



# The effects of family policy on maternal labor supply: Combining evidence from a structural model and a quasi-experimental approach



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## HIGHLIGHTS

- We analyze the effects of family policy instruments on maternal labor supply
- The evaluation is based on a structural model and on quasi-experimental methods
- Both methods show that parental leave benefits affect employment of mothers
- Combining parental leave and subsidized child care increases maternal labor supply

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## ABSTRACT

Parental leave and subsidized child care are prominent examples of family policies supporting the reconciliation of family life and labor market careers for mothers. In this paper, we combine different empirical strategies to evaluate the employment effects of these policies for mothers with young children. In particular we estimate a structural labor supply model and exploit quasi-experimental variation from a parental leave reform in Germany. Our findings suggest that a combination of parental leave benefits and subsidized child care leads to sizable employment effects of mothers.

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## 1. Introduction

Facing a shrinking working-age population, increasing female labor force participation is high on the political agenda in many countries. One central reason for the lower participation rates of women is child-related employment interruptions of mothers. In response, policy makers aim to improve the reconciliation of family life and labor market participation for mothers with young children by reforming family policy and introducing new instruments. In this context, parental leave

programs as well as the provision of affordable and high-quality child care are of particular importance.

The aim of this paper is to provide empirical evidence on how these family policy programs affect the employment of mothers with young children. We analyze two important policies for young mothers: the provision of paid parental leave and childcare. In more detail, we look at the effect of a major reform of the parental leave legislation in Germany that resulted in an increase in the parental leave benefit, while simultaneously reducing the entitlement period for the benefit. In addition, we analyze how an expansion of subsidized child care in combination with the parental leave reform affects the employment of mothers.

In this paper we use two complementary methods for the empirical analysis. Specifically, for the evaluation of the parental leave reform we exploit quasi-experimental variation in a reduced form estimation and

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apply a structural model of labor supply behavior. For the analysis of the combined effect of universal child care and the parental leave reform we only use the structural model.<sup>1</sup>

For the quasi-experimental approach we exploit the timing of a parental leave benefit reform in Germany: mothers with children born before 1.1.2007 are subject to the old parental leave regime and mothers with children born on or after 1.1.2007 are subject to the new regime. The financial effects and work incentives for mothers during the first two years following birth differ markedly between the two regimes. Before the reform, families received a means-tested transfer amounting to 300 euro per month, which was paid to the parent on leave for a maximum period of 24 months. After the reform the transfer is paid only for a maximum period of 12 or 14 months (there exists a 2 months “partner quota”), with the amount transferred depending upon the earnings of the parent on leave prior to birth. We provide evidence that a causal effect can be identified by comparing mothers who gave birth shortly before and shortly after the implementation of the reform.

The evaluation design for the structural analysis is fundamentally different from the quasi-experimental approach. We develop and estimate a structural labor supply model of maternal employment using data from the German Socio-Economic Panel Study (SOEP) from 2001 through 2006, i.e. prior to the parental leave reform. Based on the estimated structural parameters we simulate the employment effects induced by the incentives of the parental leave benefit reform.

We show that the results obtained using the two different methods are comparable and follow the same pattern across socio-economic subgroups. In particular, the results from the structural model and those from the quasi-experimental approach lead to the same conclusions: In the first year following birth, labor supply declines for mothers of all socio-economic groups, and in the second year we find positive employment effects. Moreover both methods show the same pattern across low and high income households and between households in East and West Germany.

In a second step, we use the structural model to simulate the employment effects related to subsidized child care. Germany is an interesting example in this respect since subsidized child care slots are relatively scarce in the period under study (2001–2006)—with enrolment rates well below 15% (West Germany below 5%). Since 2005, several laws aimed at increasing subsidized childcare slots, in particular for children between one and three years, have been passed. Since August 2013 parents have a legal right to subsidized child care for all children aged one or older regardless of the employment status or income of the parents. First, we use the structural model to simulate the employment effects of introducing universal child care independent of parental leave and then we evaluate the combined employment effect of the parental leave reform together with the provision of universal child care.

Our results indicate that both the parental leave reform and the introduction of universal child care increase the employment of mothers with children aged one year or older. In particular, we find that the parental leave benefit reform has a modest positive effect on the labor supply of mothers in the second year after their child was born. Much larger effects, however, can be attributed to the childcare reform that increases labor supply by almost 5 percentage points. Thus, we conclude that the combination of both reforms has large effects on maternal labor supply. Moreover, while the reform of the parental leave benefit mostly affects mothers with low wages, the child care reform increases the employment of all mothers independent of their socio-economic background.

Our analysis adds to the literature on the labor market effects of family policies and, therefore, contributes to the discussion about the

consequences of different family policy reforms on maternal employment. There is a large literature from many different countries focusing on the effects of family policy on the behavior of mothers. As far as parental leave is concerned, a comprehensive study by [Lalive et al. \(2013\)](#) shows that parental leave benefits as well as job protected leave duration influence maternal employment behavior. [Datta Gupta et al. \(2008\)](#) show that the ‘Nordic’ model of parental leave leads to higher female employment (although lower wages). The employment effects of the German parental leave reform that we look at are studied by ([Bergemann and Riphahn \(2011\)](#), [Kluve and Tamm \(2013\)](#), and [Kluve and Schmitz \(2014\)](#)). All studies exploit the fact that the introduction can be interpreted as a quasi-experiment. In contrast to our analysis, these studies do not analyze employment behavior but the subjective desire of mothers to return to the labor market in the future. Thus our study is the first analysis of realized short run employment effects of the parental leave reform. [Kluve and Schmitz \(2014\)](#) exploit more recent data of the microcensus and extend the short-run analysis to focus on the medium run effects of the reform.

A large body of literature analyzes the effects of childcare policies on maternal labor supply. Many earlier studies are based on structural models where identification relies on the heterogeneity of wages and childcare costs in the cross-section and over time (see, among many others, [Ribar \(1995\)](#), [Blau and Robins \(1988\)](#), [Michalopoulos et al. \(1992\)](#) and [Powell \(2002\)](#) for the US, [Kornstad and Thoresen \(2007\)](#) for Norway, [Lokshin \(2004\)](#) for Russia, [Apps et al. \(2012\)](#) for the Netherlands and [Haan and Wrohlich \(2011\)](#) for Germany). Other studies use quasi-experimental approaches and identify the effect of childcare policy on regional variation in the availability or expansion of child care (see, among others, [Havnes and Mogstad \(2011\)](#) for Norway, [Simonsen \(2010\)](#) for Denmark, [Berlinski and Galiani \(2007\)](#) for Argentina, [Cascio \(2009\)](#) for the U.S., [Baker et al. \(2008\)](#) for Canada, [Schlosser \(2005\)](#) for Israel, [Nollenberger and Rodriguez-Planas \(2015\)](#) for Spain and [Bauernschuster and Schlotter \(2015\)](#) for Germany).

The paper proceeds as follows. In the next section, we provide information about family policy in Germany and the parental leave and childcare reforms enacted on 1.1.2007. In [Section 3](#) we discuss the two evaluation methods, while [Section 4](#) introduces the data sources. The empirical results and the policy simulations are discussed in [Section 5](#). Finally, [Section 6](#) concludes.

## 2. Institutional background

Germany, like many other countries, has reformed major parts of its family policy instruments, hoping—among other reasons—to encourage more mothers with young children to take up employment. In particular a major parental leave reform, taking effect in 2007, as well as several child care reforms implemented since 2005, aim in this direction. Since these reforms are crucial for our evaluation strategy, we provide an overview of the most important institutional details within this policy field.

### 2.1. Parental leave legislation

In contrast to the United States but similar to other European countries, parental leave legislation in Germany is very generous with respect to both job protection and monetary benefits during leave.<sup>2</sup> In Germany, both parents are entitled to take parental leave (“Elternzeit”) for a maximum period of three years after childbirth. During the leave parents are protected against dismissal and have the right to return to

<sup>1</sup> A reduced form evaluation of the combined effect of universal child care together with the parental leave reform would require exogenous variation in child care provision and parental leave along the same dimension, e.g. at the same time. In our context this is not the case; therefore for the estimation of the joint effect we focus on the structural model.

<sup>2</sup> For an overview of the development of parental leave legislation in Germany, including developments since 2007, see [Kluve and Tamm \(2013\)](#), [Schönberg and Ludsteck \(2014\)](#) or [Spiess and Wrohlich \(2008\)](#).

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