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Abstract

Since the mid-1980s France and Belgium have modified their family policy system by introducing two long leave schemes and some measures to support childcare at home. Although this change has been presented under the umbrella of the 'free choice' for women rhetoric, several scholars have argued that it would have de facto reinforced the male bread-winner model and, consequently, discouraged female economic activity. In order to test this conjecture, this paper illustrates an impact evaluation of this policy-intervention period. The synthetic control method has allowed to contrast the evolution of French and Belgian female labour force participation rates, observed in consequence of the implementation of the policies under investigation, with the corresponding evolution of the same rates, observable in the absence of such work/family programs. This exercise has induced to think that, if both France and Belgium would have not exposed to this policy-treatment, their female labour market participation rates would be higher than those actually measured.

Keywords: female labour market participation; parental leaves; family allowances; France; Belgium; policy evaluation; synthetic control method.

1. Introduction

Social scientists share the idea that female labour market participation (FLFP) is desirable from both an efficiency and equity point of view. This because it contributes to increase economic development as well as emancipatory chances for women (e.g., Lewis, 1997; Duflo, 2012). The family policies (e.g., childcare services, maternity and parental leave, child benefits, etc.), implemented by OECD countries in the last decades, have in several cases supported FLFP growth, while in other cases have produced the opposite outcome. Although a quite large consensus regards the fact that these policies may positively influence such an aggregate in relation to their ability to conciliate work and family obligations, the debate is still rich and controversial. Some scholars have addressed the issue via cross-national comparisons (e.g., Rhum, 1998; Esping-Andersen 1999; Waldfogel, 1998; Jaumotte, 2003; Keck and Saraceno, 2013), while other analysts have evaluated the impact of single work/family reforms[1] (Lalive and Zweimuller, 2009; Das and Polachek, 2014; Nordström Skans and Lindqvist, 2005).

This paper belongs to this latter body of study but, rather than presenting a single policy analysis, illustrates an impact evaluation of more programs set up almost simultaneously in two different countries. This choice derives from the fact that since the mid-1980s France and Belgium have introduced two special and long leave schemes and some measures to 're-domesticate' childcare which have de facto reframed their respective policy regime.

In fact, although policy-makers presented such policies under the umbrella of the 'free choice' for women rhetoric, several scholars have argued that these reform processes have de facto reinforced the male bread-winner model and, consequently, reduced the FLFP rates of the two countries (Morel, 2007; Martin, 2011; Fagnani, 1996). Nevertheless, scarce attention – to the best of my knowledge – has been paid to test such a diffused conjecture via a counterfactual framework of causal inference (Morgan and Winship 2007). Few works have been performed to estimate the effect of the French leave scheme (Piketty, 2005), but no attempts have been made to evaluate the entire policy-intervention

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[1] Work/family policies is here often used in place of family policies because the formers have a more general meaning. Indeed, they stand at the intersection of work policy and family policy. Policies that explicitly target the family actually have an impact on work, and policies that explicitly target work (employment policies, labour law) actually have an impact on the family, but this is not necessarily explicit.

period experienced by the two countries. Hence, the synthetic control method (Abadie and Gardeazabal 2003; Abadie, Diamond, and Hainmueller 2010) has been adopted to estimate the effects of the French and Belgian 'free choice' policies on the respective FLFP rates. Such an exercise has allowed to contrast the evolution of French and Belgian FLFP rates, observed in consequence of the implementation of the policies under investigation, with the corresponding evolution of the same rates, observable in the absence of such work/family programs. Such a contrast has thus permitted to quantify the impact of the policy-intervention period above mentioned.

The rest of the paper is organized as follows. Section 2 describes one by one the policies introduced during the policy-intervention period under scrutiny. Section 3 illustrates the mechanisms through which these policies may affect FLFP rate and formulates a testable hypothesis. Section 4 presents data and strategy of analysis. Section 5 discusses the results, while section 6 sketches some conclusions.

2 The work/family policies set up in France and Belgium since the mid-1980s

Belgium and France share one of the longest and most explicit institutionalisation of the public intervention in family life among developed countries. The comparative research literature has often coupled these two countries, stressing their strong and tradition of formal childcare services (Anttonen and Sipilla, 1996; Esping-Andersen 1999; Leitner, 2003).

In both countries the écoles maternelles, or preschools, was early developed as a the national school system. Therefore, from several decades all, or almost, children aged 3 to 6 attend preschool. On the other hand, day care for children below the age of 3 developed later: in the 1970s and early 1980s (Neyer, 2003). These developments have induced some scholars to assimilate France and Belgium's childcare systems to those of the Scandinavian countries (Anttonen and Sipilla, 1996; Leitner, 2003).

Nevertheless, from the mid-1980s the expansion of services for small children stopped and both countries went through a new and more 'familistic' phase. Several historical case studies have stressed these common trajectory.

Concerning Belgium, Leitner (2005) observes that from the mid-1980s to 2002 two ideals of parenting coexisted simultaneously: the working mother and the full-time mother at home. On the structural level, a move towards a de-gendered variant of optional familialism allowing for a reversal of traditional gender roles appears evident. But, direct familialistic policies are introduced for the first time.

With regard to family policy sequences of France, Martin (2010) remarks that from 1985 to 2005 the new policy issue of reconciling work and family under the umbrella of a 'free choice' ideology was prevailing. Confronted with high unemployment levels and pressures to contain spending, family policies became progressively streamlined as an adjunct to employment policy.

Finally, Morel (2007), describing the family policy reframing in France, Belgium, Germany and Netherlands in the last decades, claims that from the mid-1980s to the late 1990s the two countries under investigation appeared very similar in regulating female employment levels. Specifically, both cases have experienced a notable shift, couched in rhetoric of 'free choice'. It moved them away from a generalized access to public childcare services and toward a new approach, supporting more private and family forms of care.

As anticipated, the work/family reforms which have induced these authors to identify such a political phase[2] are: (1) two special and long leave schemes, the *Allocation Parentale d'Education* (APE), in France, and the *Interruption de Carrière* (IC), in Belgium; and (2) some measures to support childcare at home, as an substitute to public childcare services. The introduction, the amendments and the prescriptions of these programs are described in the following two subsections.

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[2] In the late-1990s, a new phase is however began, redefining the work/family policy of the two countries and re-assigning to women the role of workers, in addition to caregivers (Morel, 2007). Nevertheless, the impact of this policy-intervention period has not been here estimated in consequence of data restrictions described in section 4.

2.1 France

Although in 1977 an unpaid parental leave, the *Congé Parental d'Education*, was already introduced, in 1985 an additional leave scheme, the APE, was created. It is a paid parental leave which was made available to parents (either the mother or the father may be eligible) who left work for family reasons, such as education of children, or for shorter periods, such as illness of child. The allowance is paid to compensate for loss of income during parental leave. After APE introduction, the parent on leave enjoyed the right to a non-taxable €225 per month allowance for up to two years. In 1986, the APE was extended by means of a weakening of the employment criteria for eligibility, so that one needed simply to have worked two out of the previous ten years (and periods spent on maternity leave or registered as unemployed counted as time worked) to be eligible, and the leave was extended to three years, with the possibility to work part-time during the third year.

After its creation, APE concerned the third child under three years of age, only. Nevertheless, in 1994, APE extent was increased and the allowance was made available starting with the second child. Moreover, it was made compatible with part-time employment (Fagnani and Math, 2009; Revillard, 2006; Morel 2007).

The measures implemented in France to promote more private forms of care arrangements for children are the *Allocation de Garde d'Enfant à Domicile* (AGED), set up in 1986, and the *Aide aux Familles pour l'Emploi d'une Assistante Maternelle Agréée* (AFEAMA), introduced in 1990. They are two types of allowances created to help parents hire childcare-givers. The AGED is a subsidy which is given directly to the social insurance agency for families who use an in-home caregiver to care for one or more children under age six in their homes which they are at work. The AFEAMA covers the social contributions to be paid by the families with children under six who employ an assistante maternelle or family day care provider. An additional allowance which varies according to the age of the child and family income helps offset other costs (OECD, 2004)[3].

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[3] In 2004, these different allowances, AGED and AFEAMA, on the one hand, and APE, on the other hand, were merged and replaced by a unique one, the 'Young child allowance' (PAJE). The instrument provides access to a paid parental leave, which can also be compatible with a part-time job or childcare subsidies (for care in or outside the home) (Martin, 2010).

2.2 Belgium

Until 1 January 1998, Belgium had no a standard parental leave. Nevertheless, in 1985 was introduced the IC. It is a leave scheme which allows all workers to interrupt their job or reduce their weekly working time for a defined period of time. A worker can request a career break for any reason. IC allows workers to take a paid, partial or full-time leave from their job with no risk of being laid off, for a period of six months to a year, renewable for a total of up to five years. A flat rate payment was attached to it (approx. 300 € per month). Employees also kept almost all their social security rights as well as their pension rights, but for a more limited period.

Moreover, the worker on leave must be replaced by another worker receiving full unemployment benefits. In other words, a person currently covered under the unemployment protection scheme had to be hired to replace the person on leave. Finally, since its introduction, IC was constantly under reform, becoming progressively oriented to special care obligations. The main policy modifications that have produced this conversion are the following. In 1989, a higher benefit for leaves after the birth of a second child was introduced. In 1990, the *Interruption de Carrière Reduite*, a reduced leave for three months of childcare after the end of maternity leave was instituted. In 1991, a higher benefit for leaves after the birth of a third child was established. In 1997, the law on the introduction of a *Congé Parental* was approved. Finally, in 1998, the *Congé pour l'Assistance ou l'Octroi de Soins un Membre du Ménage ou de la Famille Gravement Malade* was introduced (Leitner 2005; Deven and Nuelant 1999; Deven, 2012).

As said, the IC was accompanied by some public policies to support the private childcare-giving responsibility. In the mid-1980s the agency in charge of financing childcare services decided to subsidize home-care services provided by 'day-care mothers', i.e. care provided by childminders in their own homes, alongside the day nurseries. Moreover, in 1987 Tax deductions were introduced to promote such arrangements. As a consequence, a strong increase in the number of daycare childminders and day-care mothers were through the years registered in the French Community and in Flanders (Marques-Pereira and Paye 2001; Kremer 2002).

3 Channels and hypothesis

The consensus among scholars has not only to do with the period covered by the above mentioned policy phase, but also with the potential channels through which the work/family measures set up in such a period have impacted on FLFP.

Similar argumentations have been developed about APE and IC. Firstly, it has been observed that, although both leave schemes were originally designed for both men and women, they have been overwhelmingly used by women (Revillard, 2006; Deven 2012). This is because women have spontaneously taken advantage of such schemes to perform their traditional role of caregivers, but also because the IC and APE regulations/amendments have reinforced such a tendency. On the one hand, even if IC was originally planned to take a break for any reason, through the years its major use turned out to be for childrearing and family reasons. Accordingly, women willing to take a career break in order to care for their children at home were progressively expected to be a main target group of the IC (Morel, 2007; Leitner, 2003). On the other hand, although the APE law was written in gender equal terms, the low sum of money offered discouraged the majority of fathers from taking parental leave (Fagnani and Math 2009). Therefore, these two leave schemes are resulted as a part of a gendered strategy to reinforce the traditional male-breadwinner model, rather than balancing responsibilities between men and women.

So, if women have been the main users of these schemes, two channels can be identified to understand how APE and IC could obstacle FLFP. The first one is mechanical and explicitly intended by the two policies. It has to do with the statistical rules associated to these schemes. With regard to IC, it must be noted that, if a women takes a break of more than 3 months, she will be considered as "inactive" in official statistics[4]. Moreover, although a women on leave must be replaced by another worker (see section 2.2), the person who must be hired as a substitute will not necessarily be a women. On the other hand, those workers who benefit of the APE are treated as employed even during the leave. However, if unemployed persons profit from such a scheme, they will be removed from the register of those actively seeking work during the leave, with the effect of automatically

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[4] The statistical treatment of the hired person to replace the person on leave is more complicated. According to the Belgian LFS Surveys, If a person takes a year leave and s/he is included in the official survey, that person will be treated as an "inactive" one and will probably be replaced. Nevertheless, the hired person is probably not in the survey sample. Otherwise, if s/he is, s/he will be treated as an employed person because s/he is working at the time of the survey.

reducing the unemployment rate as well as the labour market participation rate (Fagnani and Math, 2009).

The second channel is not directly intended by the two policy rules and has to do with the working chances after the leave. Although several works demonstrate that leave schemes increase female labour market attachment (e.g., Rhum, 1998), a relevant literature shows evidence that long parental leaves have a negative effect on female economic activity. Specifically, prolonged periods of absence from the workplace may lead to skill and earning depreciation, a reinforcement of the gendered division of responsibilities, as well as an uncertain return to work at the end of the job interruption (Hook, 2010; Lapuerta et al. 2011; Lalive and Zweimuller, 2009). In particular, the uncertain return to work results more probable for those women with a weak position in the labour market. To this regards, it must be noted that women who benefited from the APE were in their majority low-qualified women standing on the margins of the labour market (Commaille, et al, 2002: 89–91). Furthermore, although the APE law guarantees women a right to recover their job after the leave, employers do not always abide by this legislation (Fagnani, 1998). Similar arguments have been developed about the women who benefit from the IC (Deven, 2012).

A FLFP discouragement has been even hypothesised in consequence of the measures set up in France and Belgium to promote more private forms of care arrangements for children. In fact, although in both countries financial incentives to hire child-minders could be seen as a way to create new jobs, especially for low-qualified, often unemployed women (Revillard, 2006), such a positive effect could be compensated or, at least, mitigated by the fact that childcare at home has been supported in alternative to the expansion of public services, where women are usually more stably employed. Furthermore, the 'marketized' childcare in the parents' or the child minders' home is increasingly accompanied by a targeting logic, which contradicts the 'free choice' ideology. In fact, low-income households cannot at all times afford to employ registered childcare providers and, in turn, are more encouraged to care for their children themselves. Consequently, the more deprived mothers risked to remain inactive (Martin, 2010).

Finally, concerning the entire period under examination, Morel (2007) argue that, in a context of high unemployment, the 'free choice' strategy was implemented to encourage women withdrawal from the labour market in order to 'free' jobs for men. On the basis of all these argumentations, a general hypothesis can be formulated: if both France and Belgium would have not been exposed to the policy-intervention period under examination, their respective FLFP rates would be probably higher.

4 Data and the strategy of analysis

Testing the hypothesis just formulated implies the comparison between the evolution of the FLFP rate (i.e., the outcome variable) for France and Belgium since 1985, that is the units during the policy-intervention period (or the treatment period) with the evolution of the same aggregate in the absence of the treatment period. Clearly, the counterfactual is not available and must be consequently reproduced. This would be relatively unproblematic if data would be generated by the researcher. But, this not being the case, the analysis may be subject to several biases (Przeworski, 2007). The bias especially increases if the traditional comparative case study approach is adopted. In fact, it generally uses only one control unit to be as similar as possible to the treated unit on the important control variables (Collier and Mahoney, 1996). Consequently, the synthetic control method, developed by Abadie and Gardeazabal (2003) and Abadie, Diamond and Hainmueller (2010), has been here employed. In fact, it is based on a framework for assessing the suitability of the chosen control group, namely a data-driven control-group selection procedure. Hence, the synthetic control unit corresponds to a weighted average of available control units that approximates the most relevant characteristics of the treated unit prior to the policy-treatment. Therefore, the post-intervention outcomes for the synthetic control unit are used to estimate the outcomes that would have been observed for the treated unit in the absence of the policy intervention.

This strategy of analysis has been implemented with respect to our research objective as follows. A time-series-cross-section dataset has been utilised. It includes Australia, Austria, Belgium, Canada, Denmark, Germany, Finland, France, Greece, Ireland, Japan, Luxembourg, Norway, Portugal, Spain, Sweden, UK, and USA, annually

observed for the period 1970-2008. The analysis has been confined to this sample because some definitional changes and major breaks in the series for FLFP rate prevent the comparability with further information (see OECD, Labour Force Statistics, various years). For instance, the observed period finishes in 1998 because a break in the Belgian series occurs in 1999, while other developed countries, such as Italy and the Netherlands, have been excluded from the sample since their series show problems in the period here examined.

In consequence of this data availability, the policy-intervention period lasts from 1985 to 1998, while the pre-intervention period to consider in order to approximates the most relevant characteristics of the treated unit is from 1970 to 1984. As regard to this issue, it must however established which countries included in the dataset may form the donor pool, that is the reservoir of potential control units. In other words, it must distinguish which countries have not implemented during the period here considered work/family policies analogous to those set up in France and Belgium[5]. To this regard, two different assumptions may be made about the reform process similarity between France and Belgium, on the one hand, and the remaining nations, on the other hand. According to these assumptions, the group of untreated units may clearly change and, consequently, dissimilar donor pools may be formed. Using different donor pools may nonetheless increase the results' robustness. This is because dissimilar synthetic France and Belgium will be necessarily constructed on the basis of different control groups (see below).

Since the policy-intervention period under examination includes more measures, the first assumption concerns the (dis-)similarity between the French and Belgian policy assortment and that of the other countries included in the dataset. In other words, a country can be considered as a treated unit and, then, excluded from the donor pool, if it has undertaken a policy combination analogous to those implemented by France and Belgium. The second assumption is more weak and leaves aside the program blend, focusing on the single policies. Accordingly, a country can be left out from the reservoir of potential

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[5] Similarly, Abadie, Diamond, and Hainmueller (2010), using the synthetic control method to estimate the impact of a large-scale tobacco control program implemented by California in 1988, discard from their donor pool those US states that adopted some other large-scale tobacco control program during the sample period examined.

control units, if it has at least set up either a long leave scheme or any measure to re-domesticate childcare.

In order to demonstrate in which extent these two assumptions hold, a brief overview must be provided regarding the reforms processes of other nations included in the dataset. From the 1970, the number of countries with regulations for parental leave has increased strongly, denoting relevant differences in terms of payment and duration (see Table 1). To this regard, it must be noted that some countries, namely, Austria, Germany, Sweden, Portugal and Spain, set up (paid or unpaid) parental leaves of a duration comparable to those prescribed by APE and IC. In addition, even if there was no parental leave in Luxembourg in a narrow sense until 1999, this country introduced a leave scheme similar, but less extensive than IC. It allowed employees to take a career break, receiving an allowance. However, this program obstacles, by construction, FLFP attachment since it did not include a right to return to the same or a similar job. Specifically, if the employee applied for re-employment within a year after maternity leave, the employer was obliged to give priority to the application, provided that there was a vacancy and the employee on leave was qualified for it. Yet still a parent using this career break always had to run the risk of not being re-employed (Falkner et al. 2002).

[Table 1 around here]

Turning to the measures to promote private forms of childcare, it must be stressed that similar measures to those introduced by France and Belgium were implemented by two Scandinavian countries. Like France and Belgium, Finland and Norway encouraged childcare at home in alternative to developed public services. In particular, Finland made available a home-care allowance for all families with children under age 3 years in 1990. Norway introduced a similar benefit, but beyond our sample period, namely in 1999 (Neyer 2003; Datta Gupta et al., 2006).

On the basis on this concise overview, it appears quite evident that all nations in the dataset have not adopted a policy assortment analogous to those implemented by France and Belgium. Although Finland has coupled a measure to re-domesticate childcare with a paid parental leave, this latter had a duration too short (158 days) to assimilate this country to France and Belgium. Finland could be considered as a treated unit only if the sample period would cover the most recent years. In fact, in 2005, the Finnish leave period was extended to 54 weeks, additionally distancing this country from a model mainly based on public childcare services (Datta Gupta et al., 2006). Therefore, the countries which can be included in the first donor pool (DP 1) are: Australia, Austria, Canada, Denmark, Finland, Germany, Greece, Ireland, Japan, Luxembourg, Norway, Portugal, Spain, Sweden, UK, and USA.

According to the second assumption, the nations which can be considered as treated units are the following: Finland, in consequence of the home-care allowance implemented in 1990; Austria, Germany, Sweden, Portugal and Spain, in relation to their long parental leaves; and, Luxemburg, with regard to its leave scheme above mentioned. By so doing, the second donor pool (DP 2) includes Australia, Canada, Denmark, Greece, Ireland, Japan, Norway, UK, and USA.

Having identified two donor pools, two different synthetic units (SU 1 deriving from DP 1 and SU 2 deriving from DP 2) have been respectively constructed for Belgium and France. They allow to reproduce the evolution of FLFP rate for the two countries in the absence of the policy-intervention period under scrutiny. In addition to their respective donor pool, these synthetic units have been assembled by adopting the following statistics.

(1) A set of observed covariates for each country to use as predictors of FLFP rate.

(2) Some linear combinations of pre-intervention outcome to control for unobserved common factors whose effects vary over time.

 (3) A set of weights for each country chosen to be positive and sum to one. Each particular value of the vector W represents a potential synthetic control, that is, a particular weighted average of control countries. Consequently, the resulting synthetic unit coincides with the weighted average of those units selected from the corresponding donor pool because associated to positive weights.

Mathematically, the weights W* are chosen such that the resulting synthetic unit best approximates the unit exposed to the intervention with respect to the outcome predictors and linear combinations of pre-intervention outcomes, namely (1) and (2) point. More precisely, if X1 is defined as a vector of pre-treatment variables for the treated units, and X0 is defined as the corresponding matrix of these variables for the possible control units, the weight matrix W is chosen to minimize:

$$\sqrt{(X1 - X0W)'\,V\,(X1 - X0W)}$$

where V is a diagonal matrix, introduced to allow different weights to the variables in X0 and X1 depending on their predictive power on the outcome (for more detail, see Abadie and Gardeazabal, 2003; Abadie, Diamond and Hainmueller 2010).

While the weights utilised to construct the two synthetic units, respectively, for France and Belgium are presented in the next section, some further details must be here provided about (1) and (2) points. The set of observed covariates for each country to use as predictors of the outcome variable has been selected by following the existing literature on FLFP in OECD countries (e.g., Jaumotte 2003; van der Lippe and van Dijk 2002). They are:

(1) The percentage of workers in service (source: OECD, Labour Force Statistics, various years);
(2) Tertiary school level attained by female, as a % of population aged 15 and over (source: Barro R. & J.W. Lee, 2013, Educational Attainment for Female Population, 1950-2010);
(3) Total fertility rate (source: OECD Health Data, 2009);
(4) Unemployment rate (source: OECD, Labour Force Statistics, various years).

To control for unobserved common factors whose effects vary over time, some constrains have been referred to specific pre-treatment outcome values. They regard the following years: 1984, 1978, 1974, and 1970. This means that the values of the FLFP in these years are used as predictors.

To conclude this methodological section, some relevant problems concerning statistical inference applicability must be addressed. This is because the aggregate dataset here used is not a sample in the usual sense and, consequently, is not replicable (Berk et al., 1995). This prevents to adopt standard statistical inference. Nevertheless, this does not remove uncertainty from results. Accordingly, Abadie and Gardeazabal (2003) and Abadie, Diamond and Hainmueller (2010) propose to handle inferential issues by adopting placebo techniques. This involves to assume the principle of the permutation inference. This means that the synthetic control procedure is iteratively applied to every potential control units. In this case, to have more cases and, thus, to be more restrictive, the procedure has been applied to the countries included in DP 1, which is the largest. More precisely, in each iteration the policy-intervention period under investigation is reassigned to one of the units of that control group. Then, the effect associated with each placebo is computed. By so doing, a distribution of estimated gaps for the untreated countries is made available in order to assess whether the effect, respectively estimated for France and Belgium, is large relative to the effect estimated for a country chosen at random. So, if the placebo results show higher gaps than those estimated for French and Belgian FLFP rate, no significant evidence will support our research hypothesis.

5. Results

Table 2 shows the weights of all countries included in the two donor pool obtained to construct the synthetic control units for France and Belgium, respectively. Referring to DP 1, the synthetic Belgium is reproduced by a combination of Luxembourg, Canada, Ireland, Germany, Japan, Austria, and Norway. Conversely, the countries chosen from DP 2 to construct the second synthetic Belgium are Ireland, Australia, Canada, and Norway. On the other hand, the first synthetic France corresponds to a weighted average of Germany, UK, Sweden, Australia, and Norway. Finally, using DP 2, the countries which show positive weights are UK, Japan, Ireland, and Norway.

[Table 2 around here]

Given that the weights reported in Table 2 have been chosen to construct two synthetic units to best reproduce France and Belgium with respect to the predictors and linear combinations of the outcome variable during the pre-intervention period (see the previous section), Table 3 reports the pre-1985 figures of the treated unit and the two synthetic units constructed for France and Belgium by using the two different donor pools. The table provides also a population-weighted average of the countries contained within DP 1 and DP 2. For both France and Belgium, the synthetic values – especially, those obtained via DP 1– are often very similar to the corresponding actual values. Moreover, the distance between the values computed for workers in service, tertiary school level attained by female, total fertility rate, unemployment rate and FLFP for treated units and those computed for synthetic units are almost systematically smaller than the equivalent distance between the values computed for the treated cases and the population-weighted average of the countries included in the two donor pools. This means that the synthetic approximations to the pre-1985 treated units characteristics are better than those obtainable via a simple averages of potential control units.

[Table 3 around here]

The appreciable performances of the synthetic procedure are also confirmed by the trends in the FLFP rate, reported in Figure 1, 2, 3, and 4. For both France and Belgium, the synthetic line very closely follows the trajectory of the corresponding treated unit in the 1970-1984 period. As expected, the synthetic unit is however preferable when it is obtained by DP 1 rather than DP 2. This is numerically confirmed by the respective root mean squared prediction errors (RMSPEs): 0.19 vs. 0.24, for Belgium and 0.42 vs. 0.76, for France.

[Figures 1, 2, 3, and 4 around here]

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Such results indicates that the synthetic units, respectively constructed for France and Belgium, provide reasonable approximation to the FLFP would have been experienced in these two countries in 1985-1998 period in the absence of the policy-treatment. Therefore, the distances between the treated and synthetic line during the 1985-1998 period may be reasonably used as a consistent estimation of the effect produced by the measures under investigation. In all cases, the synthetic line scurries above the treated line. Nevertheless, for the yearly estimated gaps (i.e., the annual distances between the synthetic and the treated line) vary according to the synthetic unit considered. By using the first synthetic Belgium, the yearly gap estimated for FLFP rate increases almost linearly, reaching 5.5 points in percentage in 1998 (see Figure 1). Conversely, the second synthetic Belgium is associated to a more erratic pattern (see Figure 2). At the end of the period considered, the yearly gap corresponds, in this case, to 3.5 percent. On the other hand, the two yearly gaps estimated for the French case exhibit a quite similar pattern (see Figure 3 and 4). At the end of the sample period, these two gaps are 4.2% and 4.5%, respectively.

Apart from these differences, all these exercises denote that, if both France and Belgium would have not set up the work/family policies above described, their FLFP rates would be higher than those effectively observed for the two nations during the 1985-1998 period. Therefore, the negative impact, predicted by the research hypothesis formulated in section 3, is *de facto* confirmed.

Turning to the placebo test, it must be first noted that no all units which compose the first donor pool have been used. This is because some of them do not provide a satisfactory fit for FLFP rate during the 1970-1984 period. As Table 4 indicates, five countries (Finland, Greece, Sweden, Spain, and Norway) exhibit a RMSPE above the RMSPE mean. Consequently, the placebo distribution of the yearly gaps in FLFP rate has been constructed by using the remaining 11 control units, only. This means that the probability of estimating a gap of the magnitude of the gap for France or Belgium under a random permutation of the intervention in our data is 0.11 (1/11), a test level approximatively equivalent to that used in conventional test of statistical significance. Hence, Figure 5 shows the FLFP rate yearly gaps estimated for Belgium and France (i.e., the two solid lines) and for those control units which display a RMSPE below 1.28, that is the RMSPE mean (i.e., dash lines). As appears evident, the estimated yearly gaps for both

France and Belgium during the policy-intervention period are unusually large compared with all other negative estimated gaps (see the lines under the zero gap line). Moreover, although it is not clearly visible, the two estimated gaps of interest are in absolute terms larger also than almost all positive estimated gaps – only a placebo exhibits yearly gaps barely larger in absolute values than those estimated for France and Belgium. Indeed, the impact estimated for French and Belgium FLFP rate appears significantly negative since the late 1980s. This probably depends on more reasons. First, the impact needed some years to materialize. Second, as mentioned in section 2, the programs under investigation have been progressively introduced and extended over the policy-intervention period. For instance, after its creation in 1985, APE only concerned the third child under 3 years of age and, consequently, the number of mothers potentially involved was no so large (for a similar argument, see Piketty, 2005). Accordingly, at the policy-treatment beginning, channels of transmission mechanisms could operate less decisively.

Nevertheless, determining the cut-off in correspondence of the RMSPE mean – as well as in correspondence of other values – may be an arbitrary choice to exclude bad-fitting placebo runs and, then, to arrange the test. Consequently, Abadie, Diamond and Hainmueller (2010) suggest to evaluate the gaps estimated for the cases under examination in relation to the gaps obtained for each potential control unit via the distribution of the ratios of post/pre-intervention policy RMSPE. Accordingly, Figure 6 reports the distribution of the post/pre-1985 ratios of the RMSPE for Belgium, France and the remaining countries included in DP 1. In confirmation of the above mentioned placebo results, both France and Belgium are at the top of the list, denoting a ratio higher than all other countries.

[Figure 5 and Figure 6 around here]

6 Conclusions

Drawing from the well-documented parallelism between the reform processes of France and Belgium in the field of work/family policy, this article has presented a policy evaluation to estimate the effect produced on FLFP rate by the policy-intervention period started in the two countries in the mid-1980s. This period has been examined because it provoked a relevant change in the policy regime of the two countries. By introducing two long systems of leave and some measures to promote more private forms of care arrangements for children, both France and Belgium would have modified the balance between work and family obligations for many women. So, to evaluate the impact of this policy-intervention period on French and Belgian FLFP rate, a synthetic control analysis has been performed. Accordingly, the FLFP trends observed in the two nations in that period have been contrasted with the corresponding trends that would have experienced in the absence of the policy-treatment. This comparison has induced to think that, if both France and Belgium would have not implement those policy assortments, the female economic activity would be higher than that actually measured. This counterfactual evaluation corroborate the idea that the so-called 'free choice' strategy was de facto adopted to encourage women withdrawal from the labour market, reinforcing the traditional male-breadwinner model.

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Table 1 - Parental leave regulations for the potential control units during the 1970-1998 period.

	Payment	Duration	Year of introduction
Australia	No	51 weeks	1990
Austria	Yes	104 weeks	1990
Canada	No	25 weeks	1991
Denmark	Yes	26 weeks	1984
Finland	Yes	158 days	1980
Germany	Yes	36 months	1986
Greece	No	3.5 months	1986
Ireland	-	-	-
Japan	Yes	10 months	1995
Luxemburg	-	-	-
Norway	Yes	42 or 52 weeks	1977
Portugal	No	24 months	1984
Spain	No	36 months	1980
Sweden	Yes	450 days	1974
UK	-	-	-
USA	No	12 weeks	1993

Notes: Countries with missing information (-) are without a statutory parental leave. Since Ireland introduced parental leave legislation in June 1998 only, it is here considered as a lacking case. The German parental leave enables parents to take a three-year leave, but the child-rearing allowance is only paid out during the first two years. Source: Tanaka (2005); Bruning and Plantenga (1999); Cate (2003); Toivonen, (2007).

Table 2 - Country weights in the synthetic units assembled for Belgium and France in relation to the donor pool adopted.

	Belgium		France	
	DP 1	DP 2	DP 1	DP 2
Australia	0	0.276	0.066	0
Austria	0.049		0	
Canada	0.239	0.218	0	0
Denmark	0	0	0	0
Finland	0		0	
Germany	0.097		0.563	
Greece	0	0	0	0
Ireland	0.126	0.435	0	0.077
Japan	0.065	0	0	0.221
Luxembourg	0.407		0	
Norway	0.018	0.071	0.018	0.049
Portugal	0		0	
Spain	0		0	
Sweden	0		0.074	
UK	0	0	0.278	0.652
USA	0	0	0	0

**Table 3 – FLFP Predictor Means before work/family policies set up in France and Belgium since 1985.**

	Belgium			France			All countries	
	Treated unit	SU 1	SU 2	Treated unit	SU 1	SU 2	DP 1	DP 2
Workers in services	59.1	54.6	55.9	53.1	53.0	55.8	57.1	60.1
Female education	6.9	8.4	10.6	5.0	5.1	7.1	13.2	16.0
Total fertility rate	1.8	1.9	2.6	2.0	1.7	2.0	1.9	1.9
Unemployment rate	2.6	2.6	4.9	2.6	2.0	2.6	3.6	4.1
FLFP (1984)	48.8	49.0	48.9	55.9	56.2	58.2	57.7	60.1
FLFP (1978)	45.4	45.4	45.1	54.8	54.5	54.5	53.9	55.6
FLFP (1974)	42.4	42.4	42.2	51.9	52.5	52.1	50.8	51.8
FLFP (1970)	39.7	39.7	39.9	49.8	49.2	49.8	48.5	49.9

Notes: Workers in service, Tertiary school level attained by female, and total fertility rate are averaged for the 1970-1984 period. Unemployment rate is averaged for the 1970-1975 period. As explained in section 4, years in parenthesis denote that the corresponding FLFP values are entered as predictors. The 'All countries' columns report a population weighted average for the OECD countries included in DP 1 and DP 2 (see section 4).
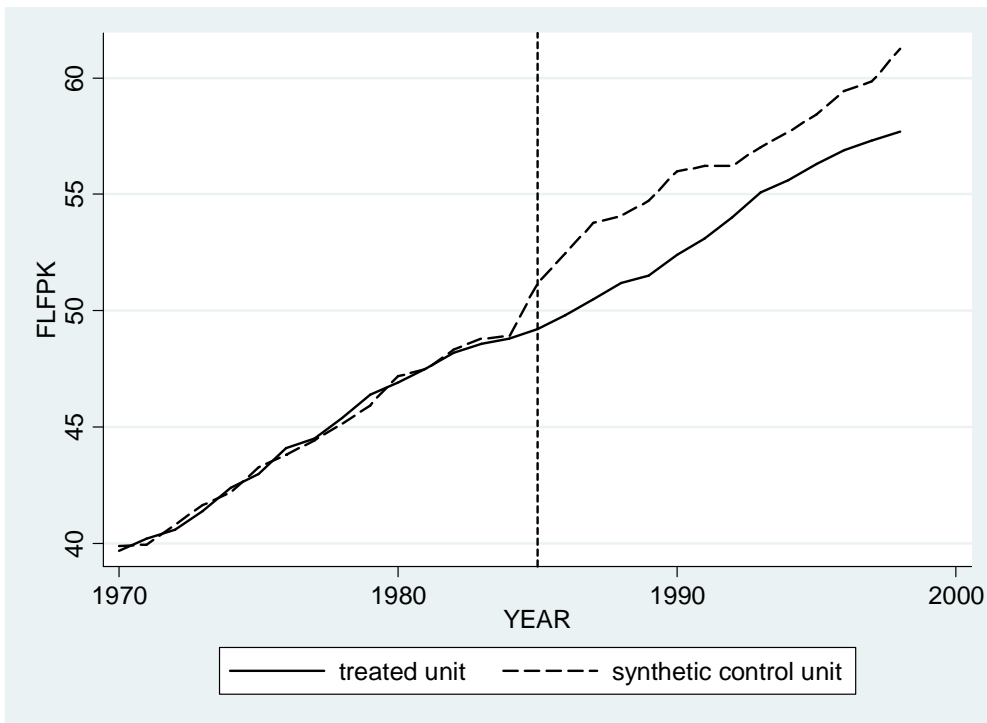

Table 4 –RMSPEs computed for each country included in DP 1.

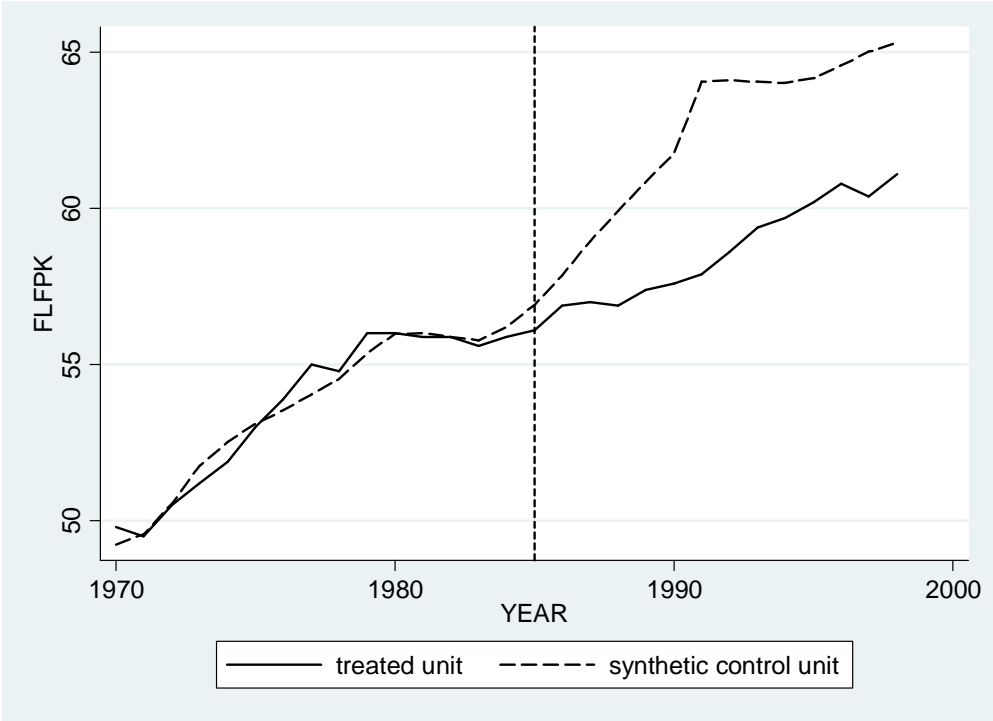|	RMSPE
BEL	0.187
USA	0.225
AUL	0.353
FRA	0.419
POR	0.588
LUX	0.592
AUT	0.672
GER	0.924
UK	1.037
IRE	1.105
CAN	1.112
DNK	1.138
JPN	1.172
FIN	1.601
GRE	2.082
SWE	3.011
SPA	3.042
NOR	3.438
Mean	1.261

Figure 1 – Trends in the Belgian FLFP rate: the treated unit vs. the SU 1.
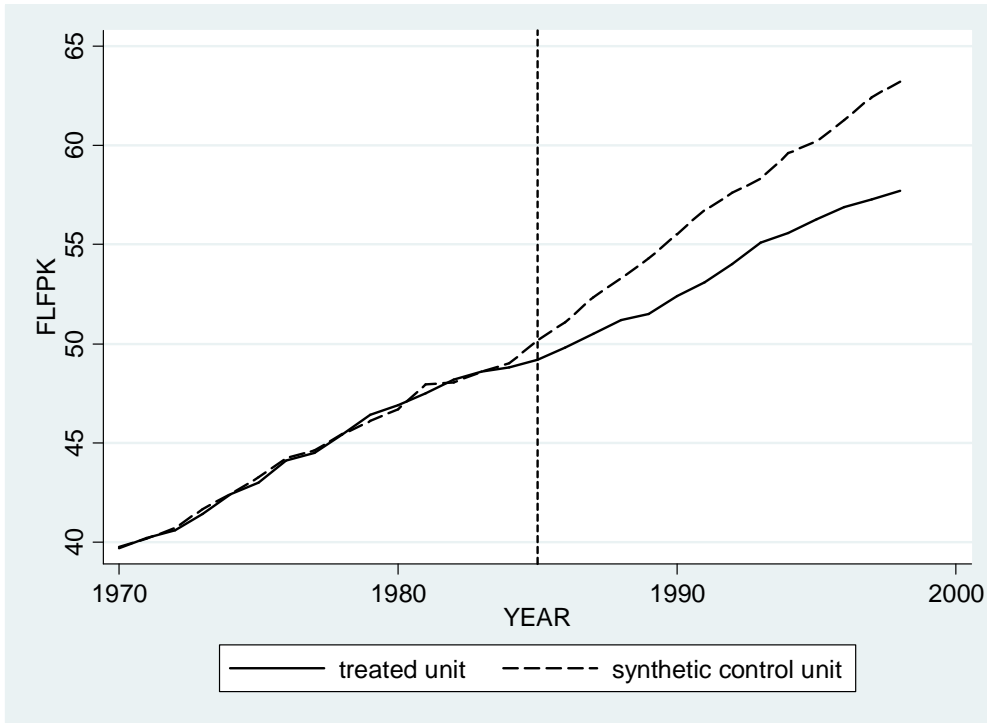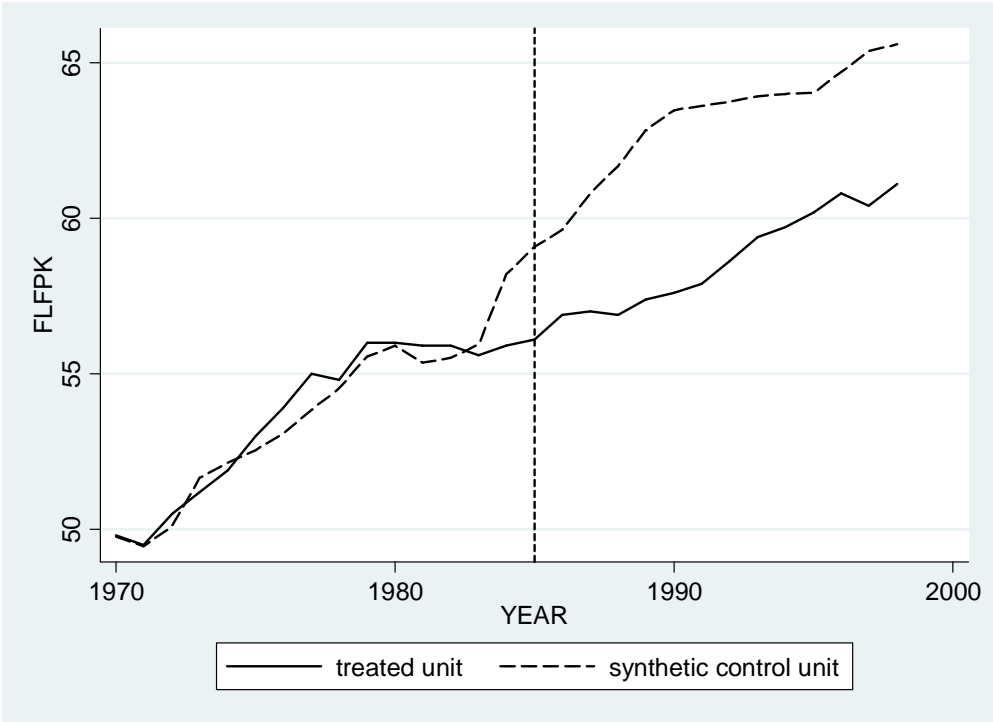

Figure 2 – Trends in the Belgian FLFP rate: the treated unit vs. the SU 2.
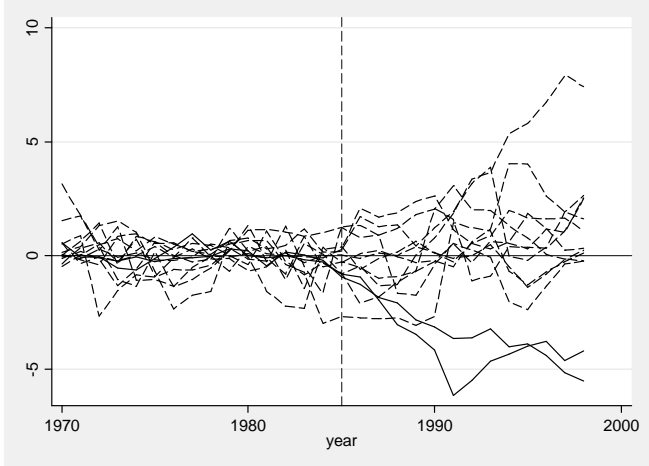
Figure 3 – Trends in the French FLFP rate: the treated unit vs. the SU 1.

Figure 4 – Trends in the French FLFP rate: the treated unit vs. the SU 2.

Figure 5 – FLFP rate gaps in Belgium, France and placebo gaps in those control countries having a RMSPE higher than the RMSPE mean.

Figure 6 – Ratio of post-1985 RMSPE and pre-1985 RMSPE: Belgium, France and the all control units included in DP 1.