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# Fertility, Family Policy, and Labor Supply: Quasi-Experimental Evidence from France<sup>\*</sup>

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## Abstract

This paper examines fertility and labor supply responses to a French policy reform that consisted in conditioning the amount of child allowances on household income. Relying on Regression Discontinuity Design and administrative income data, the paper finds that restricting family allowance eligibility criteria decreases fertility. The results also highlight that receiving half the amount of the allowances or not receiving any leads to an increase in both male and female labor supply. Auxiliary regressions show that at least part of the decline in fertility is due to timing effects, as the fertility impact declines as women's age increases.

**Keywords:** family policy, child allowances, fertility, labor supply, France.

**JEL codes:** H53, J21, J22.

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# 1 Introduction

Declining fertility is an ongoing policy concern in Europe. Between 1960 and 2016, the average fertility in the European Union went down from 2.6 to 1.6 births per woman, a fertility rate that is now below replacement-level fertility ([The World Bank, 2018](#)). In response, several European Union member states are currently implementing pro-natal policies, using cash incentives for childbearing in an effort to curb declining fertility rates. Gaining a better understanding of the impact of recent family policy reforms on fertility and labor markets is thus of great importance.

This paper focuses on a recent and important family policy reform in France, which consisted in conditioning the amount of the basic allowances of early childhood benefits (*Allocation de base des Prestations d’Accueil du Jeune Enfant*, PAJE) on household income. The new law was first discussed in the National Assembly, the lower chamber of the French parliament, in March 2013, and officially entered into force on April 1<sup>st</sup>, 2014. The reforms it included created a notched benefits schedule that phases out basic allowances from “full benefits” to “half benefits,” and from “half benefits” to “zero benefits,” based on a two-year lagged definition of household taxable income. The 2014 family policy reforms defined precisely two income thresholds: “half benefits” and “zero benefits.” Households falling below the “half benefits” income threshold would be eligible for the total amount of basic allowances of early childhood benefits. Households with an income higher than the “half benefits” threshold but lower than the “zero benefits” threshold would be eligible to half the amount of basic allowances. Finally, households whose income exceeded the “zero benefits” threshold would no longer receive any basic allowances of early childhood benefits.<sup>1</sup>

Relying on this quasi-experimental design, I study the impact of the 2014 family policy reforms in France on fertility choices and labor supply using a Regression Discontinuity Design (RDD). There are several institutional details of the policy reform that make this quasi-natural experimental setting particularly compelling. To start, benefit eligibility is based on a two-year lagged definition of taxable household income. Coupled with the short time between the initial discussion of the reforms and their final implementation, this implies that there is little room for direct manipulation of the running variable. Using data from the *Statistiques sur les Ressources et les Conditions de Vie* (SRCV) for the years 2014 and 2015, I exploit the “sharp” discontinuity in the provision of the basic allowances of early childhood benefits to examine its impact on birth probability at the household level, as well as on the number of hours of work per week for both women and men after the reform.

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<sup>1</sup> It is important to note that the income thresholds defined by the policy intervention take into account the number of children and the household structure. For example, a mono-parental household with a working parent and one child is subject to a different income threshold compared to a bi-parental household in which one partner is working and with one child. See [Table 1](#) for the different income thresholds defined by the 2014 family policy reforms.

This paper is linked to a large body of academic literature on fertility responses to cash transfers and welfare reforms (see for instance [Hoem \(1993\)](#) and [Björklund \(2006\)](#) on Sweden; [Rosenzweig \(1999\)](#), [Averett and Whittington \(2001\)](#), and [Joyce, Kaestner, Korenman, and Henshaw \(2004\)](#) on the United States; [Milligan \(2005\)](#) on Canada; [Lalive and Zweimüller \(2009\)](#) on Austria; [Kalwij \(2010\)](#) on western Europe; [Brewer, Ratcliffe, and Smith \(2012\)](#) on the United Kingdom; [Haan and Wrohlich \(2011\)](#) and [Bauernschuster, Hener, and Rainer \(2016\)](#) on Germany; [Cohen, Dehejia, and Romanov \(2013\)](#) on Israel; [González \(2013\)](#) on Spain; and [Piketty \(2005\)](#) and [Laroque and Salanié \(2014\)](#) on France).<sup>2</sup> Whether in the form of parental leave benefits, child allowances or childcare subsidies, these studies have overall found that financial incentives have a positive effect on fertility.<sup>3</sup> More recently, researchers have been interested in uncovering the long-term effects of pro-fertility policies. [Parent and Wang \(2007\)](#), [Kim \(2014\)](#), and [Adda, Dustmann, and Stevens \(2017\)](#) suggest that welfare policies have little long-term effects on fertility and that they only generate timing effects, as they induce women to have children earlier.

This paper also relates to the literature on the labor market impact of financial incentives for welfare recipients.<sup>4</sup> Parental leave coverage was found to be associated with higher women’s employment ([Ruhm, 1998](#)) and with large increases in mothers’ time away from work after birth ([Baker & Milligan, 2008](#)). It also appeared to have a strong impact on mothers’ return to work after childbirth ([Berger & Waldfogel, 2004](#); [Dustmann & Schönberg, 2012](#)) but to have no effect on women’s wages ([Albrecht, Edin, Sundström, & Vroman, 1999](#); [Baum, 2003](#)).<sup>5</sup> Childcare subsidies were found to reduce women’s labor supply in the case of Norway ([Schøne, 2004](#)) but to lead to a significant increase in maternal labor supply in the case of Quebec ([Baker, Gruber, & Milligan, 2008](#)). Likewise, the Earned Income Tax Credit (EITC) reforms in the United States led to employment increases for women in the mid-late nineties ([Kleven,](#)

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<sup>2</sup> While this paper focuses on the 2014 family policy reforms in France that consisted in conditioning the amount of basic allowances of early childhood benefits on household income, [Laroque and Salanié \(2014\)](#), using data from the French Labor Force Surveys 1997, 1998 and 1999, simulate the increase in births that would result from adding to the existing tax benefit system, an unconditional child benefit of a 150 euros per month with a direct cost of 0.3% of GDP and find that it might raise fertility by about 0.3 percentage point, and reduce female labor supply by 0.5 percentage point.

<sup>3</sup> On the other hand, a few studies have found no effect of benefits on fertility. For example, [Kearney \(2004\)](#) studies the impact of child benefits caps paid for an additional child in the United States on fertility and find no effect on birth. [Crump, Goda, and Mumford \(2011\)](#) find that U.S. tax benefits for children do not affect the level of fertility, but may affect the timing of fertility, while [Riphahn and Wijnck \(2017\)](#) find that an increase in the German child benefit did not change the fertility of low-income couples. See also [Gans and Leigh \(2009\)](#) on the introduction of a baby bonus in Australia and strategic family behavior to alter eligibility by influencing the timing of birth.

<sup>4</sup> This paper is also linked to a broader literature on the effect of welfare on living arrangements (see for instance [Card and Lemieux \(1997\)](#) on the United States and Canada).

<sup>5</sup> It is important to note that in [Baum \(2003\)](#), the analysis focuses the Family and Medical Leave Act (FMLA) in the United States in 1993 and that the policy guaranteed 12 weeks of unpaid leave for eligible mothers. The author argues that the short and unpaid nature of the maternity leave could explain the results.

2019), while more generous social assistance schemes in Quebec were found to have a negative effect on male employment (Lemieux & Milligan, 2008).

The present study contributes to the literature in at least three ways. First, while most of the above cited literature has focused on fertility responses to increases in monetary incentives provided in the form of various welfare reforms, this paper contributes to the rather small literature on the impact of the elimination of welfare reforms or caps in the provision of monetary incentives on fertility. Moreover, when it comes to the labor market impact of welfare benefits, women’s employment and labor supply have been the main focus in the literature and very few studies have actually examined the impact on men’s labor market outcomes. This paper attempts to fill these gaps in the literature by providing evidence from France, where family policy has always been in the spotlight as one of the most generous in all OECD countries (OECD, 2018).

Secondly, the natural experiment that allows for causal identification in this paper is unique and advantageous, as eligibility in a given year is legislatively determined by household income two years before. For instance, in 2014, when the means-tested PAJE benefits were introduced, eligibility was legislatively determined by taxable household income in 2012. In this setting, the placement of families on either side of the threshold is determined before the threshold is actually introduced—therefore families cannot influence their eligibility by altering their income. Besides, the methodology used in this paper also allows exploiting differences in entitlements across households, in contrast to the existing literature, which for the most part focused on the generalized introduction or extension of welfare policies.

Thirdly, one of the main novelties of this paper is the use of the SRCV data. The SRCV dataset has the unique feature of providing administrative information on household income and social benefits, thus providing an additional contribution with respect to the existing literature that has mostly employed survey data. Finally, given the importance of this historical shift in welfare state design as France broke for the very first time with the concept of “benefit universality,” it is critical to have a correct understanding of the effect of these recent reforms on fertility responses and labor supply. This is of utmost importance as the generous family policy system in France was often regarded as the main contributor to its healthy fertility rate.

The results of this paper suggest that the complete removal of the basic allowances of early childhood benefits, among the richest households, leads to a decline in birth probability by 2 percentage points, an implied benefit elasticity ranging from 0.61 to 0.71.<sup>6</sup> The paper also explores whether the effect of the policy kicks in when the policy was first discussed, in March 2013, or at the time the policy went into effect in April 2014. The former definition is employed in the benchmark model and

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<sup>6</sup> This finding is in line with Joyce, Kaestner, Korenman, and Henshaw (2004) who found that, in the United States in the 1990s, birth rates fell in states that implemented provisions to reduce cash assistance to welfare recipients who have additional children.

leads to an estimated benefit elasticity ranging from 0.61 to 0.71, while the latter results in a smaller implied elasticity of 0.24. This suggests that the largest decline in fertility occurred following the earliest discussions of the policy in the lower chamber of parliament, a process that received substantial media coverage. The findings also suggest that at least part of the decline in the birth probability in the richest households is due to timing effects, as the fertility impact declines as women’s age increases.

How does this effect compare to previous studies? [Gauthier and Hatzius \(1997\)](#) estimate a long-run cross-country benefit elasticity of 0.16. In the United States, [Whittington, Alm, and Peters \(1990\)](#) estimate the elasticity of fertility to personal tax exemption for dependents to be between 0.13 and 0.25. [Whittington \(1992\)](#) subsequently found larger elasticities, ranging from 0.23 to 1.19. In the case of Quebec, [Milligan \(2005\)](#) estimates a benefit elasticity of 0.11, whereas in Israel, [Cohen, Dehejia, and Romanov \(2013\)](#) estimate an overall benefit elasticity of 0.19, exploiting variation in child subsidies (the latter also observe higher benefit elasticities among certain religious groups, reaching as high as 0.33). As for Europe, [Laroque and Salanié \(2014\)](#) find an elasticity of fertility to tax benefits of 0.20 in France, while [Brewer, Ratcliffe, and Smith \(2012\)](#) estimate an elasticity of 0.28 in the United Kingdom.

In this paper, the 0.61-0.71 elasticity is estimated nine months after the first discussion of the policy and is larger than the average estimated elasticity in the previous studies, although still in the range of the elasticities estimated by [Whittington \(1992\)](#). On the other hand, the 0.24 elasticity estimated nine months after the actual implementation of the policy is within the range of previous studies. There is good reason to believe, however, that the former definition is more precise in capturing the effect of the policy on births, as it reflects the outer bound on when any birth effect could possibly occur. Indeed, the intense media coverage of the policy reform when it was still in process, as I will highlight in further detail in [Section 2.3](#), explains these large short-term impacts. A Google trends analysis, also presented in [Section 2.3](#), likewise confirms the surge in web search popularity of the PAJE benefits following the earliest discussions of the reforms in the National Assembly and before their actual implementation. Moreover, aggregate data on trends in births in France support this sharp short-term decline. In [Figure 1](#), I plot data from the World Populations Prospects of the [United Nations \(2019\)](#). The figure shows a large drop in the annual percent change in births in the year 2014. While the trend in births was overall declining between 2010 and 2018, [Figure 1](#) shows a clear shift in the annual percent change in births from a pre-reform trend of -0.76% to a post-reform trend of -1.8%.

In addition, receiving half the amount of basic allowances for early childhood benefits increases the number of hours of work per week by 2 to 4 hours, for both women and men compared to those who receive “full benefits.” Likewise, not being eligible for any basic allowances also increases the number of hours of work per week for women

and men, compared to individuals who are either eligible to full or half the allowances.<sup>7</sup> A back of the envelope calculation shows that the implied change in earned income, due to an increase in weekly working hours, compares to the euro value reduction in benefits. Assuming average net hourly wages in the year 2014, derived from French National Institute of Statistics and Economic Studies (INSEE), a two-hour increase in the number of hours of work per week generates approximately 95 euros per month for women and 113 euros per men, covering a 50% reduction in monthly allowances (a loss of 92.31 euros per month). On the other hand, a four-hour increase in the number of weekly working hours increases women’s monthly earnings by 190 euros and men’s monthly earnings by 226 euros. The latter income increase fully covers a 100% cut in the monthly basic allowances of early childhood benefits, which amounts to a loss of 184.62 euros per month.<sup>8</sup>

The findings of this paper are robust to using a standard low-order polynomial specification of the RDD control function, a non-parametric bandwidth estimation, a first to third order polynomial specification of the control function, to the inclusion of pre-determined individual and household covariates, to dropping all heaped income values, and to alternative definitions of household income and of the working/active status of individuals.

The rest of this paper is organized as follows: Section 2 provides the theoretical framework, a brief historical overview of family policy in France, and background information on the 2014 reforms. Section 3 describes the data. Section 4 presents the empirical strategy. Section 5 presents the results. Section 6 discusses the validity of the RDD. Section 7 presents robustness checks, while Section 8 concludes.

## 2 Theoretical Framework and Background Information

### 2.1 The Economic Incentives of the Benefits: A Theoretical Framework

Becker (1960) argues that parents should be viewed as rational economic actors and children as durable consumption and production goods. Becker’s model stresses the importance of the cost of children in explaining fertility differentials. Accordingly, demand for children responds to changes in the price of the marginal child. The

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<sup>7</sup> This is in line with Moffitt (2002) who provides a survey of the existing literature on the labor market incentive effects of transfer programs in the United States and concludes that the elimination of welfare programs would lead to an increase in the hours of work by 10% to 50%.

<sup>8</sup> According to the INSEE (2018), the average gross hourly wage for men in 2014 is 18.8 euros and the average gross hourly wage for women is 15.8 euros. The difference between gross and net salaries in France is generally between 20% and 30%. In the estimations above, I employ an average rate of 25%.



framework implies that reductions in child subsidies would lead to an increase in the price—net-of-subsidy—of the marginal child, and hence to a decline in the demand for children, as a result of the optimizing behavior of parents and would-be parents.<sup>9</sup>

Becker-type models of fertility are controversial among demographers, as highlighted in [Olsen \(1994\)](#) and [Milligan \(2005\)](#). Indeed, standard demographic analysis tends to emphasize the role of social norms, biological processes, and reproductive technology in explaining fertility, and would therefore predict no changes in fertility in reaction to exogenous price changes.

The PAJE reform affected child allowance receipts for richer households but it did not alter the receipts for the poorest households (those whose income falls below the “half benefits” threshold). As for households whose income exceeds the “half benefits” threshold but is below the “zero benefits” threshold, they witnessed a reduction in PAJE receipts by half, while households whose income exceeds the “zero benefits” threshold witnessed a total elimination of these allowances. I test whether, in line with the predictions of Becker’s model, the decline in child subsidies following the 2014 reforms was associated with reduced births. I find that fertility responses to price changes do in fact provide evidence in favor of Becker’s model and hence support the theory that prices matter in explaining fertility choices.

The impact of the reform on parental labor supply, on the other hand, can be discussed within a simple labor supply model. [Schøne \(2004\)](#) posits that parents adjust their labor supply, as they maximize the value of consumption and leisure subject to a budget constraint. If a household is eligible to child allowances, the budget constraint will be positively affected by the allowances. Given the fungibility of income sources, whether income comes in the form of child allowances or in the form of any other income source, what matters in determining parental labor supply is the total sum of all income components.

Within a simple leisure-consumption framework, an increase in household income translates into a positive shift in the budget constraint, leading to an increase in the leisure-consumption combination. Standard labor supply theory will predict that the child benefits introduce both substitution and income effects, that act in the same direction towards reduced labor supply if leisure is a normal good. For working parents, which is the case of the PAJE benefits as the eligibility criteria stipulate that at least one of the two parents is working, the reform will generate both income and substitution effects. As for parents who are not working, which could be the case for bi-parental households where only one parent is working, the PAJE benefits introduce only an income effect. The decrease in parental labor supply would therefore depend on the total amount of child benefits, as well as on the parents’ preferences for leisure and consumption.

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<sup>9</sup> [Hotz, Klerman, and Willis \(1997\)](#) provide a detailed discussion on fertility models, surveying the theoretical and empirical literatures.



## 2.2 A Brief History of Family Policy: A Pre-Reform Landscape

The Landry law of March 11, 1932 introduced in France the principle of family wage premiums for all employees in industry and commerce with at least two children. On November 12, 1938, a decree-law then created family allowances that were independent of family wage premiums. The coverage of these allowances was also targeted for workers and their families. The decree-law also instituted the progressive allocation of benefits, on the basis of family size, regardless of family income.

In the aftermath of the Liberation of France following the end of World War II, the vast majority of the population lived in great precariousness. Against this backdrop, some of the main concerns of General Charles De Gaulle's provisional government included protecting the most vulnerable welfare and reviving births. It is to this end that France instituted Social Security (*Sécurité Sociale*) in 1945, and a law was passed in August 1946, extending the payment of family allowances to all families. As parents no longer needed to be working to be eligible, French family allowances broke with the principle of work-related benefits. For several decades thereafter, the notion of universality characterized family allowances in France. In June 1997, Prime Minister Lionel Jospin then announced that family allowances would become once again work-related, and indeed a law was passed on December 19, 1997 officializing the matter. The policy change was controversial and sparked opposition from within parliament, eventually leading to its suppression a year later, in December 1998.

In April 2003, a government-sponsored family conference resulted in the adoption of several amendments to pre-existing benefits, including that child allowances would only be paid to working parents.<sup>10</sup> Finally, the 2014 family policy reform came to introduce the principle of the conditionality of benefits on household income and was therefore the first to introduce the notched benefit scheme. It therefore went against France's long-established principle of universality. Although, universality was not always strictly applied, as some reforms had already established the work-related principle benefits, the 2014 reform was a first in the sense that instead of having a universal benefit rate applicable to all working parents, it conditioned the amount of the allowances received on household income.

## 2.3 The 2014 Family Policy Reforms

The French family policy system follows a long established pro-natal and family centered tradition and is considered to be the main contributor to the healthy fertility rate in France. Compared to other OECD countries, France has one of the most generous

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<sup>10</sup> See "La politique de la famille depuis 1932 : chronologie", Direction de l'Information Légale et Administrative (DILA), <https://www.vie-publique.fr/eclairage/20144-la-politique-de-la-famille-depuis-1932-chronologie>, August 20, 2018.

schemes for family benefits and spends relatively more in terms of public investment in families with children. In 2013, France spent about 2.9% of GDP on family benefits, well above the average investment level in OECD countries, which was 2.1% (OECD, 2018).

In 2014, the French government undertook a series of social and family policy reforms that aimed at changing the amounts of household-targeted public support. The 2014 family policy reforms proposed several measures that led to a reduction in the assistance paid to wealthier families, while increasing transfers to the most vulnerable households. According to the National Family Allowances Fund (*Caisse Nationale des Allocations Familiales*), the implementation of these reforms was set to save 860 million euros in public spending.<sup>11</sup>

This paper focuses on the 2014 family policy reforms regarding the basic allowances of the early childhood benefits (*Allocation de base des Prestations d'Accueil du Jeune Enfant*). The *Prestations d'Accueil du Jeune Enfant* (PAJE) include a package of benefits to compensate for the cost of children: a birth or adoption premium (*Prime de naissance ou d'adoption*), basic allowances (*Allocation de base*) or allowances to support the reconciliation between personal and professional life and compensate for childcare costs, such as free choice of childcare supplement (*complément de libre choix du mode de garde*) and free choice of activity supplement (*complément de libre choix d'activité*). According to the National Family Allowances Fund, these benefits covered 2.16 million households in 2014 (Domingo & Favrat, 2015).

The basic allowances of early childhood benefits aim to help households cover the costs of child education and maintenance. These basic allowances are intended for parents of a child under 3 years old, and are paid on a monthly basis for 3 years, from the first day of the month following the birth until the month the child turns 3 years old. In the case of multiple births, households may accumulate several basic allowances for their children. There are several conditions that determine eligibility to the basic allowances of early childhood benefits: (1) the child should be less than 3 years old; (2) in the case of bi-parental households, either one parent or both parents should have been working and generating income two years prior to benefit receipt, and in the case of mono-parental households the single parent should have been working and generating income two years prior to benefit receipt;<sup>12</sup> (3) and, importantly, household income (as reported two years before) should have been lower than the income threshold defined by the policy reform in 2014.

Instead of having a flat universal rate of basic allowances of PAJE benefits applica-

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<sup>11</sup> The National Family Allowances Fund (*Caisse Nationale des Allocations Familiales*) constitutes the family branch of the French Social Security System. It is managed through a network of more than a hundred family allowance funds (*Caisses d'Allocations Familiales*) spread throughout the country.

<sup>12</sup> According to the CAF, the income considered is generated from professional activity. The only exception is in the case of occupational diseases or work accidents, in this case the income considered is daily allowances for accidents at work or occupational diseases. A parent's income should be at least equal to 5,252 euros, two years before the survey.

ble to all working parents, the Social Security Financing Act of 2015 thus established that for all children born or adopted as of April 1<sup>st</sup>, 2014, working parents would be eligible to differential benefit rates, depending on their disposable household income two years before. The law was first discussed in the National Assembly, the lower chamber of the French parliament, in March 2013, was passed in June 2013, and came into force on April 1<sup>st</sup>, 2014. Figure 2 shows a timeline of the PAJE policy reforms. Even though approximately 13 months elapsed between the beginning of the policymaking process and the final implementation of the reform, substantial media coverage over this period brought the basic allowances of PAJE benefits to the attention of the general public. Several news outlets, including *Le Monde* and *Le Figaro*, indeed covered the policy reform process from the earliest discussions in the lower chamber of parliament. In fact, articles published in April 2013 already outlined in general terms the potential impact of the reforms on the allocation of PAJE benefits. In June 2013, when the French government officially announced the adoption of the new policy, which was set to come into effect in 2014, another flurry of news articles explained in detail the full scope of the reform.<sup>13</sup>

A Google trends analysis in Figure 2 confirms the surge in web search popularity in France for the term “paje,” which refers to the *Prestations d’Accueil du Jeune Enfant*. In this figure, weekly web searches are averaged by month. A Google trends search score is plotted on the Y-axis representing search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. As shown in Figure 2, search popularity for PAJE benefits in France gained immediate momentum following the discussion of the law in the National Assembly in March 2013. While search popularity also increased around the time of the official law enactment in April 2014, Google trends analysis confirms that searches peaked earlier when the law was first discussed in the National Assembly in March 2013.

The policy reform defined income thresholds that depend on the number of children and household structure (a mono-parental household with one income, a bi-parental household with two incomes or a bi-parental household with one income). Table 1 reports the various income thresholds defined by the policy reform, by household structure and number of children. The income thresholds applicable to a mono-parental household with income are identical to those applicable to a bi-parental household with two incomes. The two income thresholds defined by the policy are labelled as “half benefits” and “zero benefits.” The first income threshold, the “half benefits,”

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<sup>13</sup> See for example “Les cinq mesures du rapport Fragonard pour réformer les allocations familiales”, *Le Figaro*, April 2, 2013, “Allocations familiales : le calendrier se précise”, *Le Figaro*, April 4, 2013, “Pour une refonte de la politique familiale”, *Le Monde*, April 3, 2013, “La réforme de la politique familiale dévoilée lundi”, *Le Monde*, June 3, 2013, “Réforme des allocations familiales : Hollande justifie son choix”, *Le Monde*, June 4, 2013, and “Baisse du quotient familial : ce que cela va coûter aux familles”, *Le Figaro*, June 4, 2013.

means that households whose income is below the threshold are eligible to the total amount of basic allowances, while households whose income is greater than this threshold but lower than the “zero benefits” threshold are eligible to half the amount of the basic allowances of PAJE. The second income threshold, the “zero benefits,” means that households whose income exceeds this threshold are not eligible to the basic allowances of PAJE.

Prior to the policy reform, working parents were eligible to a universal amount of basic allowances, unconditional on household income. Following the 2014 reform, depending on household income, the poorest households were still eligible to the total amount of basic allowances (184,62 euros per month), other households were eligible to half the amount of basic allowances (92,31 euros per month), while the wealthier households, whose income exceeded the designated threshold, were no longer eligible to any basic allowances. It is important to note that the total amount of the basic allowances (184,62 euros per month) is the same as the previous universal benefit that was applicable to all working parents. Therefore, households whose income is below the “half benefits” threshold would receive the same amount of basic allowances as before, while households whose income is above the “half benefits” threshold but below the “zero benefits” threshold would receive half the amount. Finally, households whose income is above the “zero benefits” threshold would not receive any allowances.

### 3 The Data

This paper relies on data from the *Statistiques sur les Ressources et les Conditions de Vie* (SRCV). The SRCV dataset corresponds to the French part of the European Union-Statistics on Income and Living Conditions (EU-SILC). The National Institute of Statistics and Economic Studies (*Institut National de la Statistique et des Études Économiques*, INSEE) conducts the SRCV surveys. The first round was conducted in France in 2004 and aimed at providing representative data on income and living conditions in both cross-sectional and longitudinal dimensions. The SRCV dataset has been conducted in France on a yearly basis since the year 2004. Each year, approximately 12,000 households are surveyed, including a refresher sample of nearly 3,000 households. As in a typical household survey, the SRCV dataset includes household as well as individual questionnaires, and covers topics such as family composition, housing and living conditions, household income, taxes, social security costs incurred by households, and social benefits. The individual level questionnaire provides information on educational background, economic activity, occupations, income, and labor supply, among other variables.

A unique feature of the SRCV dataset is that it collects information on household income and social benefits from various administrative sources instead of collecting them from survey respondents. The (taxable) income of a surveyed household is de-

rived from its tax return. The social benefits that a household eventually receives are obtained from the governing body on which the household depends: the National Family Allowance Fund (*Caisse Nationale des Allocations familiales*), the Agricultural Social Mutual Fund (*Mutualité Sociale Agricole*), or the National Pension Insurance Fund (*Caisse Nationale d'Assurance Vieillesse*). The inclusion of this administrative data constitutes one of the greatest advantages of the SRCV dataset relatively to typical individual and household surveys, in which respondents could misreport or manipulate their income information.<sup>14</sup> Moreover, the data allows identifying the exact number of children a household has at the time of benefit receipt, the two-year lagged definition of taxable income, whether a household is bi-parental or mono-parental, and the family's extensive margin labor force participation. These variables allow identifying the various households groups, presented in Table 1, making it possible to accurately determine the precise income threshold that is applicable to each family.

In Table 2 and Table 3, I report descriptive statistics around the “half benefits” and “zero benefits” thresholds for women and men (Table 2) and at the household level (Table 3). These statistics are restricted to individuals and households that fall within a range of 5,000 euros below and above the income thresholds defined by the 2014 family policy reform. Individual statistics include individual's age, nationality, and education, while household level statistics include household types, share of active parents, and wealth proxies. These tables confirm random sorting around the discontinuity thresholds and show that individual and household covariates are balanced around the discontinuity thresholds.

## 4 Empirical Strategy: A Regression Discontinuity Design

The empirical analysis relies on a Regression Discontinuity Design (RDD) in order to examine the impact of the 2014 family policy reforms on fertility and labor supply for women and men. Within the framework of a “sharp” Regression Discontinuity, the treatment status is a deterministic function of a continuous variable: the forcing variable or the assignment variable. Individuals therefore receive or do not receive the treatment according to the underlying value of the forcing variable as illustrated in equation (1).<sup>15</sup>

$$T_i = T(X_i) = 1[x_i \geq \hat{x}] \quad (1)$$

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<sup>14</sup> While the SRCV surveys are advantageous in many ways, the data collected on family and children allowances is not disaggregated. Indeed, the surveys provide information on whether households receive family or children allowances without distinction between the various types of benefits that a household could receive. Therefore, it is not possible to check the discontinuity of basic allowances of early childhood benefits in the neighborhood of the discontinuity thresholds.

<sup>15</sup> See Lemieux and Milligan (2008) and Pettersson-Lidbom (2008) for a similar methodology.

$1[\cdot]$  is an indicator function,  $x_i$  is the forcing variable, and  $\bar{x}$  is the discontinuity threshold, which is the value taken by the forcing variable separating the units into two mutually exclusive groups, i.e. those who receive the treatment versus those who do not receive it.

A unique feature of the policy reform in France is the differential benefit rate by income. Depending on household structure and the number of children, households are eligible to full benefits, half benefits or zero benefits, based on a two-year lagged definition of household taxable income. If the household income is below a certain threshold  $\bar{R}$ , households are eligible to “full benefits.” Meanwhile, households whose income is between  $\bar{R}$  and  $\bar{\bar{R}}$  are eligible to “half benefits.” Finally, households whose income exceeds  $\bar{\bar{R}}$  are eligible to “zero benefits.”<sup>16</sup> The analysis therefore involves two discontinuity thresholds: the first threshold ( $\bar{R}$ ) will be denoted as “half benefits” and the second threshold ( $\bar{\bar{R}}$ ) will be denoted as “zero benefits.” In equation (2), the mutually exclusive groups are those who receive “full benefits” versus those who receive “half benefits.”

$$T_{\bar{R}_i} = T(R_i) = 1[R_i \geq \bar{R}] \times 1[R_i < \bar{\bar{R}}] \quad (2)$$

While in equation (3), the analysis compares households/individuals who receive “zero benefits” with those who receive either “full benefits” or “half benefits.”

$$T_{\bar{\bar{R}}_i} = T(R_i) = 1[R_i \geq \bar{\bar{R}}] \quad (3)$$

As presented in Table 1, the income thresholds defined by the policy are a function of both the number of children and household structure (a mono-parental household with one income, a bi-parental household with two incomes or a bi-parental household with one income). The RDD approach consists in comparing the outcomes of households/individuals who are “just below” and “just above” the threshold. The intuition behind this approach is that households/individuals whose incomes are close to the discontinuity threshold are very comparable along observable and unobservable characteristics, except for the treatment. In other words, in the neighborhood of the discontinuity threshold, households are very similar only that some are subject to treatment while others are not. Therefore, the households/individuals slightly below the threshold provide the counterfactual for those slightly above the threshold since the treatment (receiving half benefits or receiving zero benefits) is effectively randomized in the neighborhood of the discontinuity thresholds.

The RDD can be implemented in several ways. The simplest is a non-parametric technique that compares outcomes in a small neighborhood below and above the discontinuity threshold. However, this approach could lead to imprecise estimates of the

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<sup>16</sup> It is important to note that  $\bar{R} < \bar{\bar{R}}$ .

treatment effect, with the usual trade-offs in the choice of the bandwidth (Lemieux & Milligan, 2008). When using a small bandwidth, the treatment effect is equal to the difference in the average outcomes of units that are “just below” and “just above” the threshold. This could lead to imprecise measures of the treatment effect. By contrast using large bandwidths could lead to biased estimates of the treatment effect if units that are further away from the discontinuity threshold are systematically different from those around the discontinuity point. Hence, unless large sample sizes are available in the neighborhood of the discontinuity threshold, the non-parametric bandwidth RDD estimation is likely to be subject to a large degree of sampling variability.

Using a control function is an equivalent yet more efficient technique of estimating the treatment effect using RDD (Lemieux & Milligan, 2008; Pettersson-Lidbom, 2008). This approach balances the trade-off between precision and bias by using all the available data around the discontinuity threshold and regressing the outcome of interest  $Y_{it}$  on the treatment indicator  $T_{it}$ , the control function  $\delta(R_{i,t-2})$ , which is a low-order polynomial of the treatment determining covariate  $R_i$ , and the interaction term between the treatment indicator and the control function. The RDD specification is presented in the following equation:<sup>17</sup>

$$Y_{it} = \pi T_{it} + \delta(R_{i,t-2}) + \mu T_{it} \times \delta(R_{i,t-2}) + \lambda_t + \epsilon_{it} \quad (4)$$

The empirical analysis relies on pooled cross-sectional data from the 2014 and 2015 SRCV survey rounds and the analysis focuses on households with dependent children who report receiving family/children allowances.<sup>18</sup> The treatment status of a household with children is therefore determined by their household income two years preceding the survey year. In any given year in the SRCV survey, the survey is matched with administrative income data of the year before. The 2014 survey therefore collects household income in the year 2013, while the 2015 survey collects household income in the year 2014. To obtain income data two years prior to the survey, for the year 2014, I restrict my analysis to households that are also observed in the year 2013 in order to be able to collect household income in the year 2012. In a similar way, for the year 2015, the analysis is restricted to households that are also observed in the year 2014, which allows collecting information on household income in 2013, two years preceding the survey. The estimation sample therefore consists of pooled cross-sectional household data for the years 2014 and 2015, with income information for the years 2012 and

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<sup>17</sup> Equation (4) denotes the individual level estimation. However, household level regressions are also estimated when examining the impact of the 2014 family policy reforms on fertility choices.

<sup>18</sup> The analysis is restricted to households with dependent children as the 2014 policy reform defines income thresholds only for households with dependent children (with at least one child). Hence, households with no children cannot be included in the analysis. As a robustness check, in Table A.5 and Table A.6, results are reported on the full sample of households with dependent children, without restricting the analysis to households who report receiving children/family allowances. The results are robust to this check.



2013, respectively. The SRCV data also has information on the number of children in a given household, as well as the year and month of birth of the children born in both the survey year and the preceding one. For example, for the 2014 survey, the SRCV collects information on the month of birth of all children born in the years 2014 and 2013.

The regression discontinuity is “sharp” in outcomes, since the outcome variables are measured at the time of the survey. The dependent variables  $Y_{it}$  correspond to: the birth probability at the household level (for births that occurred 9 months after the reform was first discussed in the National Assembly), as well as to the number of hours of work per week at the time of the survey, for women or men. The control function  $\delta(R_{i,t-2})$  is a first-order polynomial of the forcing variable, which is the household income two years prior to the survey year, and is equal to the difference between the total disposable household income net of contributions and the discontinuity threshold defined by the policy. The regression specification also includes a year fixed effect  $\lambda_t$ , while  $\epsilon_{it}$  denotes the error term.

Two sets of regressions are estimated separately. The first one compares the outcomes of individuals/households who receive “half benefits” to those who receive “full benefits,” as illustrated in equation (2), by restricting the analysis to those whose income is strictly below  $\bar{R}$ . The second one compares the outcomes of individuals/households who do not receive any basic allowances of the PAJE benefits to those who either receive “half benefits” or “full benefits.” The main coefficient of interest  $\pi$ , reported in the regression tables, is the RDD treatment effect, and it measures the difference in average outcomes between treated and untreated units. More specifically, it measures the difference in outcomes between those who receive “half benefits” versus those who receive “full benefits”; and the difference in outcomes between those who receive “zero benefits” versus those who receive “half benefits” or “full benefits.” The control function technique thus yields to unbiased estimates of the treatment effect, since  $R_{i,t-2}$  is the only systematic determinant of the treatment status. The inclusion of the control function  $\delta(R_{i,t-2})$  thus captures any correlation, which may otherwise occur, between  $R_{i,t-2}$  and the error term  $\epsilon_{it}$ .

The control function is my benchmark specification. Nonetheless, I also report results using non-parametric bandwidth estimations, since the estimates from the control function and the non-parametric bandwidth estimations should be the same if the control function is correctly specified. In addition, as robustness checks, I also estimate second-order and third-order polynomial specifications of the control function, to accommodate non-linearities in income.

Moreover, I report results including an additional vector of pre-determined individual and household control variables. The provision of family allowances for children should not be systematically correlated with any observed or unobserved variables once the forcing variable is controlled for. Hence, adding additional control variables

should not affect the estimates from the control function approach and that provides a test of whether the treatment status can be considered as good as randomly assigned (Lemieux & Milligan, 2008).

## 5 Empirical Findings: Did the Reforms Affect Fertility and Labor Supply?

### 5.1 A Graphical Presentation

I examine the impact of the 2014 family policy reforms on fertility and labor supply for both women and men. Figure 3 presents a regression discontinuity plot on the relationship between the birth probability (Y-axis) and the distance from the “zero benefits” threshold (X-axis), measured by the difference between a two-year lagged definition of household income and the income threshold defined by the 2014 policy reform. The vertical plotted line corresponds to the income threshold beyond which households are not eligible to receive the basic allowances of PAJE benefits. Positive values on the X-axis refer to households whose income is above the discontinuity threshold and thus receive no benefits, while negative values on the X-axis refer to households whose income is below the discontinuity threshold and are eligible to full or half benefits.

As the family policy reforms were first discussed in the National Assembly, in March 2013, I define the probability of birth at the household level as a dummy variable indicator for births that occurred in the years 2014 and 2015, 9 months after the law was first discussed.<sup>19</sup> Figure 3 shows that households whose income exceeds the discontinuity threshold of “zero benefits,” and therefore are not eligible to receive family allowances for children, have a consistently lower birth probability compared to households that are eligible to half the amount of basic allowances of early childhood benefits.<sup>20</sup>

As for labor supply, Figure 4 shows the discontinuity between the number of hours of work per week (Y-axis) and the distance from the “zero benefits” threshold (X-axis) for women (Panel A) and men (Panel B). These RD plots show a clear discontinuity in the number of hours of work between the two groups, in the neighborhood of the threshold, for both women and men. Receiving “zero benefits” is associated with a greater number of weekly working hours for women and men, relatively to those who

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<sup>19</sup> In Table 9, I also explore timing effects by examining the impact of the 2014 family policy reforms on births that occurred 9 months after the law entered into force in April 2014, instead of 9 months after the law was first discussed in the National Assembly.

<sup>20</sup> Restricting the analysis to households within narrower income windows results in noisier graphs, as the birth probabilities (in the years 2014 and 2015) within many income bins are equal to zero. However, I show regression results in Table 6 using non-parametric bandwidth estimations with narrower household income windows of  $\pm 2,500$ ,  $\pm 5,000$ ,  $\pm 7,500$  and  $\pm 10,000$ .

are eligible to half the amount of basic allowances.

## 5.2 Control Function and Non-Parametric Bandwidth Estimation

Turning to the results from the control function, Table 4 presents the RDD estimation results on the impact of the 2014 family policy reforms on fertility, using household level data. In Panel A, equation (4) is estimated using a first-order polynomial specification of the control function, while in Panel B results are reported using a weighted first order polynomial control function. The difference between the estimates in Panel A and Panel B is that the regressions in Panel B run with weights that decline with distance from the regression discontinuity threshold defined by the 2014 policy reform, giving more weight to observations close to the threshold and less weight to observations further away from the discontinuity threshold (see Imbens and Lemieux (2008) for a similar approach).

The RDD results suggest that being eligible to “half benefits” does not seem to have an impact on the birth probability at the household level, relatively to being eligible to “full benefits.” On the other hand, the results show that being eligible to “zero benefits” decreases the probability of having an (additional) child, at the household level, by 2 percentage points in both Panel A and Panel B, relative to households that are eligible to either “full benefits” or “half benefits.” Evaluating these effects at the mean of the dependent variable of interest results in substantial effects: 71% and 61% decreases in the birth probability at the household level in Panel A and Panel B, respectively. These birth effects can be interpreted in terms of benefit elasticities. The benefit elasticity measures the percentage change in the birth probability generated by a 1% change in benefits. The birth effect is observed at the “zero benefits” threshold, which corresponds to a 100% reduction in benefits. The implied elasticity of fertility to benefits therefore ranges between 0.61 and 0.71.

Table 5 reports results on the impact of the reform on the number of hours of work per week for both women and men. The results are also reported using a first-order polynomial specification of the control function in Panel A and a weighted first order polynomial control function in Panel B. The findings suggest that decreasing the amount of basic allowances of early childhood benefits, either by receiving “half benefits” or by receiving “zero benefits,” is associated with higher labor supply for both women and men. The results in Panel A suggest that receiving “half benefits” leads to an increase in the number of hours of work per week for women by 4 hours compared to women who belong to households receiving “full benefits.” Meanwhile, being eligible to “zero benefits” increases the number of women’s hours of work per week by 2 hours, compared to women who belong to households who are eligible to half or full the amount of basic allowances. The increase relative to the average number of

hours of work per week for women is of the order of 11% for those who receive “half benefits” and of 5% for women who receive “zero benefits.” The results also suggest that men who either receive “half benefits” or “zero benefits” significantly increase their number of hours of work per week, by 2 hours and 4 hours, respectively. The magnitude of these increases relative to the average number of hours of work per week for men and are of the order of 6% and 10%, respectively.<sup>21</sup>

In addition to using a control function specification, I also rely on non-parametric bandwidth estimations for households within various income windows from the discontinuity thresholds defined by the policy ( $\pm 10,000$  euros,  $\pm 7,500$  euros,  $\pm 5,000$  euros, and  $\pm 2,500$  euros). In Table 6, results are reported for birth probability at the household level. For households within  $\pm 10,000$  euros or  $\pm 7,500$  of yearly household income from the discontinuity thresholds defined by the policy, the bandwidth estimation results are consistent with the main findings presented in Table 4, when using a first-order polynomial control function, and suggest that being eligible to “zero benefits” is associated with lower birth probability at the household level, relatively to households eligible to early childhood benefits. When narrowing the income windows to  $\pm 5,000$  or  $\pm 2,500$  euros, the results are noisier, as the number of observations decreases and the probability within many income bins is equal to zero. The estimated effect, however, remains negative, although imprecisely estimated.

In Table 7 and Table 8, I report results using non-parametric bandwidth estimations for the impact of the 2014 family policy reform on labor supply for women and men, respectively. Table 7 shows that women eligible to “half benefits” work approximately two additional hours per week compared to women who belong to households that are eligible to the full amount of early childhood benefits, using a bandwidth of  $\pm 10,000$  euros or  $\pm 7,500$ . Using narrower bandwidths shows that women who belong to households that are not eligible to any basic allowances of early childhood benefits work two additional hours per week compared to women who are eligible to “half benefits.” Overall, the results in Table 8, which rely on non-parametric bandwidth estimation, also suggest that being eligible to “half benefits” or “zero benefits” is associated with higher working hours for men, consistently across all bandwidths.

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<sup>21</sup> In Table A.1 in the Online Appendix, I also explore heterogeneous effects by nationality. In Panel A, the analysis is restricted to French nationals (French by birth; French by naturalization or marriage or filing after the age of 18), while in Panel B, the analysis is restricted to other nationalities such as EU citizens from the countries who entered the EU post 2004; EU citizens from the other European countries; Algerian, Moroccan or Tunisian; African nationals except for the Maghreb countries; and other nationalities or stateless. The results are driven by French nationals (Panel A), while we do not find any significant impact of the 2014 family policy reforms on fertility responses and labor supply for all the other nationalities.

### 5.3 Exploring Timing Effects

The benchmark results presented in Table 4 on birth probability examine the effect of the 2014 family policy reforms on fertility, 9 months after the law was first discussed in the National Assembly in March 2013. This section explores timing effects by examining whether the effect of the policy begins the moment the policy was first discussed in March 2013 or at the time the policy went into effect in April 2014. In Table 9, I examine the effect of the 2014 reform on births that occurred 9 months after the law entered into force in April 2014. The results in Panel A suggest that not being eligible to any basic allowances of the PAJE benefits is associated with a decline in the birth probability at the household level by 0.7 percentage points. This is equivalent to a decrease in the birth probability by 24%, evaluated at the mean of the dependent variable, suggesting that the implied fertility elasticity to benefits is of 0.24.

Comparing the results in Panel A with the benchmark estimates presented in Table 4 shows that the largest drop in fertility occurred in 2014, following the earliest discussions of the policy and that the fertility response following the actual implementation of the reform is lower (an elasticity of 0.24), which is in line with previous studies that estimated fertility elasticities to benefits within the same range (Brewer, Ratcliffe, & Smith, 2012; Cohen, Dehejia, & Romanov, 2013; Gauthier & Hatzius, 1997; Laroque & Salanié, 2014; Milligan, 2005; Whittington, Alm, & Peters, 1990). This large decline in fertility in 2014 is also backed up by aggregate fertility trends as shown in Figure 1.

I also explore whether the drop in fertility is associated with a decline in completed fertility or whether at least part of the decline can be attributed to timing effects. To do so, I follow Milligan (2005), by investigating the differential effect of the policy intervention with respect to women's age. In Table 9, Panel B, I estimate the same benchmark model presented in Table 4, while conditioning on women's age at the time of the survey, as well as an interaction term between the RDD treatment effect and women's age. Indeed, the results in Panel B show the fertility impact declines as women's age increases. This suggests that at least part of the decline in fertility is due to timing effects.

## 6 Validity of the Regression Discontinuity Design

### 6.1 Manipulation Tests

In similar RDD settings, a methodological concern that might arise is that individuals or households could manipulate their income to influence eligibility. This could lead to a spurious correlation between household income and the error term, which could in turn constitute a threat to the underlying assumption that the control function is continuous. However, in this paper, the natural experiment that allows for causal identification is unique and advantageous for two reasons. First, household income is

pre-determined. As discussed earlier, the amount of basic allowances of PAJE benefits received by a household in a particular year depends on their household income two years before. Hence, the eligibility of households in the survey years, 2014 and 2015, is determined by their income in the years 2012 and 2013, respectively, as well as by the family’s extensive margin labor force participation, which is also measured at the same time. Since all income-related eligibility criteria is measured two years prior to the survey, families cannot alter their income or their extensive margin labor force participation to switch threshold categories. Second, household income in the survey is not reported but comes from administrative data, as presented in Section 3. This leaves no room for manipulation on behalf of the reporting households or individuals.

Following McCrary (2008), I also present in Figure 5 and Figure 6 the density function of household income around the “zero benefits” and “half benefits” thresholds, respectively. In these graphs, I estimate the density function for all households (Panel A), for bi-parental households (Panel B), and for mono-parental households (Panel C). The McCrary test provides an estimation of the discontinuities in the conditional density function of the forcing variable in RDD. McCrary (2008) suggests testing the null hypothesis of continuity of the density function of the forcing variable around the discontinuity point, against the alternative hypothesis of a discontinuity in the density function at that point. As shown in Figure 5 and Figure 6, there does not seem to be any discontinuity in the density function of household income around the thresholds of “zero benefits” or “half benefits,” across all types of households. At the “zero benefits” threshold, the discontinuity estimate of the McCrary (2008) density test for all households is equal to 0.047 with a standard error of 0.120, and is equal to 0.119 with a standard error of 0.169 at the “half benefits” threshold.<sup>22</sup> In all cases, we fail to reject the null hypothesis of continuity of the density function of household income at the discontinuity threshold. This provides additional evidence on the continuity assumption, and suggests that there is no bunching on either side of the cutoff or evidence of manipulation of the forcing variable.

## 6.2 Covariate Balance Tests

Following the literature on RDD, I also present covariate balance tests in order to check whether there is sorting around the “half benefits” and “zero benefits” thresholds. Table 10 and Table 11 report results for women and men, respectively, relying on 13 different variables including an individual’s age, citizenship, types of household, and highest level of educational attainment. These variables are regressed on a dummy

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<sup>22</sup> At the “zero benefits” threshold, the discontinuity estimate of the McCrary (2008) density test for bi-parental households is equal to 0.055 with a standard error of 0.116 and is equal to 0.143 with a standard error of 0.194 at the “half benefits” threshold. As for bi-parental households, at the “zero benefits” threshold, the discontinuity estimate of the McCrary (2008) density test for bi-parental households is equal to -0.771 with a standard error of 1.130 and is equal to 0.518 with a standard error of 0.739 at the “half benefits” threshold.

variable indicator equal to one if the individual belongs to a household that is eligible to half benefits and zero if the household is eligible to full benefits (Panel A), and on a dummy variable indicator equal to one if the household is eligible to zero benefits and zero if the household is eligible to half or full benefits (Panel B). The analysis is restricted to women and men with dependent children. Focusing on individuals whose yearly household income is within  $\pm 10,000$  euros from the income threshold defined by the policy reform, there is no evidence of discontinuity or sorting in individual or household characteristics in the neighborhood of the discontinuity thresholds for both women and men. The covariate balance tests along with the descriptive statistics presented in Table 2 and Table 3 confirm random sorting around the discontinuity thresholds.

### 6.3 Placebo Tests

Finally, to check the validity of the RDD, I also report placebo regressions results. For each survey year, the SRCV dataset reports information on births in the survey year and in the year preceding the survey. Hence, for the 2014 round, I also have information on all births in the year 2013 (from January to December). Moreover, based on children’s age in the 2015 survey round, I identified births in the year 2013 among households interviewed in 2015. In Table 12, I therefore examine the impact of the 2014 family policy reform on birth probability in the year 2013. The results show that there is no association between the 2014 family policy reforms and birth probability in the year 2013, suggesting that my results are not driven by pre-existing trends in fertility.

Additionally, I also rely on placebo regressions on fertility and labor supply for both women and men in Table 13. In Panel A, I rely on pre-reform data, while in Panel B I rely on placebo thresholds. Instead of using the income thresholds defined by the 2014 policy reform, in Panel B, the “half benefits” threshold is set to be 10,000 euros and the “zero benefits” threshold is set to be 20,000 euros, using the 2014 and the 2015 waves of the SRCV. Employing a linear control function specification and using pre-reform data, the results reported in Table 13 show that there is no association between the future family policy reform, on one hand, and fertility and labor supply, on the other hand. These results suggest that there are no pre-existing trends in fertility and labor supply between the different groups of households: those that are eligible to full benefits, half benefits or zero benefits. Moreover, using placebo income thresholds, I do not find any significant effect on fertility and labor supply between households whose income is below the placebo threshold and households whose income is above the placebo threshold.



## 6.4 Discussion on Concomitant Reforms

There were several concomitant family policy reforms that occurred in 2014. These included reforms of the birth premium and of parental leave. The birth premium aims at helping households prepare for the birth of a child, by financing the purchase of essential equipment for the arrival of the newborn. A new law was passed in December 2014, which modified the date of payment of this premium to be on the last day of the second calendar month following the birth. This premium was previously paid before the end of the pregnancy, in the seventh month of pregnancy. According to the official French Senate website, the 2014 reforms only modified the timing of payment of the birth premium, without altering the eligibility conditions or the amount of the premium, which remained at 923,08 euros per child.<sup>23</sup>

Another reform, the August 2014 law for real equality between men and women, modified the parental leave scheme in France to ensure a better distribution of family responsibilities within the couple. According to the official website of the French government, starting from the 1<sup>st</sup> of January 2015, parents of one child, who were previously entitled to six months of parental leave, can take an additional six months provided that the second parent is the beneficiary. From the second child, parental leave can last for a maximum of three years. While the reform maintained the three years of parental leave starting from the second child, it required the parental leave to be shared between the two parents. The first would be entitled to 24 months and the second to 12 months.<sup>24</sup>

Likewise, in 2014, according to the Finance Act of 2014, the cap on the family tax quotient was lowered from 2,000 euros to 1,500 euros. The family quotient takes into account the number of dependent children for tax calculation through the number of tax shares. Thus, for the same income, families with children are taxed at a lower rate compared to those without children. Nevertheless, the advantage procured by each child is capped. In 2014, the family quotient capping reduced the tax gain procured by children to 1,500 euros.<sup>25</sup> Even though the birth premium reform, the parental leave reform, and the capping the family quotient were concomitant reforms, they do not in any way impact the results of this paper because unlike the basic allowances of the PAJE benefits they are not conditional on income. Since the RDD framework relies on the very specific income thresholds for the PAJE benefits introduced by the 2014 family policy reforms, it is very unlikely that the results estimated in the neighborhood of the discontinuity thresholds capture these other reforms that are not conditional on

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<sup>23</sup> Information on the birth premium reform in 2014 is available on the official French Senate website: <https://www.senat.fr/questions/base/2016/qSEQ160220324.html>

<sup>24</sup> Information on the 2014 law for real equality between men and women and the parental leave reforms is available on the official website of the French government: <https://www.gouvernement.fr/action/la-loi-pour-l-egalite-reelle-entre-les-femmes-et-les-hommes>

<sup>25</sup> Information on the family quotient reform is available on the official website of the French Senate: <https://www.senat.fr/rap/a13-127/a13-12725.html>

income.

Finally, the French government also introduced a Social Security Financing Bill for 2015 that reduced family allowances (*allocations familiales*) for the richest households. These allowances are destined to households with at least two children. Prior to the reform, these allowances were universal and amounted to 129, 295, and 460 euros per month for households with two, three, and four children, respectively.<sup>26</sup> Similar to the reform regarding the basic allowances of the PAJE, the reform set two income thresholds as illustrated in Table A.2 in the Online Appendix. The family allowances became means-tested benefits as households became eligible to the full amount of family allowances, half the amount or a quarter of the amount depending on household income. If household income exceeds the “half benefits” threshold but is below the “quarter benefits” threshold, the allowances are halved, while if household income exceeds the “quarter benefits” threshold, the allowances are divided by four. Households are eligible to the full amount of family allowances if their household income is below the “half benefits” threshold.

Even though the latter reform also conditioned the amount of the allowances on household income, the PAJE reform entered into force on the 1st of April 2014, while the family allowances reform entered into force more than a year later, in mid July 2015.<sup>27</sup> Furthermore, the income thresholds introduced by the 2015 reform to the family allowances are, unlike the PAJE benefits’ income thresholds, independent on household structure and very different from the PAJE benefits’ thresholds, as shown in Table 1 and Table A.2, respectively. The family allowances’ income thresholds are significantly larger relative to the PAJE benefits’ income thresholds. For instance, for households with two children, the family allowances income thresholds are 67,140 euros and 89,490 euros, while the PAJE income thresholds are 35,511 euros and 42,426 euros for bi-parental households with one income and are 43,648 euros and 52,148 euros for bi-parental households with two incomes and mono-parental households with income. Indeed, the exact thresholds used for the analysis of the PAJE benefits were not employed in any other assistance program that was part of the 2014 or 2015 reforms. This bolsters my confidence that the RDD analysis, which employs the exact income thresholds defined by the 2014 reforms of the PAJE benefits, is solely capturing the effect of the PAJE reform and not the effect of other concomitant reforms.

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<sup>26</sup> The family allowances increase by 165,72 euros per month with every additional child and are capped at 64,67 euros per month for children aged 14 years old and above.

<sup>27</sup> Information of the 2015 reform of the family allowances is available on the official website of the French Senate: <https://www.senat.fr/rap/115-134-4/115-134-42.html>

## 7 Robustness Checks

### 7.1 Alternative Specifications of the Control Function

In this section, results are reported using a number of robustness checks. The first is a specification check, in which I use alternative specifications of the control function. Table 14 reports results on the impact of the 2014 family policy reforms on the birth probability at the household level using a first-order polynomial specification and including a vector of pre-determined household control variables in columns (1) and (2), using a second-order polynomial specification in columns (3) and (4), and a third order polynomial specification in columns (5) and (6). Household level controls include: dummy variable indicators for the different household types (mono-parental household with children, bi-parental household with one child, bi-parental household with two children, bi-parental household with three children or more, other types of households with children), a dummy variable indicator for poverty (it is equal one for households whose standard of living is lower than the poverty threshold) and a dummy variable indicator for the nationality of the household head (French by birth; French by naturalization or marriage or filing after the age of 18; EU citizen from the countries who entered the EU post 2004; EU citizen from the other European countries; Algerian, Moroccan or Tunisian; African national except for the Maghreb countries; and other nationalities or stateless). Results are robust to the different specification checks and are also stable in terms of magnitude. In line with the previous findings in Table 4, receiving “zero benefits” compared to receiving “half benefits” or “full benefits” is associated with a significant decrease in the birth probability at the household level, by 1.7 percentage points to 2 percentage points. Relatively to the mean value of the dependent variable, the implied benefit elasticity ranges from 0.61 to 0.71.

In Table 15, results are reported for the number of hours of work per week for women (Panel A) and men (Panel B). In addition to the inclusion of a vector of pre-determined household level covariates, columns (1) and (2) also include a vector of pre-determined individual level control variables. The individual level controls include: the individual age, dummy variable indicators for the individual’s highest level of educational attainment (pre-primary education, primary education or first cycle of basic education, first cycle of secondary education or second cycle of basic education, second cycle of general secondary education, second cycle of vocational secondary education, post-secondary non-university education, short cycle university education, Bachelor level, Masters level, Ph.D. level), and dummy variable indicators for the nationality of the individual. The results in Table 15 are robust to the different specification checks although imprecisely estimated, in Panel A, when examining the effect of receiving “zero benefits” and using a second-order or third-order specifications of the control function.

Receiving “half benefits” compared to receiving “full benefits” is associated with

an increase in the number of hours of work per week for women by 2 hours to 3 hours. Results are reported for men in Panel B and are consistently robust to the alternative specification checks. In line with the benchmark specification in Table 5, men increase their number of hours of work per week when they are not eligible to the basic allowances or when they are only eligible to half the amount of the basic allowances of early childhood benefits. Indeed, receiving “half benefits” is associated with an increase of 2 to 3 hours in men’s weekly working hours, while receiving “zero benefits” is associated with a 2 to 4 hour increase in weekly working hours.

## 7.2 Heaping, Sample Selection, and Alternative Income Definition

Bias from heaping in RDD could also be of concern if unobservable factors are tied to income at round numbers. For example, households earning exactly 50,000 euros could potentially be different from other households because they have a certain type of salary job (Barreca, Lindo, & Waddell, 2016). As an additional robustness check, in Table A.3 and Table A.4 in the Online Appendix, all heaped income values that are integer multiples of one hundred are dropped (for example: 15,000, 15,100, 15,200, etc.) Table A.3 reports results on birth probability at the household level and Table A.4 reports results on labor supply for women and men. Results are robust to this additional check.

In Table A.5 and Table A.6, I report results on the full sample of households with dependent children without restricting the analysis to those who report receiving family or children allowances. Table A.5 reports results on the impact of the 2014 family policy reform on the birth probability at the household level and Table A.6 reports results on the number of hours of work per week for women and men. Table A.5 and Table A.6 are split into two panels: using a linear control function specification in Panel A and bandwidth non-parametric regressions in Panel B by restricting the analysis to households within  $\pm 10,000$  euros of yearly household income from the discontinuity thresholds defined by the policy reform. The results are robust to this check and consistently suggest that households that receive “zero benefits” have a significantly lower birth probability at the household level and that women and men who belong to households that either receive “half benefits” or “zero benefits” have significantly higher labor supply compared to those who are eligible to the full amount of early childhood benefits.

Table A.7 in the Online Appendix reports results on birth probability and labor supply, respectively, using alternative income and working/active status definitions. The household income now refers to total household disposable income before social benefits, including old age allowance or survivor’s pension, rather than the total household disposable income net of contributions. In addition, instead of using the standard

definition of the active/working individuals employed in the survey, I follow the CAF definition of working individuals. Working individuals are thus defined as those who are engaged in income-generating work and/or receive daily allowances for accidents at work or occupational diseases. Each of these incomes must be at least equal to 5,252 euros, two years before the survey. The results in Table A.7 are consistent and robust to these additional checks and point to a reduction in the birth probability associated with not being eligible to any basic allowances. Likewise, receiving “half benefits” or “zero benefits” is consistently associated with an increase in women’s and men’s labor supply.

## 8 Concluding Remarks

This paper examines the impact of the 2014 family policy reforms of PAJE benefits in France on fertility choices and labor supply for both women and men. The policy reform provides a quasi-experimental setting as it introduced means-tested benefits. The reform defined income thresholds beyond which households become either eligible to half the amount of basic allowances or ineligible to the basic allowances of early childhood benefits. Exploiting this “sharp” discontinuity in the provision of early childhood benefits, I examine its impact on birth probability at the household level and on women’s and men’s labor supply.

The analysis relies on two survey rounds of the European Union-Statistics on Income and Living Conditions (EU-SILC) in France for the years 2014 and 2015. Using a RDD, the results of this paper suggest that the elimination of the benefits is found to be associated with lower fertility and higher labor supply for women and men. Becoming ineligible to the basic allowances of early childhood benefits decreases the probability of having an (additional) child. The paper captures both an “announcement effect” and an “implementation effect” of the policy reform. While the estimated “implementation effect” is within the range of the estimated benefit elasticities in the existing literature (an elasticity of 0.24), this paper points to an “announcement effect,” of larger magnitude (an elasticity of 0.61), as the sharpest decline in fertility seems to have occurred following the earliest discussions of the policy reforms in the National Assembly. The findings also suggest that at least part of the decline in fertility can be attributed to timing effects.

Regarding the impact of the 2014 family policy reforms on labor supply, I find consistent results in line with the literature on the elimination of welfare programs. As posited by standard labor supply theory, the reduction in child benefits—for households that became eligible to either half the amount of PAJE benefits or households that became ineligible to any—is associated with an increase in the number of hours of work per week for both women and men. A back of the envelope calculation shows that the implied change in earned income, due to an increase in weekly working hours,

compares to the euro value reduction in benefits.

These results carry important implications for the evaluation of the 2014 family policy reforms in France and are particularly relevant to policymakers interested in assessing the effectiveness of the reform in France or in implementing similar policies in other countries. While France's high fertility rate relative to other OECD countries has been attributed to the generosity of the family benefit schemes, the question remains as to what extent the recent reforms are likely to impact this trend, given the short-term negative effects for non-eligible citizens.

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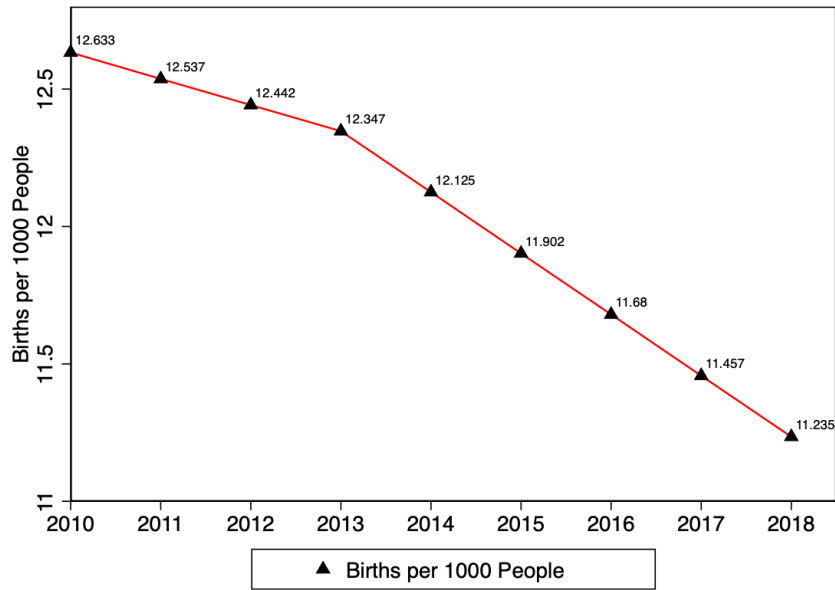


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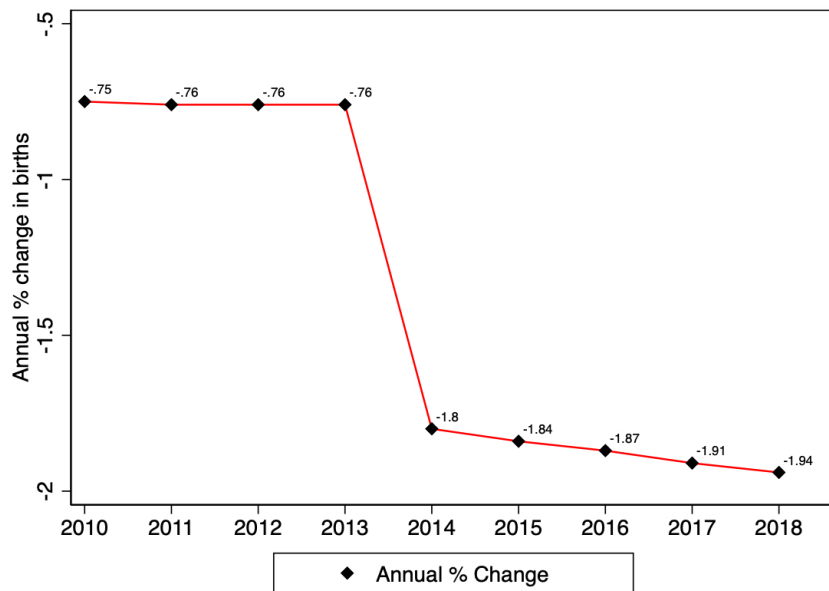
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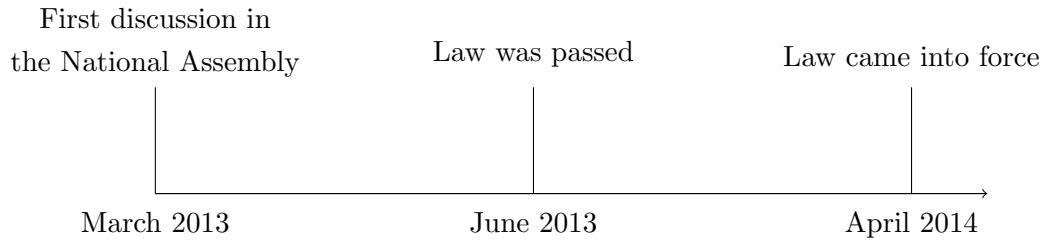
(a) Births per 1000 people



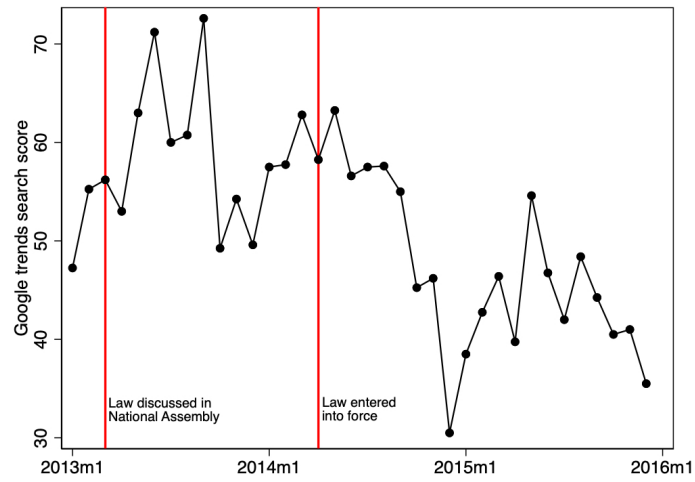
(b) Annual percentage change in births

Figure 1: Aggregate fertility in France before and after the reform

*Notes.* Data comes from the World Population Prospects of the [United Nations \(2019\)](#). Panel A presents the number of births per 1000 people from 2010 to 2018, while Panel B presents the annual percentage change in births (year to year change).



(a) Timeline of the PAJE reforms



(b) Google trends analysis

Figure 2: Timeline and Google trends analysis of the PAJE reforms

*Notes.* In sub-figure (a), the graph presents a timeline of the PAJE policy reforms. In sub-figure (b), the graph presents a Google trends analysis of all web searches in France of the term "paje," which refers to the *Presetations d'Accueil du Jeune Enfant*. The vertical plotted lines correspond to March 2013 when the law was first discussed in the National Assembly in France and to April 2014 when the law came into force. Values on the Y-axis represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular.

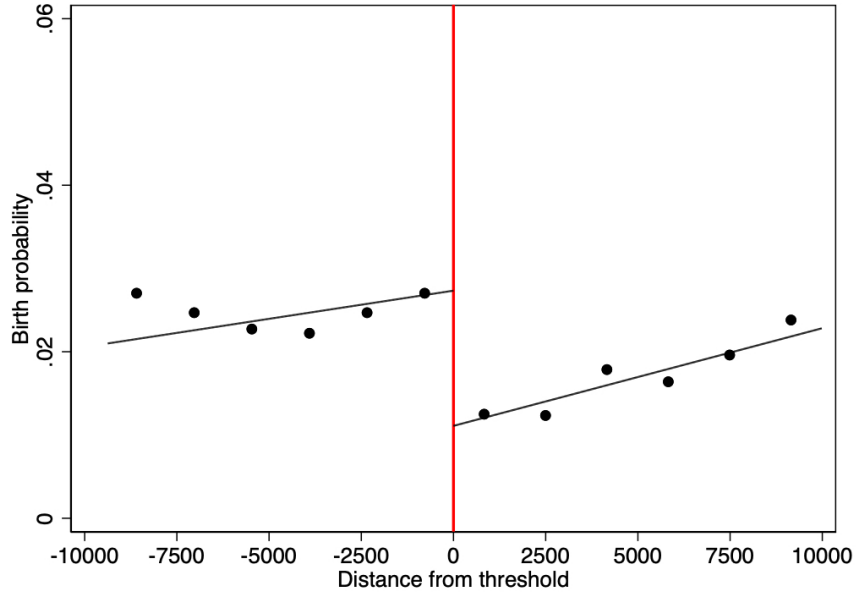
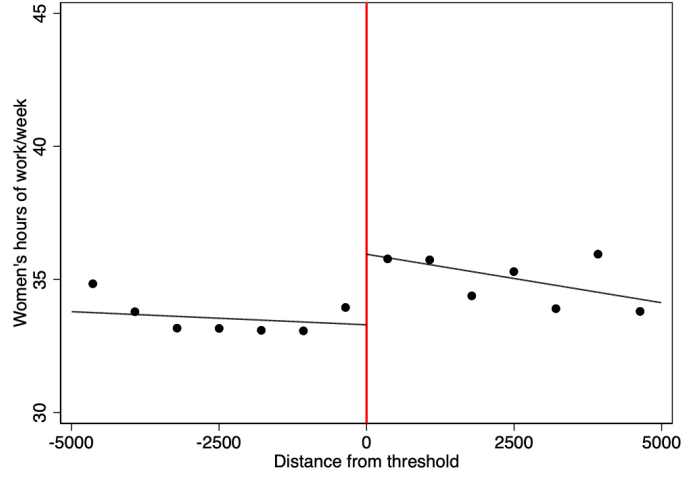
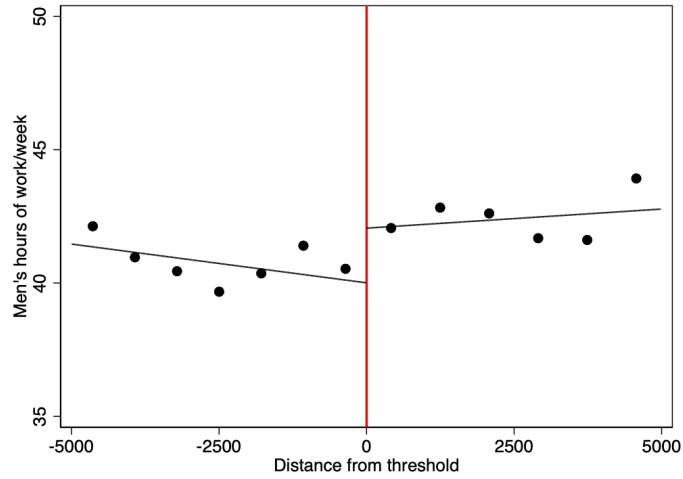


Figure 3: The discontinuity in birth probability at the “zero benefits” threshold

*Notes.* This graph presents the discontinuity between the birth probability (Y-axis) and the household income minus the income threshold defined by the 2014 policy reform (X-axis). The vertical plotted line corresponds to the income threshold beyond which households are not eligible to receive children allowances (the income threshold depends on the household structure and the number of children). Positive values on the X-axis refer to households above the income threshold; eligible to zero benefits. Negative values on the X-axis refer to households below the income threshold, eligible to half benefits. Household income refers to the total household disposable income net of contributions. The sample consists of pooled cross sectional household observations from the 2014 and 2015 waves of the *Statistiques sur les Ressources et les Conditions de Vie* (SRCV). The family/children allowances received by households in a given is determined by the household income two years before. Household income minus threshold (X-axis) refers to the income received by the household two years preceding the survey minus the income threshold defined by the 2014 policy reform. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The probability of birth at the household level (Y-axis) is a dummy variable indicator for births reported in the years 2014 and 2015, 9 months after the law was first discussed.



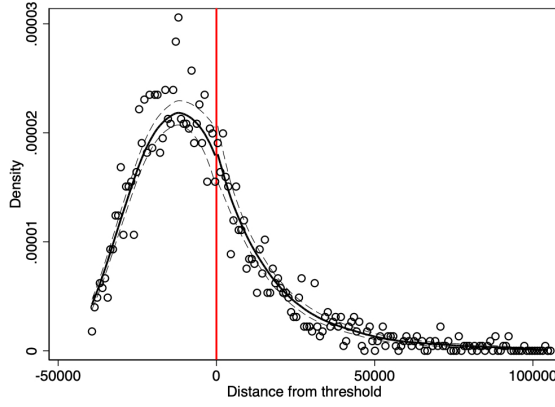
(a) Sample of women



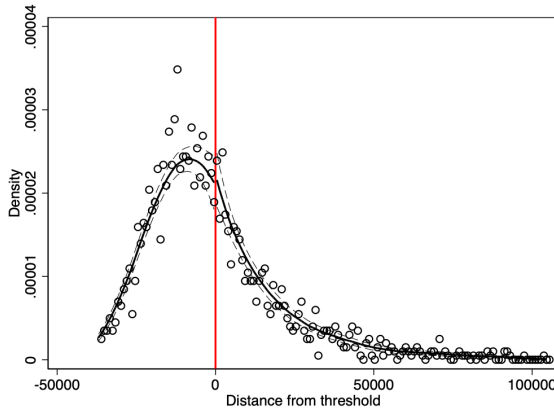
(b) Sample of men

Figure 4: The discontinuity in the number of hours of work/week for women and men at the “zero benefits” threshold

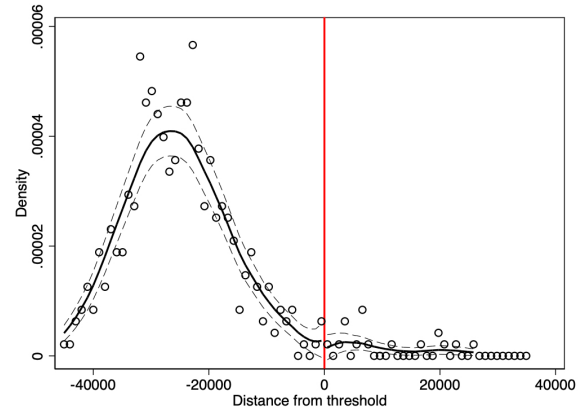
*Notes.* This graph presents the discontinuity between the number of hours of work/week for women (Y-axis) and the household income minus the income threshold defined by the 2014 policy reform (X-axis). The vertical plotted line corresponds to the income threshold beyond which households are not eligible to receive children allowances (the income threshold depends on the household structure and the number of children). Positive values on the X-axis refer to households above the income threshold; eligible to zero benefits. Negative values on the X-axis refer to households below the income threshold, eligible to half benefits. The analysis is restricted to households within  $\pm 5,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform. Household income refers to the total household disposable income net of contributions. The sample consists of pooled cross sectional household observations from the 2014 and 2015 waves of the *Statistiques sur les Ressources et les Conditions de Vie* (SRCV). The family/children allowances received by households in a given year is determined by the household income two years before. Household income minus threshold (X-axis) refers to the income received by the household two years preceding the survey minus the income threshold defined by the 2014 policy reform.



(a) All Households



(b) Bi-parental Households



(c) Mono-parental Households

Figure 5: Density function of household income around the “zero benefits” threshold

*Notes.* This graph presents a density function of household income around the “zero benefits” threshold. The variable plotted on the X-axis refers to the income received by the household two years preceding the survey minus the income threshold defined by the 2014 policy reform. The vertical plotted line corresponds to the income threshold beyond which households are not eligible to receive children allowances (the income threshold depends on the household structure and the number of children). Positive values on the X-axis refer to households above the income threshold; eligible to zero benefits. Negative values on the X-axis refer to households below the income threshold, eligible to full or half benefits. All households are included in Panel A, bi-parental households are included in Panel B, and mono-parental households are included in Panel C. Household income refers to the total household disposable income net of contributions. The sample consists of pooled cross sectional household observations from the 2014 and 2015 waves of the *Statistiques sur les Ressources et les Conditions de Vie* (SRCV). The discontinuity estimate of the McCrary (2008) density test, with a null hypothesis of continuity of the forcing variable at the discontinuity point, is equal to 0.047 with a standard error of 0.120 (Panel A), 0.055 with a standard error of 0.116 (Panel B), and -0.771 with a standard error of 1.130 (Panel C).



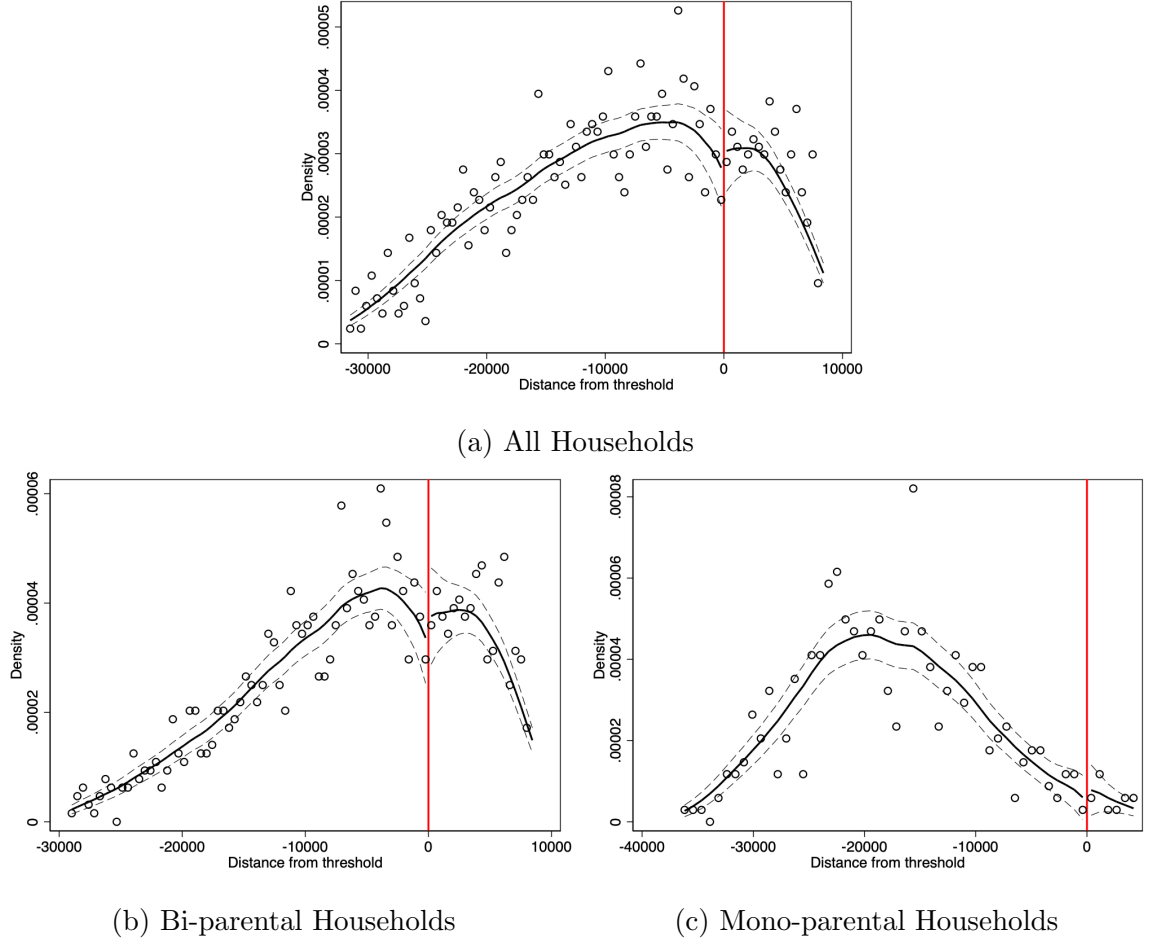


Figure 6: Density function of household income around the “half benefits” threshold

*Notes.* This graph presents a density function of household income around the “half benefits” threshold. The variable plotted on the X-axis refers to the income received by the household two years preceding the survey minus the income threshold defined by the 2014 policy reform. The vertical plotted line corresponds to the income threshold beyond which households are eligible to receive half the amount of children allowances (the income threshold depends on the household structure and the number of children). Positive values on the X-axis refer to households above the income threshold; eligible to half benefits. Negative values on the X-axis refer to households below the income threshold, eligible to full benefits. Household income refers to the total household disposable income net of contributions. The sample consists of pooled cross sectional household observations from the 2014 and 2015 waves of the *Statistiques sur les Ressources et les Conditions de Vie* (SRCV). The discontinuity estimate of the [McCrary \(2008\)](#) density test, with a null hypothesis of continuity of the forcing variable at the discontinuity point, is equal to 0.119 with a standard error of 0.169, (Panel A), 0.143 with a standard error of 0.194 (Panel B), and 0.518 with a standard error of 0.739 (Panel C).

Table 1: Income thresholds defined by the policy reform of PAJE benefits

	<i>Bi-parental HH with one income</i>		<i>Bi-parental HH with two incomes</i>		<i>Mono-parental HH with income</i>	
	Half benefits	Zero benefits	Half benefits	Zero benefits	Half benefits	Zero benefits
<i>Number of children</i>						
N=1	30,086	35,944	38,223	45,666	38,223	45,666
N=2	35,511	42,426	43,648	52,148	43,648	52,148
N=3	40,937	48,907	49,074	58,629	49,074	58,629
N=4	46,362	55,389	54,499	65,111	54,499	65,111
N=5	51,787	61,871	59,924	71,593	59,924	71,593
N=6	57,212	68,353	65,349	78,075	65,349	78,075
N=7	62,637	74,835	70,774	84,557	70,774	84,557
N=8	68,062	81,317	76,199	91,039	76,199	91,039

*Notes:* HH stands for households. This table reports the income thresholds defined by the 2014 family policy reforms for the PAJE benefits. The income threshold depend on household structure (bi-parental versus mono-parental households), as well as the number of children. The “half benefits” threshold correspond to the income threshold below which households are eligible to the full benefits. Households whose income is above the “half benefits” and below the “zero benefits” are eligible to half the amount of the PAJE benefits, while households whose income is above the “zero benefits” threshold are not eligible to any PAJE benefits.

Table 2: Descriptive statistics around the Half and Zero benefits threshold

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<b>Panel A: Sample of women</b>				<b>Panel B: Sample of men</b>			
	<b>Half benefits</b>	<b>Zero benefits</b>	<b>Half benefits</b>	<b>Zero benefits</b>	<b>Half benefits</b>	<b>Zero benefits</b>	<b>Half benefits</b>	<b>Zero benefits</b>
	Below	Above	Below	Above	Below	Above	Below	Above
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
	[St. Dev.]	[St. Dev.]	[St. Dev.]	[St. Dev.]	[St. Dev.]	[St. Dev.]	[St. Dev.]	[St. Dev.]
Age	24.590	24.380	24.300	25.340	25.400	25.230	25.600	25.690
	[16.210]	[15.960]	[16.130]	[16.290]	[16.99]	[17.190]	[17.270]	[16.940]
<i>Nationality</i>								
French	0.960	0.985	0.980	0.985	0.963	0.969	0.980	0.984
	[0.196]	[0.120]	[0.139]	[0.123]	[0.190]	[0.173]	[0.141]	[0.124]
EU citizen	0.013	0.006	0.010	0.008	0.014	0.015	0.0136	0.0116
	[0.115]	[0.076]	[0.099]	[0.087]	[0.119]	[0.123]	[0.116]	[0.107]
Algerian, Moroccan or Tunisian	0.011	0.000	0.000	0.004	0.003	0.000	0.000	0.000
	[0.103]	[0.000]	[0.000]	[0.062]	[0.054]	[0.000]	[0.000]	[0.000]
African except Maghreb	0.008	0.000	0.003	0.000	0.009	0.003	0.003	0.000
	[0.090]	[0.000]	[0.057]	[0.000]	[0.093]	[0.055]	[0.058]	[0.000]
Other nationality	0.008	0.009	0.007	0.004	0.012	0.012	0.003	0.004
	[0.090]	[0.093]	[0.081]	[0.062]	[0.107]	[0.110]	[0.058]	[0.062]
<i>Education</i>								
First cycle education or less	0.164	0.119	0.121	0.114	0.227	0.178	0.160	0.158
	[0.371]	[0.324]	[0.327]	[0.319]	[0.419]	[0.383]	[0.367]	[0.366]
Second cycle education	0.556	0.443	0.385	0.388	0.561	0.494	0.457	0.398
	[0.498]	[0.498]	[0.488]	[0.489]	[0.497]	[0.501]	[0.499]	[0.491]
Post-secondary education	0.171	0.249	0.273	0.269	0.137	0.162	0.210	0.230
	[0.377]	[0.433]	[0.446]	[0.444]	[0.344]	[0.369]	[0.408]	[0.422]
University and above	0.108	0.190	0.221	0.229	0.076	0.166	0.174	0.214
	[0.311]	[0.393]	[0.416]	[0.421]	[0.265]	[0.373]	[0.380]	[0.411]
Observations	639	587	522	430	589	566	505	431

*Notes:* This table reports descriptive statistics around the “Half benefits” threshold in columns (1) and (2) and in columns (5) and (6). The table reports descriptive statistics around the “Zero benefits” threshold in columns (3) and (4), and in columns (7) and (8). The sample is restricted to women with dependent children in columns (1) to (4) and to men who belong to households with dependent children in columns (5) to (8). The analysis is restricted to households within  $\pm 5,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform. “Below” corresponds to 5000 euros below the threshold and “above” corresponds to 5000 euros above the threshold. The variables include the mother’s age at the time of the survey, the mother’s nationality: French, EU citizen, Algerian, Moroccan or Tunisian, African (except Maghreb) or other nationality, as well as the mother’s highest level of education: First cycle education or less (pre-primary education, primary education, first cycle of basic education), Second cycle education (second cycle of basic education, second cycle of general secondary education, second cycle of vocational secondary education), Post-secondary education (post-secondary non-university education and short cycle university education) and University education and above (Bachelor level, Masters level and Ph.D. level).

Table 3: Descriptive statistics around the Half and Zero benefits threshold,  
Household level

	(1)	(2)	(3)	(4)
	<b>Half benefits</b>		<b>Zero benefits</b>	
	Below	Above	Below	Above
	Mean	Mean	Mean	Mean
	[St. Dev.]	[St. Dev.]	[St. Dev.]	[St. Dev.]
<i>Type of household (HH)</i>				
Mono-parental HH with children	0.080	0.045	0.027	0.009
	[0.272]	[0.208]	[0.162]	[0.096]
Bi-parental HH with one or two children	0.665	0.704	0.730	0.719
	[0.473]	[0.457]	[0.445]	[0.451]
Bi-parental HH with 3 children or more	0.144	0.185	0.154	0.166
	[0.351]	[0.389]	[0.362]	[0.373]
Other households	0.112	0.066	0.089	0.106
	[0.316]	[0.249]	[0.285]	[0.309]
Share with active father	0.976	0.975	0.980	0.972
	[0.155]	[0.158]	[0.140]	[0.166]
Share with active mother	0.836	0.892	0.914	0.899
	[0.371]	[0.311]	[0.281]	[0.303]
<i>Wealth proxies</i>				
Poverty indicator	0.056	0.003	0.012	0.005
	[0.233]	[0.059]	[0.107]	[0.0679]
Number of residences	1.096	1.073	1.081	1.065
	[0.336]	[0.310]	[0.313]	[0.281]
Two-year lagged taxable income	39,578	45,610	48,561	53,096
	[4,700]	[5,247]	[5,802]	[5,833]
Observations	313	287	259	217

*Notes:* This table reports descriptive statistics around the “Half benefits” threshold in columns (1) and (2) and the “Zero benefits” threshold in columns (3) and (4), at the household level. The sample is restricted to households with dependent children who report receiving family/children allowances. The analysis is restricted to households within  $\pm 5,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform. “Below” corresponds to 5000 euros below the threshold and “above” corresponds to 5000 euros above the threshold. The variables include the type of households: mono-parental household with children, a bi-parental household with one or two children, a bi-parental household with three children or more, the share of households with an active father, the share of households with an active mother, as well as wealth proxies including a poverty indicator (a dummy variable indicator equals one if the household is considered poor), the number of household residences, and the two-year lagged household taxable income. A household is considered poor when its standard of living is below the poverty line, which is equal to 60% of the median standard of living of individuals.

Table 4: Impact of the 2014 family policy reforms on fertility

<b>Panel A: Regression discontinuity using a linear control function</b>		
	(1) Birth probability	(2) Birth probability
Half benefits	-0.004 [0.018]	
Zero benefits		-0.020** [0.008]
Observations	1,890	2,786
R-squared	0.027	0.025
<b>Panel B: Regression discontinuity using a linear control function with weights</b>		
Half benefits	0.003 [0.020]	
Zero benefits		-0.017** [0.009]
Observations	1,888	2,784
R-squared	0.028	0.025
Year FE	YES	YES
Dependent variable mean	0.037	0.028

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. In Panel A, results are reported on the full sample of households using a first-order polynomial control function. In Panel B, results are reported using a weighted first order polynomial control function. The regressions run with weights that decline with distance from the regression discontinuity threshold defined by the 2014 policy reform, giving more weight to observations close to the threshold and less weight to observations further away from the discontinuity threshold. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables in columns (1) and (2) are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2014 and 2015, 9 months after the law was first discussed. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table 5: Impact of the 2014 family policy reform on labor supply for women and men

<b>Panel A: Regression discontinuity using a linear control function</b>				
	(1) Hours of work/week for women	(2) Hours of work/week for women	(3) Hours of work/week for men	(4) Hours of work/week for men
Half benefits	3.575*** [1.132]		2.306** [1.004]	
Zero benefits		1.834** [0.848]		4.088*** [0.688]
R-squared	0.015	0.038	0.007	0.054
<b>Panel B: Regression discontinuity using a linear control function with weights</b>				
Half benefits	2.832*** [0.959]		2.056* [1.083]	
Zero benefits		1.008 [0.665]		2.937*** [0.710]
R-squared	0.022	0.043	0.006	0.067
Observations	1,403	2,193	1,397	2,273
Year FE	YES	YES	YES	YES
Dependent variable mean	33.04	34.36	39.93	41.72

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using individual level data. The sample is restricted to households with dependent children who report receiving family/children allowances. In Panel A, results are reported on the full sample of households using a first-order polynomial control function. In Panel B, results are reported using a weighted first order polynomial control function. The regressions run with weights that decline with distance from the regression discontinuity threshold defined by the 2014 policy reform, giving more weight to observations close to the threshold and less weight to observations further away from the discontinuity threshold. The dependent variables correspond to the number of hours of work per week at the time of the survey. In columns (1) and (2), results are reported for women. In columns (3) and (4), results are reported for men. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table 6: Non-parametric bandwidth estimation.  
Impact of the 2014 family policy reform on fertility

	(1) Birth probability	(2) Birth probability	(3) Birth probability	(4) Birth probability	(5) Birth probability	(6) Birth probability	(7) Birth probability	(8) Birth probability
Half benefits	-0.004 [0.009]		-0.010 [0.010]		-0.013 [0.012]		0.006 [0.019]	
Zero benefits		-0.014* [0.007]		-0.013* [0.008]		-0.008 [0.009]		-0.013 [0.015]
Observations	1,374	1,268	1,158	964	777	649	373	336
R-squared	0.000	0.002	0.001	0.003	0.001	0.001	0.000	0.002
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Dependent variable mean	0.026	0.019	0.028	0.017	0.031	0.014	0.035	0.018
Distance from threshold	$\pm 10,000$	$\pm 10,000$	$\pm 7,500$	$\pm 7,500$	$\pm 5,000$	$\pm 5,000$	$\pm 2,500$	$\pm 2,500$

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. Results are reported using non-parametric bandwidth estimation for households within  $\pm 10,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform in column (1) and (2), within  $\pm 7,500$  euros in columns (3) and (4), within  $\pm 5,000$  euros in columns (5) and (6) and within  $\pm 2,500$  euros in columns (7) and (8). The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2014 and 2015, 9 months after the law was first discussed. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported at the bottom of the table along with the distance from the discontinuity threshold in the last row.

Table 7: Non-parametric bandwidth estimation.  
Impact of the 2014 family policy reform on women’s labor supply

	(1) Hours of work/week for women	(2) Hours of work/week for women	(3) Hours of work/week for women	(4) Hours of work/week for women	(5) Hours of work/week for women	(6) Hours of work/week for women	(7) Hours of work/week for women	(8) Hours of work/week for women
Half benefits	1.256** [0.533]		1.275** [0.582]		1.165 [0.727]		0.859 [0.919]	
Zero benefits		0.310 [0.564]		0.674 [0.641]		1.576** [0.769]		2.088** [0.975]
Observations	1,167	1,106	998	857	656	588	304	310
R-squared	0.005	0.000	0.005	0.001	0.004	0.007	0.003	0.015
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Dependent variable mean	33.68	34.45	33.76	34.53	34.25	34.29	34.62	34.59
Distance from threshold	$\pm 10,000$	$\pm 10,000$	$\pm 7,500$	$\pm 7,500$	$\pm 5,000$	$\pm 5,000$	$\pm 2,500$	$\pm 2,500$

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. Results are reported using non-parametric bandwidth estimation for households within  $\pm 10,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform in column (1) and (2), within  $\pm 7,500$  euros in columns (3) and (4), within  $\pm 5,000$  euros in columns (5) and (6) and within  $\pm 2,500$  euros in columns (7) and (8). The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables correspond to the number of hours of work per week for women at the time of the survey. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported at the bottom of the table along with the distance from the discontinuity threshold in the last row.

Table 8: Non-parametric bandwidth estimation.  
Impact of the 2014 family policy reform on men's labor supply

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men
Half benefits	1.458*** [0.551]		1.513** [0.603]		1.889** [0.733]		1.115 [1.026]	
Zero benefits		1.707*** [0.605]		1.418** [0.693]		1.617* [0.852]		2.116* [1.112]
Observations	1,248	1,230	1,069	942	732	637	349	324
R-squared	0.006	0.007	0.006	0.005	0.009	0.006	0.003	0.011
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Dependent variable mean	39.85	41.07	39.97	41.34	39.90	41.55	39.85	41.47
Distance from threshold	±10,000	±10,000	±7,500	±7,500	±5,000	±5,000	±2,500	±2,500

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. Results are reported using non-parametric bandwidth estimation for households within ±10,000 euros of yearly household income from the income threshold defined by the 2014 policy reform in column (1) and (2), within ±7,500 euros in columns (3) and (4), within ±5,000 euros in columns (5) and (6) and within ±2,500 euros in columns (7) and (8). The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables correspond to the number of hours of work per week for men at the time of the survey. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported at the bottom of the table along with the distance from the discontinuity threshold in the last row.



Table 9: Investigating timing effects.  
Impact of the 2014 family policy reforms on fertility

<b>Panel A: Births after the law came into force</b>		
	(1)	(2)
	Birth probability	Birth probability
Half benefits	0.006 [0.009]	
Zero benefits		-0.007* [0.004]
Observations	1,890	2,786
R-squared	0.019	0.015
Year FE	YES	YES
<b>Panel B: Exploring the effect of women's age</b>		
Half benefits	-0.062 [0.064]	
Half benefits $\times$ woman's age	0.001 [0.001]	
Woman's age	-0.006*** [0.001]	-0.005*** [0.001]
Zero benefits		-0.113*** [0.040]
Zero benefits $\times$ woman's age		0.003*** [0.001]
Observations	1,792	2,679
R-squared	0.074	0.068
Year FE	YES	YES
Dependent variable mean	0.039	0.029

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. Results are reported on the full sample of households using a first-order polynomial control function. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013 and officially entered into force on April 1<sup>st</sup>, 2014. In Panel A, the dependent variables are dummy variable indicators for the probability of birth at the household level, for births that occurred 9 months after the law entered into force in April 2014. In Panel B, the dependent variable are dummy variable indicators for the probability of birth at the household level, for births that occurred 9 months after the law entered was first discussed in March 2013. The variable "Half benefits" is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable "Zero benefits" is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table 10: Covariate balance tests at the half and zero benefits thresholds, Sample of women

Panel A: Half benefits threshold													
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
Age	French	EU	Algerian, Moroccan, Tunisian	African	Other nationality	Monoparental HH with children	Biparental HH with at least 2 children	Biparental HH with 3 children or more	First cycle education or less	Second cycle education	Post secondary education	University and above	
Half benefits	-0.805 [1.219]	0.016 [0.017]	-0.016 [0.012]	0.002 [0.007]	-0.005 [0.007]	0.004 [0.006]	-0.019 [0.026]	0.042 [0.059]	0.031 [0.052]	0.012 [0.045]	-0.058 [0.066]	0.031 [0.052]	0.015 [0.047]
Observations	967	967	967	967	967	967	967	967	967	967	967	967	967
R-squared	0.152	0.061	0.024	0.107	0.009	0.077	0.063	0.108	0.044	0.119	0.043	0.062	0.088
Dep. var. mean	35.42	0.973	0.009	0.004	0.004	0.009	0.052	0.612	0.211	0.174	0.501	0.183	0.143
Panel B: Zero benefits threshold													
Zero benefits	0.923 [1.262]	0.000 [0.018]	-0.004 [0.015]	0.006 [0.006]	-0.006 [0.006]	0.005 [0.005]	0.013 [0.017]	0.018 [0.059]	0.001 [0.051]	0.005 [0.043]	0.095 [0.067]	-0.048 [0.059]	-0.052 [0.058]
Observations	811	811	811	811	811	811	811	811	811	811	811	811	811
R-squared	0.16	0.075	0.064	0.011	0.014	0.181	0.058	0.079	0.02	0.116	0.044	0.065	0.029
Dep. var. mean	35.86	0.986	0.009	0.001	0.001	0.002	0.026	0.705	0.187	0.127	0.396	0.269	0.208
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

Notes: This table reports regression coefficients for covariate balance tests at the half benefits threshold (Panel A) and the zero benefits threshold (Panel B) using a first order polynomial control function. The analysis is restricted to households within  $\pm 10,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform in both panels. The sample is restricted to women with dependent children who report receiving family/children allowances. Results are reported using a first-order polynomial control function. The dependent variable in column (1) corresponds to the mother's age at the time of the survey. In columns (2) to (6), the dependent variables correspond to the mother's nationality: French, EU citizen, Algerian, Moroccan or Tunisian, African (except Maghreb) or other nationality. In columns (7) to (9), the dependent variables correspond to the type of households to which the women belong including mono-parental household with children, a bi-parental household with one or two children, and a bi-parental household with three children or more. The dependent variables in columns (11) to (13) correspond to the mother's highest level of education and include: First cycle education or less (pre-primary education, primary education, first cycle of basic education), Second cycle education (second cycle of general secondary education, second cycle of vocational secondary education), Post-secondary education (post-secondary non-university education and short cycle university education), University education and above (Bachelor level, Masters level and Ph.D. level). The variable "Half benefits" is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable "Zero benefits" is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator, a year fixed effect and control for household and individual characteristics. The mean of the dependent variable is reported in the last row of the table

Table 11: Covariate balance tests at the half and zero benefits thresholds, Sample of men

Panel A: Half benefits threshold													
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
Age	French	EU	Algerian, Moroccan, Tunisian	African	Other nationality	Monoparental HH with children	Biparental HH with at least 2 children	Biparental HH with 3 children or more	First cycle education or less	Second cycle education	Post secondary education	University and above	
Half benefits	-0.948 [1.333]	-0.005 [0.022]	-0.003 [0.015]	0.005 [0.007]	0.013 [0.010]	-0.009 [0.013]	0.015 [0.020]	-0.008 [0.058]	0.062 [0.052]	0.028 [0.053]	-0.034 [0.066]	-0.035 [0.047]	0.041 [0.041]
Observations	937	937	937	937	937	937	937	937	937	937	937	937	937
R-squared	0.16	0.074	0.023	0.048	0.052	0.087	0.088	0.111	0.045	0.114	0.038	0.044	0.063
Dep. var. mean	37.06	0.969	0.01	0.005	0.003	0.013	0.023	0.636	0.199	0.229	0.525	0.142	0.104
Panel B: Zero benefits threshold													
Zero benefits	-1.538 [1.305]	0.003 [0.012]	0.002 [0.012]	0.000 [0.000]	-0.001 [0.002]	-0.005 [0.004]	0.016 [0.012]	-0.012 [0.062]	0.047 [0.052]	-0.013 [0.048]	0.018 [0.068]	-0.002 [0.057]	-0.003 [0.053]
Observations	802	802	802	802	802	802	802	802	802	802	802	802	802
R-squared	0.131	0.146	0.083	0	0.014	0.118	0.049	0.077	0.031	0.092	0.04	0.038	0.055
Dep. var. mean	37.46	0.979	0.014	0	0.003	0.005	0.019	0.702	0.182	0.172	0.459	0.187	0.182
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

Notes: This table reports regression coefficients for covariate balance tests at the half benefits threshold (Panel A) and the zero benefits threshold (Panel B) using a first order polynomial control function. The analysis is restricted to households within  $\pm 10,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform in both panels. The sample is restricted to men with dependent children who report receiving family/children allowances. Results are reported using a first-order polynomial control function. The dependent variable in column (1) corresponds to the father's age at the time of the survey. In columns (2) to (6), the dependent variables correspond to the father's nationality: French, EU citizen, Algerian, Moroccan or Tunisian, African (except Maghreb) or other nationality. In columns (7) to (10), the dependent variables correspond to the type of household to which the men belong including mono-parental household with children, a bi-parental household with one child, a bi-parental household with two children and a bi-parental household with three children or more. The dependent variables in columns (11) to (14) correspond to the father's highest level of education and include: First cycle education or less (pre-primary education, primary education, first cycle of basic education), Second cycle education (second cycle of basic education, second cycle of general secondary education, second cycle of vocational secondary education), Post-secondary education (post-secondary non-university education and short cycle university education), University education and above (Bachelor level, Masters level and Ph.D. level). The variable "Half benefits" is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable "Zero benefits" is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator, a year fixed effect and control for household and individual characteristics. The mean of the dependent variable is reported in the last row of the table.

Table 12: Placebo regressions. Impact of the 2014 family policy reform on birth probability in the year 2013

	(1) Birth probability	(2) Birth probability
Half benefits	-0.022 [0.022]	
Zero benefits		-0.003 [0.013]
Observations	1,890	2,786
R-squared	0.002	0.001
Year FE	YES	YES
Dependent variable mean	0.064	0.062

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. Results are reported on the full sample of households using a first-order polynomial control function. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables in columns (1) and (2) are dummy variable indicators for the probability of birth at the household level, for birth reported in the year 2013. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table 13: Placebo regressions, Impact on birth probability and labor supply

<b>Panel A: Using pre-reform data</b>						
	(1) Birth probability	(2) Birth probability	(3) Hours of work/week for women	(4) Hours of work/week for women	(5) Hours of work/week for men	(6) Hours of work/week for men
Half benefits	0.026 [0.024]		0.262 [0.974]		1.114 [1.176]	
Zero benefits		-0.004 [0.011]		0.685 [0.786]		1.337 [0.860]
Observations	3,078	3,705	2,321	2,837	2,592	3,220
R-squared	0.032	0.027	0.006	0.016	0.001	0.013
Year FE	YES	YES	YES	YES	YES	YES
Dependent variable mean	0.034	0.031	32.360	32.870	40.970	41.600
<b>Panel B: Using placebo thresholds</b>						
Half benefits	-0.052 [0.077]		-11.003 [7.095]		9.152 [7.953]	
Zero benefits		-0.008 [0.020]		0.379 [2.139]		-3.538 [2.640]
Observations	208	2,784	103	2,193	66	2,273
R-squared	0.014	0.020	0.070	0.038	0.039	0.063
Year FE	YES	YES	YES	YES	YES	YES
Dependent variable mean	0.039	0.028	29.960	34.360	42.380	41.720

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data in columns (1) and (2), and individual level data in columns (3) to (6). The sample is restricted to households with dependent children who report receiving family/children allowances. Results are reported using a first-order polynomial control function. In Panel A, the analysis relies on pre-reform data from the 2005 and 2006 waves of the *Statistiques sur les Ressources et les Conditions de Vie* (SRCV). Eligibility is determined based on household income two years preceding the survey, in the years 2003 and 2004, respectively. In Panel B, the analysis relies on placebo thresholds. The “half benefits” threshold is set to be 10,000 euros and the “Zero benefits” threshold is set to be 20,000 euros using the 2014 and the 2015 waves of SRCV. The dependent variables in columns (1) and (2) are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2005 and 2006. The dependent variables in columns (3) and (4) correspond to the number of hours of work per week for women at the time of the survey. The dependent variables in columns (5) and (6) correspond to the number of hours of work per week for men at the time of the survey. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table 14: Robustness checks on control function specification.  
Impact of the 2014 family policy reforms on fertility

	(1)	(2)	(3)	(4)	(5)	(6)
	Birth	Birth	Birth	Birth	Birth	Birth
	probability	probability	probability	probability	probability	probability
Half benefits	-0.007 [0.019]		-0.003 [0.019]		-0.009 [0.021]	
Zero benefits		-0.020** [0.008]		-0.018** [0.009]		-0.017* [0.009]
Observations	1,888	2,783	1,890	2,786	1,890	2,786
R-squared	0.066	0.055	0.027	0.025	0.028	0.025
Year FE	YES	YES	YES	YES	YES	YES
Household controls	YES	YES	NO	NO	NO	NO
Polynomial order	First	First	Second	Second	Third	Third
Dependent variable mean	0.037	0.028	0.037	0.028	0.037	0.028

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. In columns (1) and (2), results are reported using a first-order polynomial specification for the Regression discontinuity control function and including household level covariates. In columns (3) and (4), results are reported using a second-order polynomial specification for the Regression discontinuity control function. In columns (5) and (6), results are reported using a third-order polynomial specification for the Regression discontinuity control function. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables in columns (1) and (2) are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2014 and 2015, 9 months after the law was first discussed. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Household level controls include: dummy variable indicators for the different household types (mono-parental household with children, bi-parental household with one child, bi-parental household with two children, bi-parental household with three children or more, other types of households with children), a dummy variable indicator for poverty (it is equal one for households whose standard of living is lower than the poverty threshold) and a dummy variable indicator for the nationality of the household head (French by birth; French by naturalization or marriage or filing after the age of 18; EU citizen from the countries who entered the EU post 2004; EU citizen from the other European countries; Algerian, Moroccan or Tunisian; African national (except the Maghreb); and other nationalities or stateless). Regressions also include a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table 15: Robustness checks on control function specification.  
Impact of the 2014 family policy reforms on labor supply

<b>Panel A: Sample of women</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
	Hours of work/week	Hours of work/week	Hours of work/week	Hours of work/week	Hours of work/week	Hours of work/week
Half benefits	3.012*** [1.113]		2.405** [0.974]		2.539** [1.060]	
Zero benefits		1.846** [0.794]		1.110 [0.923]		1.041 [1.082]
Observations	1,057	1,634	1,405	2,194	1,405	2,194
R-squared	0.070	0.080	0.027	0.043	0.027	0.044
Dependent variable mean	33.19	34.43	33.06	34.37	33.06	34.37
<b>Panel B: Sample of men</b>						
Half benefits	2.962** [1.238]		2.441** [1.073]		2.363** [1.125]	
Zero benefits		4.381*** [0.747]		2.719*** [0.657]		2.176*** [0.664]
Observations	1,073	1,706	1,399	2,275	1,399	2,275
R-squared	0.050	0.095	0.007	0.072	0.007	0.076
Dependent variable mean	40.18	42.09	39.93	41.72	39.93	41.72
Year FE	YES	YES	YES	YES	YES	YES
Predetermined controls	YES	YES	NO	NO	NO	NO
Polynomial order	First	First	Second	Second	Third	Third

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using individual level data. The sample is restricted to households with dependent children who report receiving family/children allowances. In columns (1) and (2), results are reported using a first-order polynomial specification for the Regression discontinuity control function and including household level covariates. In columns (3) and (4), results are reported using a second-order polynomial specification for the Regression discontinuity control function. In columns (5) and (6), results are reported using a third-order polynomial specification for the Regression discontinuity control function. The dependent variables correspond to the number of hours of work per week at the time of the survey. In Panel A, the results are reported for women and in Panel B, the results are reported for men. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Individual level controls include: individual age, dummy variable indicators for the individual’s highest level of educational attainment (pre-primary education, primary education or first cycle of basic education, first cycle of secondary education or second cycle of basic education, second cycle of general secondary education, second cycle of vocational secondary education, post-secondary non-university education, short cycle university education, Bachelor level, Masters level, Ph.D. level), and dummy variable indicators for the nationality of the individual (French by birth; French by naturalization or marriage or filing after the age of 18; EU citizen from the countries who entered the EU post 2004; EU citizen from the other European countries; Algerian, Moroccan or Tunisian; African national (except the Maghreb); and other nationalities or stateless). Household level controls include: dummy variable indicators for the different household types (mono-parental household with children, bi-parental household with one child, bi-parental household with two children, bi-parental household with three children or more, other types of households with children) and a dummy variable indicator for poverty (it is equal one for households whose standard of living is lower than the poverty threshold). Regressions also include a year fixed effect. The mean of the dependent variable is reported in the last row of the table.



## A Online Appendix

Table A.1: Heterogeneity analysis, Impact on birth probability and labor supply

<b>Panel A: French nationals</b>						
	(1) Birth probability	(2) Birth probability	(3) Hours of work/week for women	(4) Hours of work/week for women	(5) Hours of work/week for men	(6) Hours of work/week for men
Half benefits	-0.009 [0.019]		4.406*** [1.122]		2.745** [1.120]	
Zero benefits		-0.020** [0.009]		2.544*** [0.906]		4.350*** [0.700]
Observations	1,645	2,494	977	1,704	1,134	1,958
R-squared	0.026	0.025	0.019	0.035	0.008	0.047
Year FE	YES	YES	YES	YES	YES	YES
Dependent variable mean	0.038	0.028	33.180	34.660	40.370	42.190
<b>Panel B: Other nationalities</b>						
Half benefits	0.053 [0.062]		3.493 [3.829]		0.632 [3.459]	
Zero benefits		-0.008 [0.025]		-4.441 [3.478]		-1.840 [2.795]
Observations	181	226	96	126	139	177
R-squared	0.070	0.062	0.074	0.097	0.041	0.133
Year FE	YES	YES	YES	YES	YES	YES
Dependent variable mean	0.039	0.031	32.060	33.010	37.630	38.760

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data in columns (1) and (2), and individual level data in columns (3) to (6). The sample is restricted to households with dependent children who report receiving family/children allowances. Results are reported using a first-order polynomial control function. In Panel A, the analysis is restricted to French nationals (French by birth; French by naturalization or marriage or filing after the age of 18), while in Panel B, the analysis is restricted to other nationalities which include EU citizens from the countries who entered the EU post 2004; EU citizens from the other European countries; Algerian, Moroccan or Tunisian; African nationals except for the Maghreb countries; and other nationalities or stateless. The dependent variables in columns (1) and (2) are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2005 and 2006. The dependent variables in columns (3) and (4) correspond to the number of hours of work per week for women at the time of the survey. The dependent variables in columns (5) and (6) correspond to the number of hours of work per week for men at the time of the survey. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table A.2: Income thresholds for the 2015 reform of the family allowances

	Half benefits	Quarter benefits
<i>Number of children</i>		
N=2	67,140	89,490
N=3	72,735	95,085
N=4	78,330	100,680
N=5	83,925	106,275
N=6	89,520	111,870
N=7	95,115	117,465
N=8	100,710	123,060

*Notes:* This table reports the income thresholds defined by the 2015 reform of the family allowances. The family allowances are destined to households with at least two children. Households whose income is below the “half benefits” threshold are eligible to the full amount of family allowances. Households whose income is above the “half benefits” threshold but below the “quarter benefits” threshold are eligible to half the amount of the family allowances, while households whose income is above the “quarter benefits” threshold are eligible to only a quarter of the family allowances.

Table A.3: Robustness checks, dropping all heaped income values.  
Impact of the 2014 family policy reforms on fertility

	(1)	(2)	(3)	(4)
	Birth probability	Birth probability	Birth probability	Birth probability
Half benefits	-0.009 [0.020]		-0.010 [0.020]	
Zero benefits		-0.019** [0.009]		-0.020** [0.009]
Observations	1,692	2,491	1,691	2,489
R-squared	0.031	0.027	0.074	0.059
Year FE	YES	YES	YES	YES
Household controls	NO	NO	YES	YES
Dependent variable mean	0.037	0.028	0.037	0.028

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. All heaped income values are dropped, integers ending with double zeros (example: 15,000, 15,100, 15,200, etc.) Results are reported on the full sample of households using a first-order polynomial control function. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. In columns (1) and (2), regressions do not include control variables. In columns (3) and (4), regressions also include pre-determined household controls. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2014 and 2015, 9 months after the law was first discussed. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Household level controls include: dummy variable indicators for the different household types (mono-parental household with children, bi-parental household with one child, bi-parental household with two children, bi-parental household with three children or more, other types of households with children), a dummy variable indicator for poverty (it is equal one for households whose standard of living is lower than the poverty threshold) and a dummy variable indicator for the nationality of the household head (French by birth; French by naturalization or marriage or filing after the age of 18; EU citizen from the countries who entered the EU post 2004; EU citizen from the other European countries; Algerian, Moroccan or Tunisian; African national (except the Maghreb); and other nationalities or stateless). The mean of the dependent variable is reported in the last row of the table.

Table A.4: Robustness checks, dropping all heaped income values.  
Impact of the 2014 family policy reform on labor supply for women and men

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Hours of work/week for women	Hours of work/week for women	Hours of work/week for women	Hours of work/week for women	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men	Hours of work/week for men
Half benefits	3.615*** [1.236]		2.644** [1.232]		2.264** [1.036]		3.028** [1.285]	
Zero benefits		1.937** [0.919]		1.942** [0.865]		4.187*** [0.714]		4.538*** [0.784]
Observations	1,266	1,971	956	1,465	1,249	2,024	961	1,516
R-squared	0.014	0.038	0.073	0.082	0.008	0.056	0.051	0.099
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Controls	NO	NO	YES	YES	NO	NO	YES	YES
Dependent variable mean	33.06	34.40	33.10	34.37	39.90	41.72	40.17	42.13

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children who report receiving family/children allowances. All heaped income values are dropped, integers ending with double zeros (example: 15,000, 15,100, 15,200, etc.) Results are reported on the full sample of households using a first-order polynomial control function. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. In columns (1), (2), (5) and (6) regressions do not include control variables. In columns (3), (4), (7) and (8) regressions also include pre-determined household and individual controls. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables in columns (1) to (4) correspond to the number of hours of work per week for women at the time of the survey, while the dependent variables in columns (5) to (8) correspond to the number of hours of work per week for men. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Individual level controls include: individual age, dummy variable indicators for the individual’s highest level of educational attainment (pre-primary education, primary education or first cycle of basic education, first cycle of secondary education or second cycle of basic education, second cycle of general secondary education, second cycle of vocational secondary education, post-secondary non-university education, short cycle university education, Bachelor level, Masters level, Ph.D. level), and dummy variable indicators for the nationality of the individual (French by birth; French by naturalization or marriage or filing after the age of 18; EU citizen from the countries who entered the EU post 2004; EU citizen from the other European countries; Algerian, Moroccan or Tunisian; African national (except the Maghreb); and other nationalities or stateless). Household level controls include: dummy variable indicators for the different household types (mono-parental household with children, bi-parental household with one child, bi-parental household with two children, bi-parental household with three children or more, other types of households with children) and a dummy variable indicator for poverty (it is equal one for households whose standard of living is lower than the poverty threshold). Regressions also include a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table A.5: Robustness checks, not restricting the sample to households who report receiving family allowances. Impact of the 2014 family policy reform on fertility

<b>Panel A: Regression discontinuity using a linear control function</b>		
	(1) Birth probability	(2) Birth probability
Half benefits	0.001 [0.015]	
Zero benefits		-0.015** [0.007]
Observations	2,300	3,654
R-squared	0.030	0.028
Year FE	YES	YES
Mean	0.031	0.022
<b>Panel B: Regression discontinuity using non-parametric bandwidth estimation</b>		
Half benefits	-0.004 [0.009]	
Zero benefits		-0.014* [0.007]
Observations	1,374	1,268
R-squared	0.000	0.002
Dependent variable mean	0.026	0.019

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data. The sample is restricted to households with dependent children. In Panel A, results are reported on the full sample of households using a first-order polynomial control function. In Panel B, results are reported using non-parametric bandwidth estimation for households within  $\pm 10,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables in columns (1) and (2) are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2014 and 2015, 9 months after the law was first discussed. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table A.6: Robustness checks, not restricting the sample to households who report receiving family allowances. Impact of the 2014 family policy reform on labor supply for women and men

<b>Panel A: Regression discontinuity using a linear control function</b>				
	(1) Hours of work/week for women	(2) Hours of work/week for women	(3) Hours of work/week for men	(4) Hours of work/week for men
Half benefits	2.450** [1.031]		1.448* [0.873]	
Zero benefits		1.681** [0.698]		3.434*** [0.611]
Observations	1,758	2,954	1,741	3,082
R-squared	0.009	0.027	0.005	0.042
Year FE	YES	YES	YES	YES
Dependent variable mean	33.19	34.46	40.02	41.76
<b>Panel B: Regression discontinuity using non-parametric bandwidth estimation</b>				
Half benefits	1.256** [0.533]		1.458*** [0.551]	
Zero benefits		0.310 [0.564]		1.707*** [0.605]
Observations	1,167	1,106	1,248	1,230
R-squared	0.005	0.000	0.006	0.007
Dependent variable mean	33.68	34.45	39.85	41.07

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using individual level data. The sample is restricted to households with dependent children. In Panel A, results are reported on the full sample of households using a first-order polynomial control function. In Panel B, results are reported using non-parametric bandwidth estimation for households within  $\pm 10,000$  euros of yearly household income from the income threshold defined by the 2014 policy reform. The dependent variables correspond to the number of hours of work per week at the time of the survey. In columns (1) and (2), results are reported for women. In columns (3) and (4), results are reported for men. The variable “Half benefits” is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable “Zero benefits” is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.

Table A.7: Robustness checks using alternative definitions for income and working status. Impact of the 2014 family policy reforms on fertility and labor supply

	(1) Probability of birth	(2) Probability of birth	(3) Hours of work/week for women	(4) Hours of work/week for women	(5) Hours of work/week for men	(6) Hours of work/week for men
Half benefits	-0.007 [0.020]		1.863* [1.019]		1.377 [0.957]	
Zero benefits		-0.031*** [0.010]		1.431** [0.672]		3.592*** [0.745]
Observations	1,910	2,630	1,503	2,155	1,540	2,245
R-squared	0.032	0.028	0.026	0.064	0.012	0.078
Year FE	YES	YES	YES	YES	YES	YES
Dependent variable mean	0.046	0.038	33.020	34.370	39.610	41.340

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors are reported in brackets.

*Notes:* Each cell presents a Regression Discontinuity (RD) estimator using household level data in columns (1) and (2), and individual level data in columns (3) to (6). The sample is restricted to households, in columns (1) and (2), or individuals, in columns (3) to (6) with dependent children who report receiving family/children allowances. Results are reported on the full sample of households using a first-order polynomial control function. As robustness checks, the household income refers to total household disposable income before social benefits including old age allowance or survivor's pension instead of the total household disposable income net of contributions. Working individuals are also defined as those who are engaged in income-generating work and/or receive daily allowances for accidents at work or occupational diseases, and that each of these incomes is at least equal to 5,252 euros, two years before the survey. The family policy reforms were first discussed in the National Assembly, the lower chamber of the French parliament in March 2013. The dependent variables in columns (1) and (2) are dummy variable indicators for the probability of birth at the household level, for birth reported in the years 2014 and 2015, 9 months after the law was first discussed. The dependent variables correspond to the number of hours of work per week at the time of the survey in columns (3) to (6). In columns (3) and (4), results are reported for women. In columns (5) and (6), results are reported for men. The variable "Half benefits" is a dummy variable indicator that is equal to 1 for households who receive half the amount of children allowances given the household structure and the number of children, and is equal to 0 for households who receive the full benefits. The variable "Zero benefits" is a dummy variable indicator that is equal to 1 for households who receive zero benefits given the household structure and the number of children and is equal to 0 for households who are eligible to full or half benefits. Regressions also include a linear control function, the interaction term between the control function and the RD estimator as well as a year fixed effect. The mean of the dependent variable is reported in the last row of the table.