in the treatment group by 0.3 h per week (0.8%). Third, the policy seems to have been rather costly in terms of additional government spending per additional person and per additional fulltime equivalent employed. Spending on childcare subsidies and EITCs for parents with young children increased by 2.6 billion euro, whereas the treatment effect on the number of persons and fulltime equivalents employed was just 30 thousand additional persons and 30 thousand additional fulltime equivalents, respectively. This suggests an additional public spending of 87 thousand euro per additional person employed. Given that modal wage income in 2009 was around 32,500 euro, and the average taxes paid on this modal wage income were less than 10 thousand euro,¹ the additional costs for the government seem to have been much larger than the additional receipts, even if we allow for some additional savings on social assistance benefits (of approximately 14,000 euro per person) for single parents that started to work.² Why was the reform so costly? A substantial share of the higher subsidies was paid to parents that already used formal childcare at the lower pre-reform subsidy. In addition, the higher subsidy also caused a large shift from informal to formal childcare. Indeed, a back-of-the-envelope calculation suggests only a 0.19 (0.23) percentage point increase in the maternal employment rate per percentage point increase in the enrollment rate of children in daycare (out-of-school care).

There is an extensive literature that considers the relationship between parental labour supply and the cost of childcare using structural models and cross-sectional data. An in-depth overview is given in [Blau and Currie \(2006\)](#), who report estimated (childcare) price elasticities of female labour force participation ranging from 0.06 to -3.60 . They argue that only a small part of this variation is due to differences in the composition of the sample or different data sources. Most of the variation seems to be due to identification problems related to the endogeneity of the explanatory variables.³ To solve this problem, exogenous variation in the cost of childcare is needed. Therefore, the focus has shifted to quasi-experimental methods that use policy changes or discontinuities in policies as exogenous variation in childcare prices for parents. As a result, there is a small but growing body of quasi-experimental literature that studies the impact of changes or differences in childcare costs on labour supply.

¹ Own calculations using Microtax of CPB Netherlands Bureau for Economic Policy Analysis.

² In our dataset we do not have information on how participation in formal childcare affects children's outcomes, nor do we have information on the impact on the well-being of parents, as in [Baker et al. \(2008\)](#). A full cost-benefit analysis of the reform that we consider would have to take these effects into account, along with distributional effects of the reform.

³ For example, unobserved characteristics are likely to influence both the costs of childcare (which depend on income) and the labour supply decision.

In [Section 6](#) we give a detailed overview of estimated treatment effects and study characteristics of related studies using natural experiments. A number of papers find rather small labour supply effects: [Lundin et al. \(2008\)](#) for Sweden, [Havnes and Mogstad \(2011a\)](#) for Norway and [Fitzpatrick \(2010\)](#) for the US. However, there are also a number of papers that find substantial labour supply effects, overall or for subgroups, in particular [Baker et al. \(2008\)](#) and [Lefebvre and Merrigan \(2008\)](#) for a reform in Quebec. When we compare our findings to related studies, our estimated treatment effects take an intermediate position. One potential explanation for why we find smaller effects than e.g. [Baker et al. \(2008\)](#) and [Lefebvre and Merrigan \(2008\)](#) is that we consider data from a recent period, where the pre-reform participation rate is already relatively high. However, some authors (e.g. [Goux and Maurin, 2010](#); [Havnes and Mogstad, 2011a](#)) also point to potential pitfalls in the analysis of the reform in Quebec, where the treatment effect may in part have been driven by differential trends and/or other reforms. One potential explanation for why we find larger effects than the studies by [Lundin et al. \(2008\)](#) and [Havnes and Mogstad \(2011a\)](#) is that both workers and non-workers are eligible for childcare subsidies in Norway and Sweden, whereas only working single parents and two-earner couples are eligible for childcare subsidies in the Netherlands. This can also explain why we find larger effects than the US studies that consider differences in enrollment in pre-school, which is also universal and not targeted solely at working parents.

We make a number of contributions to the literature. First, we study a very recent reform in a highly developed OECD country. This makes our results particularly relevant for other highly developed OECD countries that are considering to expand their formal childcare programmes, since the initial maternal employment rate and public spending on childcare are arguably quite similar to many of these countries.⁴ Indeed, as shown in [Section 6](#), the effect of expanding subsidized childcare on maternal employment rates is lower in countries with a high initial maternal employment rate. Furthermore, being one of the few studies to use the Labour Force Survey, we can also determine the effect on hours worked, next to the effect on the participation rate. We find that the effect on hours worked by women is twice as large as the effect on the participation rate of women in percentage terms. Also, we study a reform that expands subsidies for both daycare and out-of-school care. To the best of our knowledge we are the first quasi-experimental study to look at the effect of out-of-school care on parental labour supply. Finally, our study is also unique in that we have 10 years of pre-reform data and 5 years of post-reform data. This enables us to do placebo tests in a number of pre-reform periods, and to study both the short- and medium-run effects.

The outline of the paper is as follows. [Section 2](#) describes the main aspects of the reform we exploit in the empirical analysis. [Section 3](#) discusses our empirical methodology. In [Section 4](#) we present our dataset and some descriptive statistics. [Section 5](#) gives the estimation results for participation and hours worked. In [Section 6](#) we compare our findings and study characteristics with related quasi-experimental studies. [Section 7](#) concludes. An online appendix contains supplementary material.

2. The reform

In the beginning of the 1970s, the employment rate of women (15–64 years of age) in the Netherlands, close to 30%, was rather low by international standards; see [Fig. 1](#). But following the economic crisis in the early 1980s, the employment rate of women in the Netherlands started to rise.⁵ The strong rise in the participation rate of Dutch women continued all the way up to the reforms in 2005–2009, which

⁴ See e.g. [OECD \(2007, Table 3.2, Chart 6.1\)](#).

⁵ For a detailed analysis of trends in female labour force participation in the Netherlands, see [Euwals et al. \(2011\)](#). Over the past decades, the rise in participation by mothers of young children was particularly strong.

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