

# Till Money Us Do Part: Property Division at Divorce and Married Couples' Time Behaviour

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# Till Money Us Do Part: Property Division at Divorce and Married Couples' Time Use Behaviour\*

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## Abstract

This paper analyses the effects of different marital property regimes on the marriage-specific investments of the spouses. In particular, it provides an empirical assessment of the effects of a change from a separation property regime towards a more equal distribution of matrimonial assets on labour supply, housework time, and childcare, taking advantage of a decision by the English House of Lord in 2000. I use a difference-in-difference approach, with individual fixed effects. Results show that married women reduced their labour supply by about 1.5-2.5 hours per week when the property regime is more favourable to them (slightly more if overtime is included). They didn't change the number of hours devoted to housework, but the probability that they are mainly responsible for children increased by 5-9%. The results hide heterogeneities: as expected, the effects are significant for women in couples with higher level of assets and wealth (proxied by education), while no effect is found among low educated women.

**JEL codes:** D13, J12, J22, K36

**Keywords:** Divorce, Property division law, Labour supply, Housework, Childcare

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## 1 Introduction

In most European countries, a divorce leads to an equal split of assets, which means that the wealth acquired during the marriage is subject to a 50/50 division between the husband and the wife if the marriage is dissolved, regardless to whom acquired it. The community property is usually considered as an implicit way to recognize the role of women in the formation of the household's wealth, through the domestic and care work (Deere and Doss, 2006; Dyer, 2002), which often come at the disadvantage of their labour supply. According to Deere and Doss (2006), the United Nations Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) had a major role in promoting the property rights of married women, increasing the number of countries with an equal split of family assets.

However, it is important to analyse the incentives that the different marital property regimes provide during the marriage, to investigate if and how they affect, and possibly reinforce, the traditional division of labour. In this paper I investigate if the division of assets at divorce affects female and male labour supply, housework time, and childcare.

There exists a wide and growing literature dedicated to the impacts of divorce laws, on several outcomes. A first strand focuses on verifying if the Coase theorem can be applied to marital bargaining, as suggested by Becker (1981): it analyses if the introduction of unilateral divorce has increased divorce rates (Peters, 1986; Friedberg, 1998; Wolfers, 2006; González and Viitanen, 2009). The two most recent papers show that reforms leading to an 'easier divorce' (legalized or unilateral divorce) increased the divorce rate, at least in the short term, proving that the Coase theorem does not apply to marital bargaining. However, they also show that divorce laws are not the main cause of the growth in divorce rate, and that the effect is not persistent, probably because an easier divorce led also to better-quality marriages (Rasul, 2006).

The second important strand of the literature is the most connected to my research. It is based on the seminal works of Chiappori and his co-authors (Chiappori, 1988, 1992; Chiappori et al., 2002), who analyse the household-decision making process and the implications of divorce legislation for spouses' bargaining power. The empirical literature shows that a unilateral or more liberal divorce increases women's labour supply (Stevenson, 2008; Bargain et al., 2012). It reduces marriage-specific investments, such as spouse's education, home ownership and children (Stevenson, 2007; Bellido and Marcén, 2014), and domestic violence (Stevenson and Wolfers, 2006; Brassiolo, 2016).<sup>1</sup>

Some of those papers have considered if the introduction of unilateral divorce had different implications depending on the underlying marital property regime, but they failed to find coherent results among them. Recently, more attention has been devoted to the sole impact of different marital property regimes: Kapan (2008) for the United Kingdom, Brassiolo (2013) for Spain, and Bayot and Voena (2015) for Italy find that the community property regimes reduce the labour participation of married women. However, while Fisher (2012) also provides a theoretical model that predicts that a more equal regime would increase efficient investments within the marriage, no empirical research has been conducted yet on outcomes different from the labour supply.

This paper aims to fill this gap. In particular, it evaluates if a change from a title-based property regime to a more equal one increases women housework time, in a framework of efficient specialization within the household, with the husband being allowed to increase his labour supply or his human capital. I also

<sup>1</sup>González and Özcan (2013) show that the legalization of divorce also increase household savings, even if that outcome is not related to spouses' bargaining. See also González (2014) for a summary of the impacts of divorce laws. Referring to the same theoretical background, other papers investigate how policies different from divorce laws affect the bargaining power of the spouses, for instance legalizing abortion (Oreffice, 2007).

investigate the impact on childcare, even though I do not have information on time devoted to childcare, but only on who is mainly responsible for the child.

Voena and her co-author provide some descriptive evidence on housework time: Bayot and Voena (2015) show that in Italy the separation of property is correlated with a lower probability for the wife to be a housewife and fewer hours of housework; on the other hand, Voena (2015) documents that in the US the introduction of unilateral divorce in states with community property doesn't lead to a significant increase in housework time, while there is an increase in the time that women dedicate to leisure. However, the latter focuses on the introduction of unilateral divorce, controlling for different property regimes, and not on changes in the property regime *per se*. To the best of my knowledge, only Wong (2013) estimates a robust causal effect of a law similar to the one governing separation of assets at divorce. She investigates the impact of homemaking provisions in the US, namely the laws which recognises the homemaking contribution in property division at divorce. She finds that the homemaking provision reduces the labour supply of married women and increases the time they devote to housework. The reason why the three papers find different results on women housework time is unclear. One possibility is that the underlying divorce law is different in US states and in Italy: in the first case there is a clear unilateral divorce; conversely, even though unilateral divorce is possible in Italy, divorce was historically long and laborious in the absence of the consent of the other spouse.<sup>2</sup> On the other hand, the homemaking provisions investigated by Wong (2013) may have an impact different from the property regime.

With respect to the previous papers, I consider the explicit regime governing the division of assets at divorce. Moreover, I estimate the impact of the change towards a more equal distribution on childcare. The main challenge to estimate a causal effect is to identify an exogenous variation in the property regime, which may influence the bargaining power of the spouses, without changing their preferences. In most of the developed countries, the default regime is the community property, but spouses may opt out and choose for a separation property regime. Clearly, couples choosing a separation property regime are likely to be different from those remaining in the community property one. If those differences are correlated with the division of labour within the household, and they are also unobserved by the researcher, comparing people in different regimes does not provide any useful information on the causal effects of a change in the marital property regime, nor on the effects of a shift in the bargaining power of the spouses.

I overcome this problem by exploiting a legislative change that took place in England and Wales. In that context, the judge has discretion over the division of property at divorce, and the separation of property has usually ruled. In 2000, the *White v. White* decision taken by the House of Lord introduced instead the 'yardstick of equality', increasing the share of assets that the wife was entitled to in case of divorce. Consequently, the bargaining power of the wife increased. I take advantage of such change for a difference-in-difference (DiD) analysis, using data from the British Household Panel Survey (BHPS), and considering Scotland as a control group. In comparison to the papers by Voena (2015) and Wong (2013), I do not have to worry about the contemporaneous changes from mutual consent to unilateral divorce or on other unobserved variables. For this reason, quasi-natural experiments are usually considered better than cross-sectional comparisons. Finally, I also provide some evidence about the heterogeneous effect of such a reform.<sup>3</sup>

The results indicate that a shift towards an equal share of family assets decreases the labour supply

<sup>2</sup>In 2015, Italy reformed divorce law and reduced the time required from separation to divorce. The practical effects of the reform have not been studied yet.

<sup>3</sup>For the sake of brevity, I sometimes refer to the *White v. White* decision as 'reform' or 'policy', even though it was not a proper reform, but a judge decision which made law.

of married women of about 1.5-2.5 hours per week, but it doesn't affect the time they spent for housework chores. On the other hand, it increases the probability that married women are mainly responsible for young children by about 5-9%. When considering heterogeneous results, these effects are stronger and significant only among high educated women (considered a proxy for being in more affluent couples), as one would expect; their probability of employment also decreases. No effect arises among low educated ones. Married men do not show any significant change in their behaviour, both when considering labour supply, housework time, or childcare responsibilities. Placebo tests performed on cohabiting and single women confirm that the effects arise as a consequence of the *White* case, and not because of other contemporaneous policies, neither as a consequence of changes in preferences. I also find that the *White* case didn't affect marriage rates, while it led to an increase in divorce rates, at least in the short run.

The rest of the paper is organized as follows: Section 2 describes the institutional background in the United Kingdom and the changes in the marital property regime in England and Wales. Section 3 provides the theoretical framework and predictions. The data and empirical strategy are illustrated in Section 4 and 5 respectively. Section 6 presents the results. Finally, Section 7 discusses and concludes.

## 2 Institutional background

Family law encompasses family relationships (such as marriage, divorce, and civil partnership nowadays), domestic violence, children, and parental responsibility. It defines the ground for divorce, the allocation of property and alimony, and children custody law.

Historically, divorce was possible only under very restrictive conditions (fault ground), such as adultery (usually enough for men), domestic violence or desertion, the latter sometimes required as aggravating factor when the wife wanted to file for divorce<sup>4</sup> (Burton, 2003). Over time, and in particular since the 1970s, countries have started reforming divorce law, widening the basis for divorce to the mutual consent of both spouses, or even to unilateral divorce, which means that one spouse has the right to divorce without the consent of the other and without proving any fault.<sup>5</sup> González and Viitanen (2009) summarize the reforms undertaken in European countries after 1950 and their timing.

The other aspect regulated by divorce law, relevant for my analysis, is the division of property upon relationship breakdown. The main systems are the following ones:

- Separation property (or 'title-based') regime, which allocates the assets to the spouse who holds them;
- Community property regimes, which splits into half the total wealth owned by the couple. The property to be divided can include also assets acquired before the marriage (universal community), or only assets acquired during the marriage, excluding those that each spouse bring into the marriage, as well as inheritance and gifts (community of acquests). The latter is the most common among countries with a community property regime;
- Equitable distribution regime, which accords to the judge discretion in dividing couple's wealth.

In England and Wales, the leading reform towards modern divorce law has been the Divorce Reform Act of 1969. Since then, the sole ground for divorce is 'irretrievable breakdown', proved by one of the following

<sup>4</sup>In England, both sexes were placed on the same level in 1923.

<sup>5</sup>In the US, scholars refers to these changes as the 'no-fault revolution' (Wolfers, 2006) and 'unilateral divorce revolution' (Voena, 2015), which highlights the relevant role played by the new regime in shaping family relationships and behaviour.

facts (UK Government, 2015): (i) Adultery; (ii) (Unreasonable) behaviour;<sup>6</sup> (iii) Desertion; (iv) Separation for more than 2 years (with mutual consent); (v) Separation for more than 5 years (unilateral). The Divorce Reform Act 1969 has been combined with provisions regarding property division into the Matrimonial Causes Act 1973, which is still in place today as a source of divorce law, as amended in 1984 (Boele-Woelki et al., 2003).

According to Boele-Woelki et al. (2003), in England and Wales 45% of the divorce granted in 2000 were on the basis of behaviour, 23.6% for adultery and 23.4% on the basis of separation for more than 2 years, with mutual consent. However, there are gender differences: first of all, wives' are two times more likely to ask a divorce than men. Moreover, the most common fact for men is two-years separation (31%), while for women is behaviour (52%).<sup>7</sup>

The division of marital property in England and Wales follows the equitable distribution regime:<sup>8</sup> the court has discretion in allocating family assets between the two spouses. When wealth exceeds the financial needs of the family, the rule of thumb was to consider 'reasonable requirements' to split assets, taking into account the needs of the wife (together with the children) and the standard of living she was accustomed to (hereafter 'need-based' approach). The share was larger only if the wife had been involved into generating marital assets, e.g. as a business partner (Smith, 2003). Usually, the wife was entitled to much less than 50% of total wealth. This approach has been largely modified by the *White v. White* case.<sup>9</sup>

Mr. and Mrs. White had been married for a long period (33 years). When they divorced in 1994, their total assets accounted for more than £4 million, making their case one of the so-called 'big money' ones. Initially, Mrs. White was awarded £980,000, but she appealed. The Court of Appeal then awarded her with about £1.5 million, introducing the 'yardstick of equality' rather than the 'need-based' approach. The decision of the Court has been confirmed in October 2000 by the House of Lords (*White v. White*, [2001] 1 A.C. 596), with a ruling which has been defined a 'landmark' (Smith, 2007) and a 'milestone(s) [on the] road to equality' (Dyer, 2002). Mrs. White was awarded less than 50% of total wealth because Mr. White's family had contributed to the *White* business in the early years. This decision has been reinforced in 2002 by the *Lambert v. Lambert* case ([2003] 2 WLR 63), the first one in which the wife was awarded half of the family wealth, when it also was stressed that a wife should not be discriminated against on the basis of her gender role, and that she may have forgone other opportunities in order to take care of the family:

'Lord Justice Thorpe said recent divorce case rulings had shown that it was unacceptable to place a greater value on the contribution of the breadwinner than that of the homemaker as a justification for dividing the product of the breadwinner's efforts unequally. [...] There was also force in the argument that a woman frequently sacrifices her potential to generate assets by taking on the domestic commitment to her husband and children, he said.' (Dyer, 2002, in the Guardian)

Indeed, the main idea behind community property or an equal split of family assets is the recognition of the role of the wife in the production of family wealth, even if through domestic and care work, and to ensure the economical protection of the financially weaker spouse.

<sup>6</sup>Fact (2) to prove the irretrievable breakdown is often abbreviated as 'unreasonable behaviour' (e.g. UK Government, 2015), but Boele-Woelki et al. (2003) affirm that it is a misleading definition, and only 'behaviour' should be used instead.

<sup>7</sup>These data are not provided for Scotland.

<sup>8</sup>In *Ferguson v. Ferguson*, 1994, the court described equitable distribution of marital property at divorce as more fair than the separate property system. Smith (2002) also claims that fixed division rules (even community property) can generate less fair outcomes than a discretionary system.

<sup>9</sup>The English legal system is a common law system, where decisions of courts and tribunals make law.



There has been discussion among lawyers if the *White v. White* case was to be applied only to 'big money' case, as it was the one in court, or to everyone (de Cruz, 2010). According to Smith (2003), the impact has been more widespread than only in the 'big money' case. It is also worth citing the following article from The Guardian (Pointer, 2004):

'In *White*, the law lords said they were dealing with a "big money" case and the principles they were laying down were to be applied to similar cases. But the impact of that decision has been much more profound. It is rare these days for a wife to go away with less than 50% of the capital, whatever the level of the family's assets.'

However, one should keep in mind that the division of matrimonial assets plays a role when they exceeds the financial needs of the two spouses - both when the 'need-based' approach was followed, and under the new yardstick of equal division. For this reason, I will also explore the heterogeneous effects of the *White* case.

The two journal articles just cited (Dyer, 2002; Pointer, 2004), as well as others not listed here, provide also some evidence that in the UK there is large media coverage about divorce cases, thus people are informed about them and about their consequences. On the other hand, the fact that similar changes follow a judge's decision, and are not a proper reform by the Parliament, guarantees the change to be unexpected, since people cannot predict which will be the judge's decision. The impossibility to anticipate the change is one of the underlying assumptions of the DiD approach in order to identify the policy effects (Ohinata and Picchio, 2015).

With respect to other countries, where individuals can choose between the default property regime (usually the community property) and an alternative one, as in Italy (Bayot and Voena, 2015) and in France (Frémeaux and Leturcq, 2014), in the United Kingdom is the judge who decides how the assets have to be split. Furthermore, in the UK pre-marital contracts are infrequent, mainly because they are not legally binding (Smith, 2003).<sup>10</sup> Hence, there is no issue of individuals sorting themselves into different regimes according to some unobservable characteristics.

On the other hand, *ex-post* agreements - at the moment of divorce - are binding and even encouraged: when divorcing, if the couple reaches an agreement, spouses just need to get the court to make it legally binding ('consent order'). This is cheaper and faster than asking the court to make a 'financial order', necessary when individuals do not agree. However, during the marriage there is no certainty for the spouses that they will reach an agreement at the time of divorce. Moreover, it is likely that also the bargaining in couples' agreements has changed after the *White* case, since the wife knows that via the court order she is now likely to be entitled to a larger share of assets than before.

I use married individuals living in Scotland as a control group. Scotland (as well as Northern Ireland) constitutes a separate jurisdiction, with its own family law and courts. The source of divorce law in Scotland is the Divorce (Scotland) Act 1976, which allowed divorce on the same basis of England and Wales (irretrievable breakdown, proved by one of the five circumstances mentioned above). The matrimonial property regime is ruled by the Family Law (Scotland) Act 1985, and set that assets acquired in prospect of the marriage or during the marriage are owned in equal shares (community of acquests property regime).

<sup>10</sup>Scholars expected pressure to make the pre-nuptial contract enforceable after the *White v. White* case (Smith, 2003; de Cruz, 2010). Indeed, they gained some popularity after the case law *Radmacher v. Granatino* in 2010, when the UK Supreme Court ruled that prenups ought to be given decisive weight. The Law Commission commenced a project in 2009 to examine the status and enforceability of marital property agreements, and published a report in February 2014 suggesting the introduction of 'qualifying nuptial agreements', that should be legally binding, but only once the needs of the couple and of any children are taken into account. Still, at the moment there has been no reform, and in particular the period covered by my analysis is largely before that project.

Divorce law has been largely amended by the Family Law (Scotland) Act of 2006. In particular, from 2006 the separation period required to divorce is reduced from 2 years to 1 year (under mutual consent) and from 5 years to 2 years (unilateral).<sup>11</sup> Since these changes could affect the behaviour of Scottish married people, which I use as a control group, I consider data only until 2005 (included).

### 3 Theoretical framework

Economists have long discussed the factors affecting the behaviour of married people. The idea that the household members maximize a unique utility function has been abandoned ('unitary' model; [Becker, 1981](#)), in favour of more flexible models, broadly grouped under the cap of 'non-unitary' models. Among them, 'cooperative' models are based on cooperative game theory and rely on the assumption that the outcomes are Pareto efficient. Within the cooperative models, [Chiappori \(1988\)](#) developed the so-called 'collective' approach, a more general approach than the 'bargaining models', which also need to specify the decision process and the threat point.

These models assume that the husband and the wife have two distinct utility functions, and that they bargain over the marriage-specific investments and over the distribution of marital surplus, namely the difference between the utility in the marriage and the utility at divorce. The bargaining power of each spouse is determined by her/his 'threat point', i.e. the outside option. The threat point could be either the well-being at divorce or a non-cooperative equilibrium within marriage. In both cases, crucial are the components of the bargaining power, those factors which affect the opportunities of the individuals outside the marriage. Typical components of the bargaining power are (non-labour) income, wages, wealth, age. When they influence individual bargaining power without changing preferences and the budget constraint are defined 'distribution factors' by [Chiappori et al. \(2002\)](#): examples are the sex ratio and divorce legislation. While the collective model does not need to specify the threat point, a change in the threat point is the typical consequence of a distribution factor. I focus here on the impact of divorce laws governing property division on the bargaining power of the spouses, modelled by [Chiappori et al. \(2002\)](#).

It is beyond the scope of this paper to demonstrate that property division at divorce affects the bargaining power of the wife, and to identify the respective weights. However, the theoretical framework is informative to identify testable implications and to interpret empirical findings.

#### 3.1 Marriage-specific investments

Consider a household composed by two decision makers, the two spouses. Each spouse have a distinct egoistic utility function,<sup>12</sup> which depends on consumption and leisure:  $U^i(L^i, C^i, \mathbf{x})$ , for  $i = f, m$ , where  $L^i$  denotes member's  $i$  leisure time,  $C^i$  denotes a consumption of a Hicksian composite good,<sup>13</sup> and  $\mathbf{x}$  is a vector of individuals characteristics which may affect preferences. In the basic setting,  $L^i = 1 - h^i$ , with  $h^i$  being the labour supply ([Chiappori et al., 2002](#)). Total time is normalized to 1. The household maximizes a collective utility function:

$$\max_{h^f, C^f, h^m, C^m} \mu U^f(L^f, C^f, \mathbf{x}) + (1 - \mu) U^m(L^m, C^m, \mathbf{x})$$

<sup>11</sup> It also partially introduced a community property system for cohabiting couples.

<sup>12</sup> [Chiappori et al. \(2002\)](#) extend the model to allow also for caring preferences.

<sup>13</sup> The model is static, implicitly assuming that all the income is consumed. The static collective model have been extended to a dynamic formulation by [Mazzocco \(2007\)](#) (see also [Oreffice, 2007](#)).

$$\text{subject to } w^f h^f + w^m h^m + y \geq C^f + C^m$$

where  $w^i$  is the wage,  $y$  is non-labour income.  $\mu$  is the Pareto weight, which is a function of wages, non-labour income, individual characteristics, and the distribution factor  $s$ , which in this paper is the property regime at divorce:  $\mu(w^f, w^m, y, \mathbf{x}, s)$ .  $\mu$  can be interpreted as the respective decision power (Browning et al., 2014).

Assuming the wife to be the financially weaker spouse, a shift towards a more equal sharing of resources, such as the one occurred in England and Wales with the *White v. White* decision, causes a virtual redistribution of household assets towards her. Indeed, if the relationship ends, she will be entitled to a larger share of the household wealth than before, even though it is held in the name of her husband. Hence, a legal change from the 'need-based' approach to the 'yardstick of equality' increases the bargaining power (and the Pareto weight) of the wife with respect to that of the husband, and I should expect this to be reflected into the allocation of time.

The main implication of the model developed by Chiappori et al. (2002) is that the labour supply of the wife  $h^f$  decreases under the equal regime (pure income effect). On the other hand, the labour supply of men should increase, because of the reduction of their bargaining power. However, the total effect for married men is not clear, as their elasticity of labour supply is smaller; moreover, they may want to reduce labour supply, because the wealth that would follow from work should be shared with the wife upon divorce (substitution effect) (Brassiolo, 2013).

The collective model has been also extended to allow for household production (Chiappori, 1997) and for the presence of a public good (e.g. child) (Blundell et al., 2005) (see also Browning et al. (2014)). It is interesting to investigate what would imply the reduction of the wife's labour supply: time spared from work could be used for pure leisure (as it is assumed in the basic model), housework, or (child) care.

Browning et al. (2014) consider household production as both time spent on domestic work and in childcare. Hereafter, instead, I differentiate between the two, and consider  $d^i$  member's  $i$  housework time and  $k^i$  childcare time. Indeed, Aguiar and Hurst (2007) report that people consider time spent playing with children among the most enjoyable activities, and general childcare more pleasant than other housework activities. One may also argue that, while playing with children can be pleasant, time dedicated to the basic needs of children is not. For this reason, in the time-use literature, childcare is usually treated as a separate category from both non-market production and leisure (e.g. Aguiar and Hurst, 2007).

To first include housework in the basic setting, one may assume that there exists one private consumption good, which is produced domestically, according to some function  $F(d^f, d^m)$ . Housework time  $d^i$  reduces leisure time:  $L^i = 1 - h^i - d^i$ . According to Chiappori (1997) and Browning et al. (2014), any change in the distribution function does not affect time spent on housework chores by the spouses, but only the consumption choices. Housework time depends instead on the production function. However, if the wife does not work at all, the previous result holds only for marketable goods, while non-marketable goods are affected also by the bargaining power (Browning et al., 2014). Since I include also non-working wives in my sample, and domestic chores are at least partially non-marketable (e.g. everyday cooking), the effect of the equal division of assets on housework time is ambiguous, and it is an empirical question.

From a different perspective, Fisher (2012) shows that under an equal sharing property division regime the wife makes efficient investments - such as working part-time 'to support her husband in increasing his human capital' (Fisher, 2012, p.11) - since both the costs and the benefits of such an investment will be shared in the case of divorce. This result holds in the case of a unilateral regime, when the husband - according to Fisher (2012) - makes the divorce decision. Hence, an equal sharing property division regime

should lead to a specialization within the couple, with the wife decreasing her labour supply and increasing housework time. While Fisher (2012) explicitly refers to a situation like the English case, I have shown that even if unilateral divorce is allowed, women are twice more likely to file for a divorce than men. Thus, her predictions are unlikely to hold in this case.

From a theoretical point of view, childcare poses even more challenges. Children can be considered as a marriage-specific investment (Stevenson, 2007): they are 'produced' in the household by the parents using time and resources, who in exchange have love and pride. Blundell et al. (2005) consider that the child welfare  $u^k$  is 'produced' by the parents using time  $k^i$  and specific expenditures  $c^k$ :  $u^k = f(c^k, k^f, k^m)$ . Since I do not have information on expenditures, I assume that the child well-being depends only on the time inputs of each parent  $k^i$ .

As for housework time, childcare time reduces leisure time, and thus utility:  $L^i = 1 - h^i - d^i - k^i$ . However, individual utility depends on private consumption of market and domestic goods, leisure, as well as on the child welfare  $u^k$  (which is a public good):  $U^i(L^i, C^i, u^k(k^f, k^m), \mathbf{x})$ . If the marriage is dissolved, the utility of the non-custodial parents from the child is largely reduced. Given that childcare time reduces leisure time and thus utility, but it increases utility via the welfare of the child, the overall effect of introducing an equal share regime is ambiguous. This is especially true if women care relatively more about children than men (either because they care more, or because they are more likely to be the custodial parent if the marriage breaks up). In that case, they may increase childcare time. Unfortunately I do not have information on the number of hours spent in childcare: I will use being 'mainly responsible for children under age 12' as a proxy (see section 5.2).

To sum up, the theoretical predictions are that the equal split of family assets has: (i) an unambiguous negative effect of married women's labour supply (income effect); (ii) an ambiguous effect on married men's labour supply (income and substitution effect); (iii) no effect on married women's housework time only if housework chores are mainly marketable; (iv) an ambiguous effect on childcare responsibilities.

### 3.2 Marriage and divorce rates

A change in the division of property upon divorce could also affect both the propensity to marry and to divorce.

Fisher (2012) predicts ambiguous effects both on the marriage rate and divorce rate. She suggests that some couples would be indifferent between cohabitation and marriage in a title-based and unilateral regime, and choose marriage. However, similar couples would not get married under the equal sharing regime, since the man in particular would avoid a marriage which is now riskier for him. On the other hand, she predicts more efficient investments in the marriage, which increase the value of marriage and may induce more marriages. Thus, the total effect is ambiguous. While she claims that the composition of new couples is also ambiguous, Brassiolo (2013) suggests instead the new couples are expected to be more homogeneous.

With respect to divorce, Fisher (2012) expects a reduction in the number of divorce by existing couples (hence at the beginning), because men will be less prone to break the relationship. This result strongly relies on the fact that, in her model, under a unilateral separation the man makes the separation decision. It can happen that the husband wants to divorce but the wife doesn't, and thus he files for divorce, while whenever the wife wants to divorce, the husband also prefers the separation to the marriage. In the long run, the effect on divorce is ambiguous, because it depends on the composition of the new couples. On

the other hand, Brassiolo (2013) favours the idea that the divorce rate will increase, because more wives whose marriages were close to divorce may actually want to end the relationship; he shows empirically that in Spain there is a positive and significant effect of the introduction of community property on divorce.

The impact on divorce is likely to be affected also by the grounds for divorce. I will verify in the empirical section the impact of the reforms on marriage rates and divorce rates in England. Both the impact on marriages and on divorces could also affect the results on investments. I provide results for people married before the reform (existing couples), which allows me to rule out the selection effect.<sup>14</sup> Unfortunately, it is not possible to rule out the selection induced by divorce, if there is any.

## 4 Data and sample selection

The dataset used to estimate the impact of the *White* case on individuals' behaviour is the British Household Panel Survey. The BHPS is a panel which covers years from 1991 until 2008. The first wave had a sample size of about 5,500 households (about 10,000 individuals). In 1999 (wave 9) there was a boost for both Scotland and Wales (1,500 each), in order to have a number of observations large enough to allow analysis of each country alone. I use cross-sectional weights to correct for the oversampling deriving from this boost. Between 1997 and 2001 a low-income sample was also included to the initial BHPS sample. Since the cross-sectional weights provided since 1999 take into account also the presence of this sample, I keep it into the total sample.

My main sample consists of married women aged 18-50 (to avoid possible confounding effects coming from pension choices), living in England (treated group) or in Scotland (control group). I also present results for married men aged 18-50, to assess if they react to the shift towards a different property regime, more favourable to their wife, and for non-married women, as a placebo group.

I exclude Northern Ireland as an additional control group, because it passes a reform of family law in 2003, which may affect the behaviour of people living there.

In addition to Northern Ireland, I also exclude Wales, because even though the same marriage law applies in England and Wales, the trend in hours worked in Wales was different already before the reform, with respect to both England and Scotland (see Figures 1 and 3 below). Thus, it is likely that other things were going on in Wales.<sup>15</sup>

Moreover, I do not consider the full period covered by BHPS, but only years 1992-2005 (wave 2 to 15). For 1991 there is no official statistics on female unemployment rate (which is one of the control variables), while in 2006 there is the aforementioned Scotland reform of family law, which could have changed the behaviour of Scottish people, the control group. When the dependent variables is hours of housework time, I consider the period 1994-2005, since the trend in Scotland was very different in 1992 and 1993 (Figure 3). Results for the full period 1992-2005 are presented in section 6.4.

To avoid confounding effects arising from a different selection into marriage after the reform, I consider only people married in 1999, and before and after, for the main analyses.

Finally, I exclude people who moved between Scotland and England, and those who are still in education. When considering the panel sample, I select only people who are present at least once before the reform and once after.

<sup>14</sup>Results for all married people, if one prefer to consider the total effect of the reform, are similar (available from the author upon request).

<sup>15</sup>Results including also Wales are shown in the Appendix and discussed in section 6.4.

To estimate the effect of the *White v. White* case on marriage rates and divorce rates, I use official data released from the UK's Office for National Statistics (ONS), contained in the 'Vital Statistics: Population and Health Reference Tables (May 2014 Update)'. The dataset contains information on the total number of marriages (at the country level), and the total number of divorces (for England and Wales together, Scotland, and Northern Ireland), which are collected from administrative sources. For the estimates, I consider England and Wales compared to Scotland, my control group, from 1990 through 2005. Statistics on the country population also come from the ONS ('Annual Mid-year Population Estimates, 2014').

The advantage of using official statistics is that the measure of the number of marriages and divorces is very accurate. The latter, in particular, is a rare event, and it could have been a problem to have a reliable number of divorces in the BHPS, in particular for Scotland before 1999 (before the boost sample). The disadvantage, with respect to similar analysis performed for the US, is the reduced number of observations, due to the fact that there is only one treated and one control group.

## 5 Identification strategy

### 5.1 Difference-in-difference

In order to investigate how the division of property at divorce affects couples' outcomes, I make use of the *White v. White* case, which provides a quasi-natural experiment. The baseline specification is the standard one for a difference-in-difference setting, pooling the cross-sections of the BHPS. I specify the following model for hours ( $h$ ) spent in the labour market<sup>16</sup> or performing housework by individual  $i$  living in region  $r$  in year  $t$ :

$$h_{irt} = \beta Post * Treated_{rt} + \mathbf{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + \epsilon_{irt} \quad (1)$$

Individuals who do not work are also included in the sample, and in such a case  $h$  is equal to 0. Similarly, it is possible that the individual performs 0 hours of domestic work.

$Post * Treated$  is the main variable of interest. It is a dummy variable taking value 1 if the person is living in England ( $Treated$ ) after the reform (i.e. since 2000<sup>17</sup>) ( $Post$ ).  $\beta$  is the parameter of interest, which captures the effect of the *White* case on the dependent variables.

The control variables  $\mathbf{X}$  include: age, age squared, the number of children of different ages (0-4; 5-15) in the household, the level of education, household (real) equivalent income,<sup>18</sup> age (linear and squared) and education of the spouse, regional female unemployment rate, and a dummy for living in a urban area. Moreover, I include region ( $r$ ) fixed effects, which captures time-invariant regional characteristics (and the time-invariant difference between England and Scotland), and year ( $t$ ) fixed effects, which absorbs trends or shocks common to the entire sample (and the difference before and after the *White* case).

I then estimate the following linear probability model, where the dependent variable is a dummy variable

<sup>16</sup>To have comparable results for the impact on housework time, I also estimate the impact on labour supply, at the intensive and extensive margin. With respect to Kapan (2008), I explicitly take into account issues such as people moving between the countries, and different selection into marriage. In addition, I provide some results at the extensive margin (the probability of being employed), and some heterogeneous results, which he did not investigate.

<sup>17</sup>I consider 2000 already 'post-reform' because the fieldwork for BHPS runs from the 1st September until the end of April of the next year. If I drop the observations for 2000, results are similar.

<sup>18</sup>I control for total income, which includes wages from both spouses as well as non-labour income. If only household non-labour income is considered instead (since wage can be endogenous), results are very similar.

which takes value 0 or 1.

$$p_{irt} = \beta Post * Treated_{rt} + \mathbf{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + e_{irt} \quad (2)$$

The main dependent variables  $p$  are: a dummy variable equal to 1 if the person is employed; a dummy variable equal to 1 if the individual is responsible for child(ren) under 12 (childcare responsibility). The same linear probability model described in equation 2 is also used to estimate if the individual is mainly performing household chores, as an additional evidence for housework activities.

In both cases, the parameters are estimates using Ordinary Least Squares (OLS).

In a second specification, I take advantage of the panel dimension of the data and include individual fixed-effects (equations 3 and 4), which allow me to control for potential unobservable characteristics different between the control and the treated group, but fixed over time.

$$h_{irt} = \beta Post * Treated_{rt} + \mathbf{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + \eta_i + \omega_{irt} \quad (3)$$

$$p_{irt} = \beta Post * Treated_{rt} + \mathbf{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + \eta_i + o_{irt} \quad (4)$$

Two types of potential problems arise with respect to the standard errors in the difference-in difference setting (Bertrand et al., 2004): the first one is that the units of observation are more detailed than the level of variation; the second one is possible serial correlation, which stems from the facts that I am using a long time series, that the dependent variables are highly positively serially correlated, and that the interaction variable changed just once. In both cases, the standard errors are likely to be underestimated. Reported standard errors are clustered at the individual level to account for the possible correlation of the errors within individuals over time: that should at least partially correct for the risk of serial correlation. As a robustness check, I also clustered the standard errors at the region and region-year level, to allow for correlation of observations within regions, or common economic shocks, in order to address the first type of problem. Those specifications yield lower standard errors than clustering at the individual level, thus I present the results with the most conservative specification.<sup>19</sup> Finally, I also perform a robustness check considering only two years, one before and one after the reform (1999 vs. 2001), which does not suffer from the serial correlation issue.

In addition to the main results, I also evaluate if the reform had different impacts on some sub-groups of people. In particular, I expect to find a stronger impact of the reform among couples with higher level of assets, who have more wealth to split. Since income (and even wealth) could be endogenous to the reform and to the labour supply of women, I consider education as a proxy (a similar choice has been made by Brewer et al., 2012). To assess the heterogeneous effects, I separate the sample into high and low educated individuals. I define as ‘low’ educated those women (or men) who obtained a GCE A level qualification at maximum, and as ‘high’ educated those who got a qualification higher than that, which means a university degree or other higher qualification (about 40% of the full sample).<sup>20</sup>

A third specification takes into account the effects over time. I estimate the following equation, both for

<sup>19</sup>In addition, I tried specifications with cluster at the country or country-year level. Again, they yield to lower standard errors than clusters at the individual level.

<sup>20</sup>I also estimate the heterogeneous effects considering the household equivalent income by age group in 1999, and splitting the sample into ‘poor’ individuals - with the income below the median - and ‘rich’ individuals - with income above the median. The results are very similar.

the continuous ( $h$ ) and binary ( $p$ ) dependent variables, with and without individual fixed effects  $\eta_i$ :

$$y_{irt} = \sum_{t=1992}^{2005} \beta_t Treated * Year_{rt} + \mathbf{X}_{irt} \gamma + \sum_t \delta_t + \sum_r \lambda_r + \eta_i + \nu_{irt} \quad (5)$$

Here the focus is on  $\beta_t$ , the coefficient associated with the interaction between  $Treated$  and  $Year$ , a dummy variable for each year in the sample. The excluded category is the interaction with  $Year = 1999$ , the year prior to the *White* reform. For years 1992-1998, the coefficient should not be significant: this is also a sensitivity check of the validity of the parallel trends assumption and of no anticipation effect.

The impact of the reform on marriage and divorce rates is estimated at the country level, following [Friedberg \(1998\)](#):

$$r_{ct} = b Post * Treated_{ct} + \sum_t \delta_t + \sum_c \mu_c + \sum_c \mu_c * \tau + \sum_c \mu_c * \tau^2 + v_{ct} \quad (6)$$

The dependent variable  $r$  refers either to the crude marriage rate or to the crude divorce rate, defined, respectively, as the number of annual marriages or divorces per 1,000 people.  $\delta_t$  represents year fixed effects;  $\mu_c$  corresponds to the country fixed effects, with one country corresponding to England and Wales (combined) and the other one Scotland. I first estimate a specification without country-specific trends. Then, I include country-specific linear ( $\mu_c * \tau$ ) and quadratic trends ( $\mu_c * \tau^2$ ), to account for factors influencing marriage or divorce, changing within country over time.  $\tau$  is a continuous variable constructed as year-1990. The parameter of interest is  $b$ .

I then estimate a dynamic model, following [Wolfers \(2006\)](#):

$$r_{ct} = \sum_j b_j Treated * Periods_{ct} + \sum_t \delta_t + \sum_c \mu_c + \sum_c \mu_c * \tau + \sum_c \mu_c * \tau^2 + u_{ct} \quad (7)$$

I include  $Periods_{ct}$ , a vector of dummy variables which takes value 1 if at the year  $t$  the new property regime has been in place for  $j$  periods.  $j = 1$  refers to years 2001-2002,  $j = 2$  to years 2003-2004, and  $j = 3$  to year 2005.<sup>21</sup>

## 5.2 Definition of the dependent variables

The first dependent variable is the number of hours worked. It corresponds to the number of hours worked in a normal week in the main job of the individual, excluding overtime and meal breaks, and is self-defined. In addition, individuals are asked how many hours overtime they usually work in a normal week and how many hours of paid overtime. I use this information to construct three different variables: hours worked, hours worked included paid overtime, and hours worked included total overtime. Self-employed individuals are also asked how many hours per week do they work, hence they are included in the sample. However, they are only asked how many hours do they usually work (obviously, there is no concept of overtime in their case); thus, for self-employed the number of hours worked, with or without overtime, is the same. For non-working people, the number of hours worked is imputed to 0.

Second, I consider the probability of working as one of the possible outcomes. It is defined using the information on current economic status. A person is considered employed if she/he is employed, self-employed or on maternity leave. When the employment status is missing, I impute it using information if the

<sup>21</sup>In this case, I consider the years 'post-reform' starting with 2001, since the official rates include all the marriages and divorces from January to December.



person did paid work the previous week, or she didn't but she has a job, if those variables are available.<sup>22</sup>

Housework time is included in the survey since 1992. It is self-defined, as an answer to the following question: 'About how many hours do you spend on housework in an average week, such as time spent cooking, cleaning and doing the laundry?'. Childcare is not included in definition. It is also probable that people do not consider other activities such as grocery shopping, gardening, or repairing.

In 1991 and then since 1994, individuals in couple were also asked 'who mostly does housework jobs', detailed in grocery shopping, cooking, washing/ironing, and cleaning. Possible answers were: mostly self, mostly partner, shared, paid help only, other. The answer to such a question is less precise than the time devoted to housework, but it can provide some additional clues. It could be useful in particular for grocery shopping, which may be not considered by the respondent in housework time. For each of the 4 chores, I construct a dummy variable equal to 1 if it the respondent says that s/he is mostly doing that housework activity.

Individuals living with a partner and with child(ren) under 12 in the household are asked 'Who is mainly responsible for looking after the child(ren)'. Possible answers are: mainly respondent, mainly partner, joint with partner, someone else.<sup>23</sup> I use this information as a proxy for childcare. Notice that being responsible for children is not available in 1993. I construct a different dummy variable for men and women. For a woman, the dummy is equal to 1 if she is mainly responsible for the child. For a man, the dummy is equal to 1 if he answers that he is mainly responsible for the child or joint with the partner. I apply different definitions for men and women because it is uncommon for men to be the main carer,<sup>24</sup> and it is much more likely to identify a shift from a shared responsibility to a sole responsibility of the wife (or viceversa), than a shift from/towards a sole responsibility of the husband.<sup>25</sup>

Since each individual is answering to the question separately, and it is a highly subjective question, in principle men and women could give answers which are inconsistent between them<sup>26</sup> (e.g. I may find an increase in childcare responsibility for both men and women).

The construction of some control variables is described in Appendix B.

### 5.3 Common trends assumption

The main assumption in a DiD specification is the common trends assumption.

Figure 1 shows the trends in weekly hours worked (usually, with paid overtime, and with total overtime) in England and Scotland (and Wales). It can be noticed an increasing trend in the number of hours worked in both countries, with Scottish women always working longer hours. For Scotland and England, the pre-reform trends are parallel. While the trend is continuing for Scotland, after the reform the number of hours supplied by English women is below the pre-existing trend.

Figure 2 presents the probability of being employed for women. Again England and Scotland have a

<sup>22</sup>I also considered alternative definition of the employment status, excluding people in maternity leave, or relying mainly on the information on paid work in the previous week. Results (not presented here) are very robust to the different definitions.

<sup>23</sup>In 1992 the possible answers were slightly different, and I recoded them to be consistent with the other years.

<sup>24</sup>Only 2.7% of men affirm to be mainly responsible for the child, while 35.6% of them claim to be joint responsible with their spouse. On the other hand, 66.9% of women is mainly responsible for the child, while 29.5% of them say that she is joint with her partner. See Table A.1 in the Appendix.

<sup>25</sup>The descriptive statistics present a reduction in the probability of a man being mainly or jointly responsible by 7 percent, compared to Scotland. The change in the probability of being mainly responsible is only 0.5% (percentage not shown).

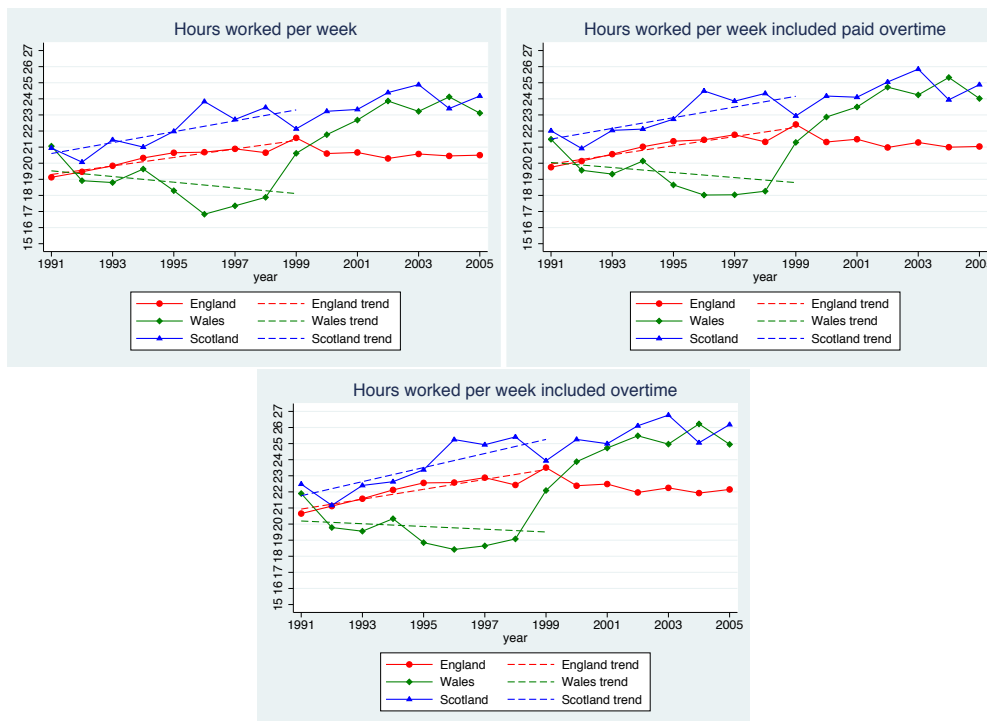
<sup>26</sup>Interestingly, the percentage of men and women who says that the men is mainly responsible is very similar, while men report a joint responsibility about 5% higher, with a reduction of the wife being mainly responsible compared to the answers given by the wife herself.

similar trend,<sup>27</sup> but while the increasing probability of being employed is continuing for Scotland, for England it is lower than the previous trend.

On the other hand, the number of hours devoted to housework chores per week is decreasing over time for both Scotland and England, with a parallel trend between 1994 and 1999, but for England the trend changes since 2000 (Figure 3).

For childcare, the trends are shown in Figure 4. The probability for the wife to be mainly responsible for the child is decreasing both in England and Scotland. The trend is completely parallel if I exclude 1992<sup>28</sup> (graph B, on the right side), but even when I include it, it is easy to see that after 2000 the decreasing trend is continuing for Scotland, while it reversed in England, with an increasing probability for the wife to be mainly responsible for children.

Figure 1: Women’s hours worked per week, by country



Source: BHPS

<sup>27</sup>If I exclude 1991 from the fitted trends - which seems strangely high for Scotland, and which in any case is not included in the regressions - the parallel trends are even clearer. Unfortunately, the official employment rate by region is available from 1992, then I cannot check if the (high) probability of being employed that I found for 1991 in Scotland is confirmed or not. However, the graph with ONS statistics of the 16-64 female employment rate confirms the parallel trend between England and Scotland until 2000. The probability of being employed continue to increase for Scotland, while it is almost flat for England since 2000 (not shown, available upon request).

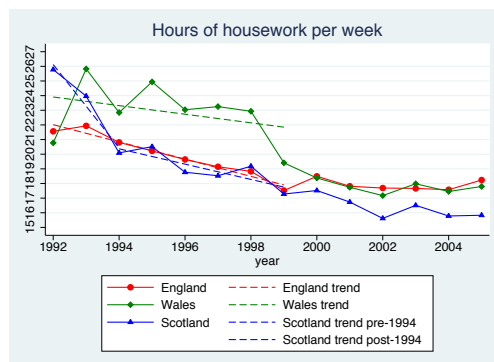
<sup>28</sup>In 1992 the codification used was different: the drop may be because of that.

Figure 2: Women's probability of being employed, by country



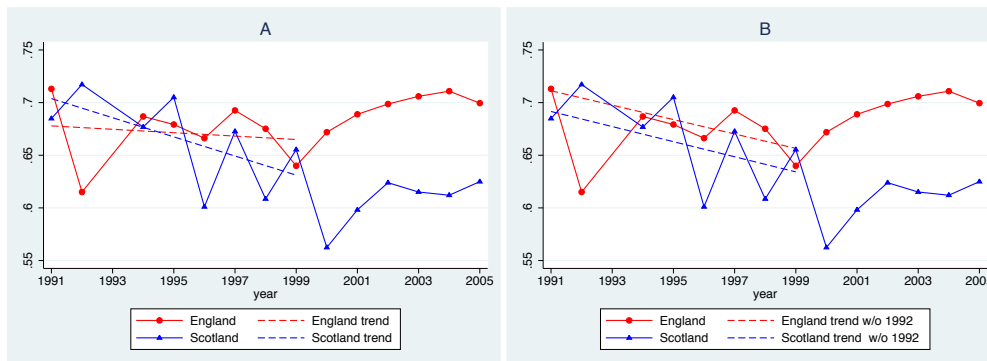
Source: BHPS

Figure 3: Women's hours of housework per week, by country



Source: BHPS

Figure 4: Women mainly responsible for looking after children under 12, by country



Source: BHPS

I perform a formal test of the common trends assumption: first, I regress my dependent variables on the interaction between an indicator for Scotland and the year dummies, and test the joint equality of the interactions for years 1991 through 1998 (a similar test is performed by [Ohinata and Picchio, 2015](#)). The null hypothesis of parallel trends cannot be rejected:  $p$ -value  $\simeq 0.69 - 0.83$  when the dependent variable is hours of work;  $p$ -value = 0.82 when the dependent variable is hours of domestic work (years 1994-1998);<sup>29</sup>  $p$ -value = 0.93 when the dependent variable is employment;  $p$ -value = 0.29 for childcare. Then, I run a similar test including all the control variables. Again, the test of joint equality cannot reject the null hypothesis.

The changing trends are summarised by the overall changes in the dependent variables before and after the *White* case. Table 1 presents the average labour supply, domestic work and childcare in England and Scotland before and after the *White v. White* decision.

For married women, there is a reduction of about 1.6 hours worked per week (2h when considering total overtime) in England with respect to Scotland, reflected in an increase in housework time by 1.1 hour. They are 8% more likely of being mainly responsible for children under 12.

Table 2 presents the dependent variables for married men. No strong change emerges when comparing England and Scotland before and after the reform. There is a small increase in the number of hours worked (0.2 hours per week), compensated by a reduction of 0.4 hours per week in domestic work, and a reduction in the probability of being mainly/joint responsible for children by 7%, which apparently mirrors the change for women.

<sup>29</sup>As expected, the null hypothesis of common trends is instead rejected when I considers years 1992-1998 for housework ( $p$ -value = 0.07).

Table 1: Summary statistics: difference-in-difference, women

		Pre	Post	Difference
Hours worked	England	20.50	20.52	0.02
	Scotland	22.20	23.87	1.66
	Difference	-1.71	-3.35	<b>-1.64</b>
Hours worked & paid overtime	England	21.24	21.20	-0.04
	Scotland	23.08	24.64	1.56
	Difference	-1.84	-3.44	<b>-1.60</b>
Hours worked & total overtime	England	22.32	22.21	-0.11
	Scotland	23.83	25.68	1.85
	Difference	-1.51	-3.48	<b>-1.96</b>
Employment	England	0.74	0.76	0.02
	Scotland	0.77	0.81	0.04
	Difference	-0.03	-0.05	<b>-0.02</b>
Housework <sup>†</sup>	England	19.15	17.91	-1.25
	Scotland	18.78	16.39	-2.38
	Difference	0.38	1.51	<b>1.14</b>
Mainly resp. for children < 12 <sup>‡</sup>	England	0.67	0.70	0.03
	Scotland	0.66	0.60	-0.06
	Difference	0.01	0.09	<b>0.08</b>

Using cross-sectional weights. Difference-in-difference in bold.

<sup>†</sup> After 1994.

<sup>‡</sup> It applies only to women with child(ren) under 12 living in the household.

Considering the probability that the respondent is mostly performing a specific housework job, the graphs show some suggestive trends (see Figure A.1), with wives in England performing relatively more task than in Scotland after the reform (see also Table A.4). However, it is more difficult to assert the common trends assumption, especially for cooking.

The summary statistics of the control variables for England and Scotland, before and after the reform, are presented in Tables A.2 and A.3 in the Appendix.

Table 2: Summary statistics: difference-in-difference, men

		Pre	Post	Difference
Hours worked	England	38.15	38.41	0.26
	Scotland	38.73	38.85	0.11
	Difference	-0.58	-0.43	<b>0.15</b>
Hours worked & paid overtime	England	40.70	40.48	-0.22
	Scotland	41.33	40.58	-0.75
	Difference	-0.64	-0.10	<b>0.53</b>
Hours worked & total overtime	England	43.00	42.83	-0.17
	Scotland	42.90	42.50	-0.40
	Difference	0.10	0.33	<b>0.23</b>
Employment	England	0.92	0.94	0.02
	Scotland	0.91	0.93	0.03
	Difference	0.01	0.01	<b>0.00</b>
Housework <sup>†</sup>	England	5.10	4.96	-0.14
	Scotland	5.69	5.96	0.26
	Difference	-0.59	-1.00	<b>-0.41</b>
Mainly/joint resp. for children < 12 <sup>‡</sup>	England	0.38	0.36	-0.02
	Scotland	0.40	0.45	0.05
	Difference	-0.01	-0.09	<b>-0.07</b>

Using cross-sectional weights. Difference-in-difference in bold.

<sup>†</sup> After 1994.

<sup>‡</sup> It applies only to men with child(ren) under 12 living in the household.

## 5.4 Other legal changes

In addition to the common trends assumption, to correctly identify the effect of the reform of interest via the DiD methodology, there should be no other policy change during the same period which could affect the outcomes. Hereafter I present some reforms which were introduced at the same time, and discuss if they undermine my identification strategy.

In 1999 the Welfare Reform and Pension Act was implemented and it came into operation in December 2000, almost at the same time of the reform I am considering. The provision that may affect the behaviour of married people concerns pension at divorce. The 1999 Act introduced a scheme of pension sharing that consists in splitting or sharing the (private) pension funds: the transferee (usually the wife) is entitled with a percentage of the transferor's pension arrangement (reduced accordingly), or become a member of the original scheme. As a consequence, the pension sharing scheme increased the capital assets of the wife, even if she is going to receive the benefits only at the retirement age. First of all, in anything this reform is likely to affect the behaviour of people divorcing closer to their retirement, while I explicitly focus on younger individuals. Second, the Act concerns the entire UK, affecting both my treated group (England) and my control one (Scotland). Still, one may argue that since in Scotland there existed already a community property regime, Scottish people may respond less than English ones to the pension sharing regime; moreover, it is possible that young women also change their behaviour if they rationally consider the pension as a capital asset. Even in those cases, the Pension Act causes a shift of household assets towards the financially weaker spouse, thus it operates in exactly the same way of the *White* case. Under such circumstances, it would pose problems in terms of identification of which reform affected the behaviour

between the two, but both can still be interpreted as an increase in the bargaining power of the wife following a virtual increase of her assets; thus, it does not pose any challenge to my interpretation of the results.

A second major reform happening at the same time is the introduction of the Working Families' Tax Credit (WFTC) in October 1999, fully implemented in April 2000, extensively described in [Brewer et al. \(2006\)](#).<sup>30</sup> However, on the one hand, in-work benefits are targeted at low-income households,<sup>31</sup> while I will show that the change in the marital property regime affected only 'rich' families. On the other hand, the reform was implemented in all the United Kingdom, and thus in Scotland as well. If any change would have happened as a consequence of the WFTC also on high-income families, it is cancelled out by the difference with Scotland.<sup>32</sup>

In 2002, Scotland introduced free formal personal care (i.e. care for disable and especially elderly people). [Ohinata and Picchio \(2015\)](#) investigate the consequences of such policy, and find that it decreases household savings. I do not expect it to influence the labour supply, domestic work, or childcare time of individuals directly affected by the policy. However, it may affect the labour supply of the family members who take care for the elderly, usually the women. In such a case, I may expect the policy to increase the labour supply of Scottish women in their prime age, and thus to identify a decrease in the labour supply of English women. However, such effect should arise for all women, while I will show that there is no significant effect among non-married women. Furthermore, the dynamic effects (which arise already from year 2000) and the analysis involving only 1999 and 2001 will act as sensitivity checks.

Finally, in 1998 a 1,000£ university tuition fee was introduced across UK. However, Scotland abolished the fees in 2001, while England and Wales increased it in 2004 and again in 2009. I exclude people in education from my sample, but one may think that parents will change their behaviour to pay for/save for the university fees they will have to pay for children. If anything, I would expect English mothers to work more than Scottish ones, i.e. an incentive in the opposite direction than the one I am considering. Moreover, again the analysis for 1999-2001 can be considered as a sensitivity check with this regard.

## 6 Results

### 6.1 Impact on labour supply and other time-use behaviour

Table 3 presents the main results: after a shift towards a more equal marital property regime, on average married women reduce their labour supply by about 1.5 hours (FE)-2.5 hours (OLS). Results for hours usually worked, with and without paid overtime are very similar. If I consider the total number of hours, including total overtime, the reduction is even larger.<sup>33</sup> There is a reduction also in the probability of being employed (extensive margin), but it is not statistically significant.

On the other hand, there is an increase in housework time by 0.5-0.9 hours (respectively, FE and OLS), but it is not statistically different from 0: hence, it seems that married women did not change their supply of housework time.

<sup>30</sup>Studies have shown that the WFTC significantly increased the employment of lone parents, but had small to none effects on that of women in couples; WFTC also increased fertility among women in low-income couples, while there is no significant effect on the fertility of single women (for a summary of the findings see [Brewer et al., 2012](#)).

<sup>31</sup>Indeed, high-income families are used as a control group in [Brewer et al. \(2012\)](#).

<sup>32</sup>If that was not the case, I should find effects also for single or cohabiting women, while they are there is no significant change in their behaviour, as shown by the placebo analysis.

<sup>33</sup>[Kapan \(2008\)](#) found similar results: a significant reduction in the number of hours worked by 18-55 married women (about 2-3 hours), robust to the different specifications (OLS, Tobit, FE).

Table 3: Effects of the *White* case on married women's outcomes

Dependent variable	Pooled cross-sections	Panel-FE
Hours worked	-2.54** (1.44)	-1.54** (0.74)
Hours worked included paid overtime	-2.56** (1.14)	-1.57** (0.76)
Hours worked included total overtime	-2.86** (1.15)	-1.71** (0.79)
<i>Observations</i>	17,141	14,795
<i>R squared</i>	0.21	0.12
Employment	-0.05 (0.03)	-0.01 (0.02)
<i>Observations</i>	17,219	14,852
<i>R squared</i>	0.14	0.08
Houseworks	0.88 (0.69)	0.51 (0.55)
<i>Observations</i>	14,782	13,222
<i>R squared</i>	0.17	0.06
<i>Controls:</i>		
Demographic controls	X	X
Spouse controls	X	X
Time FE	X	X
Region FE	X	X
Individual FE		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table 4 presents the heterogeneous results. As expected, the reform has a stronger negative impact on the labour supply of high educated women: they reduced their labour supply of more than 4 hours. In addition, among them there is a significant reduction in the probability of being employed by 7-12%. Again, there is no significant impact on the number of hours dedicated to housework chores. Among low educated women, the effects are not significant.

Table 4: Heterogeneous effects of the *White* case on married women's outcomes

Dependent variable	High educated		Low educated	
	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE
Hours worked	-4.72*** (1.71)	-4.07*** (0.96)	-1.49 (1.55)	-0.48 (1.07)
& paid overtime	-4.65*** (1.75)	-3.99*** (0.97)	-1.63 (1.60)	-0.27 (1.11)
& total overtime	-5.44*** (1.93)	-4.46*** (1.12)	-1.62 (1.57)	-0.42 (1.12)
<i>Observations</i>	6,804	5,677	10,337	8,103
<i>R squared</i>	0.18	0.12	0.22	0.11
Employment	-0.12*** (0.05)	-0.07** (0.03)	-0.01 (0.04)	0.03 (0.03)
<i>Observations</i>	6,838	5,699	10,381	8,136
<i>R squared</i>	0.09	0.07	0.16	0.08
Houseworks	1.06 (1.16)	-0.36 (0.83)	0.87 (0.96)	1.23* (0.67)
<i>Observations</i>	6,130	5,206	8,652	7,183
<i>R squared</i>	0.16	0.07	0.17	0.05
<i>Controls:</i>				
Demographic controls	X	X	X	X
Spouse controls	X	X	X	X
Time FE	X	X	X	X
Region FE	X	X	X	X
Individual FE		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

One of the possible critiques is that housework time is estimated very imprecisely, and this could be the reason why the positive effect captured is not significant. On the one hand, [Wong \(2013\)](#) also uses reported data on housework time, and she finds a significant effect. On the other hand, notice that in the analysis of the heterogeneities, the impact of the *White* case on housework time is even negative for high educated women when including individual fixed effects, even though non-statistically significant. It can be considered as a signal that I do not identify any significant effect not because of the larger measurement error for housework time than for labour supply, but because there is no effect at all.

The fact that there is no impact on domestic work is confirmed by the analysis on who in the couple is performing a specific housework chore. The results reflect those on housework time. Even though the graphs suggest an increase in the probability that the wife is mainly performing domestic chores (Figure A.1 and Table A.4), the change is not significant (see Table A.5).

The results of the regressions for married men are shown in Table 5. There is a negative coefficient for

hours worked, but it is not significant, as expected, both because the elasticity of male labour supply is smaller, and because there are incentives in opposite directions.

Table 5: Effects of the *White* case on married men's outcomes

Dependent variable	Full sample		Heterogeneous results			
	Pooled cross-sect.	Panel FE	High educated		Low educated	
			Pooled cross-sect.	Panel FE	Pooled cross-sect.	Panel FE
Hours worked	-0.60 (1.18)	-0.84 (0.65)	-1.60 (1.45)	-1.16 (1.06)	0.23 (1.84)	-0.06 (0.83)
& paid overt.	-0.17 (1.27)	-0.47 (0.75)	-1.17 (1.61)	-0.83 (1.16)	0.60 (1.96)	0.23 (0.96)
& total overt.	-0.61 (1.28)	-0.44 (0.78)	-1.47 (1.60)	-1.06 (1.17)	0.05 (1.97)	0.48 (1.01)
<i>Observations</i>	14,869	12,697	7,208	5,871	7,661	5,881
<i>R squared</i>	0.07	0.02	0.08	0.02	0.11	0.04
Employment	-0.03 (0.02)	-0.00 (0.01)	-0.01 (0.02)	-0.00 (0.01)	-0.04 (0.03)	0.01 (0.01)
<i>Observations</i>	14,945	12,756	7,241	5,900	7,704	5,908
<i>R squared</i>	0.10	0.03	0.06	0.03	0.13	0.05
Houseworks	-0.58 (0.38)	-0.48* (0.25)	-0.92** (0.45)	-0.50 (0.31)	-0.24 (0.59)	-0.44 (0.40)
<i>Observations</i>	12,902	11,464	6,435	5,387	6,467	5,283
<i>R squared</i>	0.05	0.01	0.08	0.01	0.05	0.04
<i>Controls:</i>						
Demographic c.	X	X	X	X	X	X
Spouse c.	X	X	X	X	X	X
Time FE	X	X	X	X	X	X
Region FE	X	X	X	X	X	X
Individual FE		X		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

There is a small negative effect on the hours of domestic work done by married men: in the full sample, there is a reduction by about half an hour, significant at 10% only when individual fixed-effects are included. Among high educated men, the reduction is slightly larger (0.9 hours) and significant at 5% in the pooled regression, but not significant with fixed effects. Overall, the results are not robust enough to be conclusive.

Similarly, there is no significant change in the probability that the husband performs a specific domestic chore, both if I consider the probability that the husband is mostly performing the job (Table A.5), or on the probability that is mostly the husband or it is a shared responsibility (not shown).

Table 6 present the results on childcare, for married men and women. After the *White* case, married women are 5-9% more likely to be mainly responsible for children under 12, respectively with and without individual fixed effects. When I consider the heterogeneous effects, the impact is significant only among high educated women, in line with my expectations and previous findings.

On the other hand, there is a reduction in the probability that men are mainly or jointly responsible for the

child, significant only in the pooled cross-sections, and not with the fixed effects.<sup>34</sup>

Table 6: Effects of the *White* case on childcare responsibilities

Dependent variable	Full sample		Heterogeneous results			
	Pooled cross-sect.	Panel FE	High educated		Low educated	
			Pooled cross-sect.	Panel FE	Pooled cross-sect.	Panel FE
<b>Women</b>						
Mainly resp. <sup>†</sup>	0.09** (0.04)	0.05** (0.03)	0.10* (0.06)	0.08* (0.05)	0.08 (0.06)	0.04 (0.05)
Observations	9,000	7,236	3,700	2,730	5,300	4,016
R squared	0.06	0.02	0.08	0.04	0.08	0.02
<b>Men</b>						
Mainly/joint resp. <sup>‡</sup>	-0.09** (0.04)	-0.04 (0.03)	-0.13** (0.05)	-0.02 (0.04)	-0.05 (0.06)	-0.08 (0.06)
Observations	8,324	6,666	4,148	3,170	4,176	3,074
R squared	0.07	0.02	0.09	0.03	0.08	0.03
<i>Controls:</i>						
Demographic c.	X	X	X	X	X	X
Spouse c.	X	X	X	X	X	X
Time FE	X	X	X	X	X	X
Region FE	X	X	X	X	X	X
Individual FE		X		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

<sup>†</sup> Women: probability being mainly responsible,

<sup>‡</sup> Men: probability of being mainly responsible or joint responsible with the wife.

It applies only to people with children under 12 in the household.

## 6.2 Alternative explanations: a placebo test

As pointed out by [Chiappori et al. \(2002\)](#), other unobservable social, economic, or cultural factors should not affect women labour supply and marital property laws: in the empirical literature, this is referred to as the assumption of ‘exogeneity of the policy’. Since the property division at divorce affects only married couples,<sup>35</sup> the changes introduced through the *White* case should have no effect on the behaviour of other groups of people. Failing that, some concerns may arise on the fact that other unobservable factors affected both the labour supply and the property law. Alternatively, other changes could have taken place in the same period, affecting the behaviour of women living in England and not in Scotland, for instance influencing their preferences instead of the bargaining power. To test these issues, I investigate the impact of the reform on non-married women labour supply, housework time, and childcare. It can be considered as a placebo test.

<sup>34</sup>Alternatively, I considered the answer given by the spouse: men answering that their partner is mainly responsible for children; women answering that their husband is mainly or jointly responsible for children. Even though they are less often significant, the direction and magnitude of the results are similar, suggesting that on average men and women have the same perception on who is mainly responsible for the child.

<sup>35</sup>The property at divorce may also affect the behaviour of newly married couples w.r.t couples married before the change: it may affect both their composition, and how their behaviour changes after the marriage. These couples are excluded from my sample, but further research should investigate in this direction.

I provide evidence for different groups of non-married women: cohabiting women and single women. Single women is the most common group used as a placebo in similar set-ups (e.g. Brassiolo, 2013), however women cohabiting with their partner are more similar to married women. In particular, it is more likely that they will have some form of division of labour with their partner. Investigating the behaviour of cohabiting women has the advantage to control if there has been any change - different from the *White* case - affecting women in couples, but not single women. Moreover, I am able to control for the same set of variables used in the specification for married women, while when considering single women I cannot to control for partner's age and education level by definition. Finally, cohabiting women are the only group that I can use as a placebo to test the impact of the reform on childcare responsibility.

The drawback is that cohabiting women are a small group (about 2,800 - 3,000 observations). For this reason, as well as for comparability with other studies, I also present results for single women. The definition of 'single' women may refer only to never married women or also to separated, divorced, and widowed women. I consider both cases: only never married women, and all single women except cohabiting one (defined 'unmarried' hereafter). In the second case, I include only those who undergone the separation or divorce by 1999, otherwise I risk to include individuals who may have divorced because of the reform itself.

The effects of the reform for the three different groups are presented in Table 7. There is no significant effect for any of the three groups considered on labour supply (at the extensive or intensive margin). Moreover, for cohabiting women the coefficients are non-significant, but positive, opposite to the results for married women. Hence, no change in preferences for all women can be deduced.

On housework time, results are mixed: there is a reduction in time devoted to domestic work among cohabiting women, significant at 10% only in the pooled cross-sections, and an increase among unmarried women, significant at 10% only with individual fixed effects. Overall, no clear trends in housework time arise, which would suggest unobserved underlying factors.

Finally, I find a positive effect on the probability of being mainly responsible for children among cohabiting women, significant (at 10%) only with the individual fixed effects. These findings are more troubling. However, the trend is flat for English women before and after the policy, while increasing for Scotland before the reform, and decreasing afterwards. Hence, the results among cohabiting women are likely driven by the Scottish trend, which was not parallel to the English one already before the reform. In addition, the results are driven by low educated women, while among high educated the effect is negative and not significant.<sup>36</sup> Overall, also with respect to childcare responsibility, I can exclude other contemporary changes, or changes in preferences among English people, affecting my results.

### 6.3 Dynamic effects

The results of the change in marital property law over time are shown in Table 8.

Married women reduced their labour supply at the intensive margin right after the change, and the effect lasted until the end of 2003, slightly increasing over time. The results are significant both in the OLS and FE specifications, but the magnitude of the effect is different: the reduction in hours worked range between 1.3-1.7 hours with fixed effects, while it is about 2-3 hours in the basic model. No effect is found at the extensive margin. One may wonder why the effect on the full sample disappears after 2003. If I consider the dynamic heterogeneous effects,<sup>37</sup> the labour supply of high educated women is reduced until 2005 (i.e.

<sup>36</sup>Graph and heterogeneous results for cohabiting women not shown, but available upon request.

<sup>37</sup>Heterogeneous effects not shown, because while they may suggest some interesting features, it is possible that they are less precise, since the number of variables is quite large for relative few observations.

Table 7: Placebo: Effects of the *White* case on non-married women's outcomes

Dependent variable	Cohabiting		Never married		Unmarried <sup>†</sup>	
	Pooled cross-sect.	Panel FE	Pooled cross-sect.	Panel FE	Pooled cross-sect.	Panel FE
Hours worked	0.24 (2.12)	0.79 (1.40)	0.61 (1.41)	-1.12 (1.34)	-0.87 (1.11)	-0.80 (1.06)
& paid overt.	0.55 (2.32)	0.81 (1.49)	0.82 (1.47)	-1.44 (1.37)	-0.73 (1.16)	-0.96 (1.08)
& total overt.	1.02 (2.37)	0.79 (1.53)	0.57 (1.52)	-1.42 (1.43)	-0.95 (1.20)	-0.98 (1.12)
<i>Observations</i>	3,097	2,738	8,795	4,914	16,046	7,843
<i>R squared</i>	0.36	0.11	0.22	0.18	0.21	0.15
Employment	-0.03 (0.07)	0.00 (0.04)	0.02 (0.04)	0.02 (0.04)	-0.01 (0.03)	0.01 (0.03)
<i>Observations</i>	3,106	2,747	8,827	4,932	16,133	7,879
<i>R squared</i>	0.31	0.10	0.22	0.27	0.19	0.20
Houseworks	-2.51* (1.46)	-1.00 (1.01)	-0.79 (0.57)	0.35 (0.56)	0.31 (0.62)	0.90* (0.52)
<i>Observations</i>	2,849	2,537	7,140	4,323	11,327	6,648
<i>R squared</i>	0.33	0.06	0.26	0.04	0.36	0.03
Mainly resp. for child. <sup>‡</sup>	0.07 (0.11)	0.13* (0.08)				
<i>Observations</i>	1,308	1,026				
<i>R squared</i>	0.18	0.05				
<i>Controls:</i>						
Demographic c.	X	X	X	X	X	X
Partner c.	X	X				
Time FE	X	X	X	X	X	X
Region FE	X	X	X	X	X	X
Individual FE		X		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

<sup>†</sup> 'Unmarried' refers to never married women and separated, divorced or widowed women.

<sup>‡</sup> It applies only to women with children under 12 living in the household.

until the end of the data under analysis), both at the extensive and intensive margin, and the effect is stable over time. However, the labour supply of low educated women is decreasing until 2003, and then increasing (+2h), although never significant: while low educated women didn't react to the policy, the increase in their labour supply after 2003 hide the decrease in the labour supply of high educated women when I consider the full sample.

The results on housework time are mixed: there is a significant and positive effect on domestic work, robust through the OLS and FE specifications, only in 2002 and in 2005. On the one hand, information on domestic work is more prone to measurement error, and in general more volatile over time. On the other hand, since the effect didn't arise after the policy but later on, it may be driven by other changes. Finally, it is driven by low educated women: among high educated, OLS and FE have opposite signs.

With respect to childcare, there is a significant increase in the probability that the wife is mainly responsible for children only in 2000 and 2001 (robust to OLS and FE). Since I am considering couples married in 1999, it is possible that they are less likely to have young kids with the time passing, and thus the time that parents need to dedicate to kids may be less over time. It would be interesting to perform a similar exercise also among newly formed couple. Moreover, 'being mainly responsible for' may include other aspects different from childcare time (such as paying for), which become more relevant when the child is getting older and which are likely to be shared by the couple.

Investigating the dynamic effects has an additional advantage: it is possible to test if there was a different trend in England and Scotland already before the policy. The interaction between years previous to the *White* case (1992-1998) and England are not significant, nor jointly significant, supporting the common trends assumption, the exogeneity of the policy and no anticipation.

Table 8: Effects of the *White* case over time

Dep. var.:	Hours worked		Employment		Housework		Mainly resp. children <12	
	Pooled cross-s.	Panel FE	Pooled cross-s.	Panel FE	Pooled cross-s.	Panel FE	Pooled cross-s.	Panel FE
1992*Engl.	2.07 (1.69)	1.72 (2.06)	0.03 (0.05)	-0.01 (0.05)			-0.10 (0.08)	-0.17* (0.10)
1993*Engl.	0.61 (1.89)	-0.49 (1.87)	0.02 (0.05)	-0.05 (0.05)			<i>n.a.</i>	<i>n.a.</i>
1994*Engl.	1.73 (1.68)	0.69 (1.78)	0.04 (0.05)	-0.02 (0.05)	0.37 (1.27)	0.91 (1.39)	0.03 (0.08)	-0.07 (0.08)
1995*Engl.	0.43 (1.52)	0.11 (1.52)	-0.00 (0.04)	-0.02 (0.04)	0.87 (1.46)	2.41* (1.43)	0.02 (0.08)	-0.03 (0.08)
1996*Engl.	-0.27 (1.54)	0.06 (1.44)	-0.00 (0.04)	-0.00 (0.04)	0.76 (1.22)	0.62 (1.40)	0.07 (0.08)	0.07 (0.08)
1997*Engl.	0.74 (1.36)	1.52 (1.12)	0.01 (0.04)	0.01 (0.03)	1.40 (0.99)	1.19 (0.94)	0.04 (0.07)	-0.04 (0.06)
1998*Engl.	0.18 (1.45)	1.33 (1.07)	0.05 (0.04)	0.05* (0.03)	0.45 (0.95)	0.10 (0.91)	0.05 (0.07)	-0.03 (0.06)
2000*Engl.	-1.97*** (0.73)	-1.28** (0.59)	-0.02 (0.02)	-0.01 (0.02)	0.93 (0.62)	0.70 (0.57)	0.12*** (0.04)	0.06* (0.04)
2001*Engl.	-2.02** (0.87)	-1.49** (0.73)	-0.02 (0.02)	-0.01 (0.02)	0.83 (0.71)	1.12* (0.63)	0.12** (0.05)	0.09** (0.04)
2002*Engl.	-2.63** (1.02)	-1.57* (0.80)	-0.05* (0.03)	-0.01 (0.02)	2.26*** (0.74)	1.47** (0.68)	0.08 (0.05)	0.01 (0.05)
2003*Engl.	-3.00** (1.29)	-1.74* (0.90)	-0.05 (0.03)	-0.01 (0.03)	1.15 (0.81)	0.56 (0.74)	0.12** (0.06)	0.01 (0.05)
2004*Engl.	-0.97 (1.17)	0.07 (1.04)	-0.03 (0.03)	0.01 (0.03)	1.84** (0.85)	0.80 (0.84)	0.09 (0.06)	-0.02 (0.05)
2005*Engl.	-1.36 (1.21)	-0.29 (1.08)	-0.03 (0.03)	0.01 (0.03)	1.87** (0.90)	1.38* (0.81)	0.11* (0.06)	0.04 (0.06)
<i>Obs.</i>	<i>17,141</i>	<i>14,795</i>	<i>17,219</i>	<i>14,852</i>	<i>14,782</i>	<i>13,222</i>	<i>9,000</i>	<i>7,236</i>
<i>R sq.</i>	<i>0.21</i>	<i>0.12</i>	<i>0.14</i>	<i>0.08</i>	<i>0.17</i>	<i>0.06</i>	<i>0.06</i>	<i>0.02</i>
<i>Controls</i>								
Demographic c.	X	X	X	X	X	X	X	X
Spouse c.	X	X	X	X	X	X	X	X
Time FE	X	X	X	X	X	X	X	X
Region FE	X	X	X	X	X	X	X	X
Individual FE		X		X		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 6.4 Robustness checks

Up to now I conducted my analysis for all the years 1992 (or 1994) through 2005. I perform now a DiD using only two years, 1999 as pre-policy year and 2001 as a post-policy. Using only two years, the estimation does not suffer from any serial correlation problem, which may affect the estimated standard errors; second, it confirms the fact that I am identifying the effects of the *White* pronouncement, and not of the 2002 Scottish free personal care, neither of the changes in university tuition fees.

The effects of the policy considering only 1999 compared to 2001 are presented in Table 9. Previous results are confirmed: among married women, there is a reduction in labour supply by 1.7-2 hours (at the intensive margin), confronted to an increase in the probability to be mainly responsible for children under 12 (+8-12%).

Furthermore, the last two columns of Table 9 report the results of a placebo law change. I estimate the effect of the law change using only pre-reform data (1997 vs. 1999),<sup>38</sup> pretending that the decision of the House of Lords took place in 1998. I do not find any effect of the placebo law change, confirming results from the dynamic estimations.

Additional sensitivity checks are presented in Table A.6 in the Appendix, in order to test the robustness of my results to different specifications.

A possible concern may arise from the fact that I am using the full BHPS sample, composed also by a boost sample for Scotland and Wales introduced in 1999. Even though I utilize cross-sectional weights, which correct for the oversampling of Scotland and Wales, one may question the results, as the boost sample is included only one year before the policy. As a robustness check, I replicate my estimations excluding the boost sample for Scotland (Wales is already excluded from the sample): results are presented in the first two columns of Table A.6. In the OLS, the impact on hours of work is much larger without the boost sample than with it (an average reduction of more than 4 hours). However, when I also control for individual fixed effects, the results are similar with and without the boost sample, suggesting that including the boost sample helps in estimating more precisely the results. The effect on childcare is in the same direction and of the same magnitude, but not statistically significant. Probably the fact that the findings are not significant in this care arises from the small sample size of the control group.

Findings are robust to the exclusion of inner and outer London, which is likely to be different from the rest of the UK (even from the rest of England).

Also when I include also Wales results are confirmed, although less significant (but still statistically different from 0). Finally, the results on housework time are confirmed if I consider the entire period 1992-2005, instead of 1994-2005 (Table A.7).

## 6.5 Divorce and marriage rates

As anticipated, I also investigate of the impact of the reform on marriage and divorce rates. Figure 5 presents the trends before and after the reform. The pre-reform trends on marriage and divorce rates are similar, even though one can notice an increase in Scotland's marriage rates in the few years before 2000. For this reason, I also control for the pre-reform country specific trends.

Moreover, Figure 5 shows that England and Wales have the same trends in terms of marriage rates, and it is thus safe to use the rates for England and Wales together, instead of excluding Wales. This allows me

<sup>38</sup>The placebo test is confirmed also if I use 1996 compared to 1998.



Table 9: Effects of the *White* case on married women's outcomes: 1999-2001 and 1997-1999

Dependent variable	1999-2001		Pre-reform placebo: 1997-1999	
	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE
Hours worked	-2.06** (0.88)	-1.65** (0.74)	-0.53 (1.39)	-0.93 (1.11)
& paid overtime	-2.02** (0.91)	-1.81** (0.78)	-0.41 (1.43)	-0.54 (1.19)
& total overtime	-2.00** (0.98)	-1.80** (0.82)	-0.09 (1.53)	-0.17 (1.25)
<i>Observations</i>	3,128	2,760	3,110	2,491
<i>R squared</i>	0.21	0.09	0.21	0.06
Employment	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.04)	0.02 (0.03)
<i>Observations</i>	3,140	2,770	3,125	2,505
<i>R squared</i>	0.15	0.03	0.15	0.05
Houseworks	0.86 (0.71)	1.02 (0.66)	-1.29 (0.99)	-1.49 (0.97)
<i>Observations</i>	3,096	2,730	3,065	2,475
<i>R squared</i>	0.17	0.07	0.20	0.07
Mainly resp. children<12	0.12** (0.05)	0.08* (0.05)	-0.02 (0.07)	-0.07 (0.08)
<i>Observations</i>	1,775	1,493	1,719	1,351
<i>R squared</i>	0.07	0.06	0.08	0.09
<i>Controls:</i>				
Demographic controls	X	X	X	X
Spouse controls	X	X	X	X
Time FE	X	X	X	X
Region FE	X	X	X	X
Individual FE		X		X

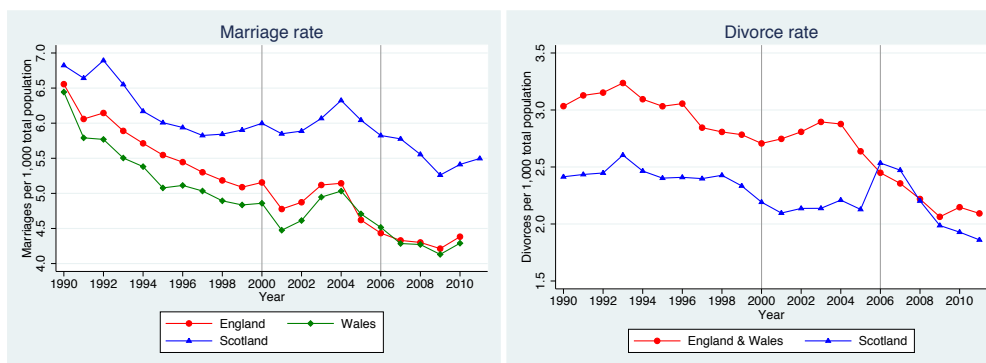
Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

to have comparable estimate for marriage and divorce rates, the latter being available only with England and Wales aggregated.

As can be seen, the crude marriage rate in England and Wales was about 6.5 in 1990; since then it decreased, reaching about 4.5 in 2005 (last year in my analysis), and slightly less than that in 2011. In Scotland, marriage rate was higher than in England and Wales since the beginning of the period, but also decreasing over time (from 6.8 marriages per 1,000 people to 5.5).

Figure 5: Marriage rates and divorce rates, by country



Source: BHPS

The gray vertical lines represent the year of the *White* case (2000) and of the Scotland Family Law reform (2006).

Conversely, the crude divorce rate has always been higher in England and Wales than in Scotland (respectively, 3.0 and 2.4 in 1990), decreasing until 1999 in the first case, and until 2005 in the second one. One can notice that the divorce rate has been increasing in England and Wales in the first years after the *White* case, and decreasing again afterwards. This suggests a response to the new property regime in terms of divorce rate in the first years. After a few years, the divorce rate seems to decrease with a trend similar to the pre-reform one, and even to a larger extent. This would confirm the prediction of more homogeneous marriages under the new regime, and thus a reduction in the divorce rate in the long run. Unfortunately, I do not have a proper control group to verify the effect in the long run: the Scotland Family Law reform of 2006, reducing the number of years required to obtain divorce after a separation, caused a pick in the number of divorces. Also in this case, the pick is only temporary, suggesting an adjustment to the new law, but no long-lasting effect of the Scottish reform on the divorce rate.

Estimations results are presented in Table 10: the *White v. White* decision seems to have a negative impact on marriage rates; however, the effect is large and significant only in the baseline specification, while it disappears including country-specific trends. When considering the dynamic response to the *White* case, the results are similar: there is significant decrease of marriage rate, at least until the end of 2005, even larger in the last two years, which disappears with the inclusion of country time trends.

With respect to the divorce rate, I do not find any significant effect in the baseline specification. However, controlling for previous trends, the *White v. White* case increased divorce rates by about 0.2 divorces per thousand people. The dynamic specification points up an interesting trend: the increase in the divorce rate, which last until the end of 2005, is even larger in the period 2003-2005, consistent with the fact that the *White* case was confirmed and reinforced by the *Lambert* one.

Overall, the *White v. White* case has no effect on marriages, reflecting the incentives in opposite directions

as suggested by Fisher (2012): on the one hand, men would prefer to avoid the marriage, because under the new regime marriage is riskier for them; on the other hand, more couples are willing to marry because of the higher value of the marriage. The latter could be weakened by the fact that the more efficient investments into the marriage are only in terms of childcare, and new couples may not know if they will have a baby or not.

Conversely, the *White v. White* case increases the divorce rate, indicating a demand for the dissolution of the marriage by wives, who had seen their outside option improving, in line with the suggestion and the results of Brassiolo (2013). The results are in contrast with the prediction of Fisher (2012), which however relies on the fact that the man decides if separate or not under a unilateral regime (such as the one in England is mainly considered).

Table 10: Impact of the *White* case on marriage rate and divorce rate

	Static analysis			Dynamic analysis		
	No trends (1)	Linear trends (2)	Quadratic trends (3)	No trends (4)	Linear trends (5)	Quadratic trends (6)
<b>Panel A: Marriage rate</b>						
White	-0.51*** (0.09)	-0.23 (0.15)	-0.09 (0.16)			
First 2 years				-0.39*** (0.12)	-0.24 (0.15)	-0.14 (0.20)
Years 3-4				-0.41*** (0.12)	-0.21 (0.17)	-0.01 (0.32)
Year 5				-0.72*** (0.12)	-0.46** (0.20)	-0.14 (0.49)
<i>Observations</i>	32	32	32	32	32	32
<i>R squared</i>	0.98	0.99	0.99	0.99	0.99	0.99
<b>Panel B: Divorce rate</b>						
White	0.05 (0.06)	0.24** (0.09)	0.21** (0.10)			
First 2 years				-0.00 (0.08)	0.17* (0.08)	0.24** (0.11)
Years 3-4				0.13 (0.08)	0.37*** (0.09)	0.50** (0.17)
Year 5				0.01 (0.08)	0.30** (0.11)	0.52* (0.26)
<i>Observations</i>	32	32	32	32	32	32
<i>R squared</i>	0.97	0.98	0.98	0.97	0.98	0.98
<i>Controls</i>						
Years FE	X	X	X	X	X	X
Country FE	X	X	X	X	X	X
Country*time		X	X		X	X
Country*time sq.			X			X

Using country's population weights. Standard errors in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

While the model proposed by Fisher (2012) is appealing, in England women are twice more likely to ask

a divorce than men (Boele-Woelki et al., 2003), a fact which seems to contradict the prediction that the man takes the separation decision.

These results, however, are sensitive to the inclusion of country-specific trends. Moreover, the number of observations is very small. Additional evidence on the effect of the change should be provided using microdata with a larger sample size than the BHPS, to be able to capture even rare events such as divorce.

## 7 Conclusions

In the paper, I estimate how the division of marital property regime at divorce affects the time-use behaviour of the spouses. In order to assess a causal relationship, I exploit a decision taken by the House of Lords in England and Wales in 2000 (*White v. White*) as a quasi-natural experiment, and perform a difference-in-difference. Married people in Scotland are my control group, since Scotland constitutes a separate jurisdiction. The *White v. White* case introduced the ‘yardstick of equality’, with respect to the ‘need-based approach’ that was ruling before. Using the British Household Panel Survey, I am also able to additionally control for unobserved heterogeneity.

Results show that a shift towards an equal split of assets reduced the labour supply of women married prior to the change by 1.5 to 2.5 hours, even more if I include also unpaid overtime. While married women didn’t increase housework time, they are more likely to be mainly responsible for children under 12 (+5-9%). As expected, when the heterogeneous effects are considered, these results are significant only among high educated women (a proxy for the family wealth). There is even a reduction in the labour supply of high educated women at the extensive margin: they are 7-12% less likely to be employed. The policy did not influence the behaviour of married men.

A placebo test, performed with three different groups, allow me to rule out variations in preferences among English women, or the presence of other changes which may have affected women in couples (i.e. both cohabiting and married women) or all other women.

These findings confirm that the main channel that induces a reduction in women labour supply is the increased bargaining power of the wife within the couple, consistent with the collective model. Married women have little incentive to increase marriage-specific investments.

The reason why women are also increasing childcare responsibility may be twofold. On the one hand, it is possible that, given their higher bargaining power, married women are investing only in more enjoyable activities (Aguiar and Hurst, 2007), or at least in those activities which also increase their utility. On the other hand, childcare services may be more expensive than housekeeping ones; moreover, if the mother associates a very large cost to childcare performed by people outside the family, because she considers herself to be the best provider, she has an incentive to use her spared time for childcare instead that for leisure. In addition, a large literature has shown that mothers care more than fathers about their child - even if there is still no consensus about that (e.g. Thomas, 1990; Blundell et al., 2005) - and that they are more likely to be the custodial parent.

As a final contribution, I estimate the effects on the *White* case on marriage and divorce rates, controlling for country-specific trends. I find that only divorce rates are affected by the reform, with an increase in the probability of divorce for at least 5 years.

The reduction in women’s labour supply together with the increase in childcare questions the role of community property in protecting the financially weaker spouse. On the one hand, the community property regime can be a fair and protective tool ex-post, for women who already reduced their labour supply to

perform domestic and care chores. On the other hand, ex-ante it reinforces the traditional division of labour, slightly pushing women out of the labour force. Moreover, it raises policy concerns with respect to the alternative objective of increasing the labour supply of married women. Future research needs to investigate if, after a divorce, women are able to increase again the time they devote to work, or if they are stuck in a low participation pattern.

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## A Additional figures and tables

Figure A.1: Probability that the wife is mostly doing the following housework chores, by country



Source: BHPS

Table A.1: Answers to 'Who is mainly responsible for looking after the child(ren)? Is it..'

Answers	Who is answering	
	Women	Men
Mainly respondent	66.94	2.66
Mainly partner	2.47	60.78
Joint w partner	29.47	35.58
Someone else	1.13	0.98
Observations	10,293	9,010

Table A.2: Married women's summary statistics

	Before 2000				Since 2000			
	England		Scotland		England		Scotland	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Hours worked	20.50	0.17	22.20	0.49	20.52	0.22	23.87	0.37
Hours worked & paid overt.	21.24	0.17	23.08	0.50	21.20	0.23	24.64	0.38
Hours worked & total overt.	22.32	0.18	23.83	0.52	22.21	0.24	25.68	0.40
Employed	0.74	0.00	0.77	0.01	0.76	0.01	0.81	0.01
Hours of housework	19.70	0.14	19.93	0.45	17.91	0.15	16.39	0.25
Mainly resp. for children	0.67	0.01	0.66	0.02	0.70	0.01	0.60	0.02
Age	38.29	0.08	37.73	0.21	39.93	0.09	39.65	0.16
N. children 0-4	0.28	0.01	0.27	0.02	0.25	0.01	0.27	0.01
N. children 5-15	0.81	0.01	0.75	0.03	0.96	0.01	0.93	0.02
Higher degree	0.02	0.00	0.00	0.00	0.03	0.00	0.03	0.00
First degree	0.09	0.00	0.11	0.01	0.12	0.00	0.14	0.01
Teaching qf	0.04	0.00	0.03	0.01	0.03	0.00	0.03	0.00
Other higher qf	0.16	0.00	0.16	0.01	0.29	0.01	0.26	0.01
Nursing qf	0.03	0.00	0.05	0.01	0.02	0.00	0.03	0.00
GCE A levels	0.09	0.00	0.24	0.01	0.10	0.00	0.17	0.01
GCE O levels or equiv	0.26	0.00	0.23	0.01	0.22	0.01	0.19	0.01
Commercial qf, no o levels	0.05	0.00	0.03	0.00	0.03	0.00	0.02	0.00
CSE grade 2-5, scot grade 4-5	0.05	0.00	0.00	0.00	0.06	0.00	0.01	0.00
Apprenticeship	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other qualification	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00
No qualification	0.19	0.00	0.14	0.01	0.10	0.00	0.11	0.01
HH equiv income	28,303	194	28,099	587	30,858	261	30,071	469
Spouse's age	40.98	0.09	40.40	0.25	42.57	0.11	42.03	0.19
Higher degree (husband)	0.03	0.00	0.03	0.01	0.04	0.00	0.04	0.00
First degree (husband)	0.11	0.00	0.09	0.01	0.15	0.01	0.11	0.01
Teaching qf (husband)	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Other higher qf (husband)	0.27	0.00	0.26	0.01	0.37	0.01	0.34	0.01
Nursing qf (husband)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GCE A levels (husband)	0.13	0.00	0.15	0.01	0.11	0.00	0.15	0.01
GCE O levels or equiv (h.)	0.18	0.00	0.22	0.01	0.15	0.01	0.19	0.01
Commercial qf (husband)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CSE grade 2-5 (husband)	0.05	0.00	0.00	0.00	0.06	0.00	0.01	0.00
Apprenticeship (husband)	0.02	0.00	0.08	0.01	0.01	0.00	0.04	0.01
Other qualification (husband)	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
No qualification (husband)	0.18	0.00	0.14	0.01	0.11	0.00	0.11	0.01
Female unempl Rate	6.42	0.01	6.82	0.03	4.47	0.00	5.13	0.01
Urban dummy	0.76	0.00	0.73	0.01	0.76	0.01	0.66	0.01
Inner London	0.03	0.00	0.00	0.00	0.02	0.00	0.00	0.00
Outer London	0.08	0.00	0.00	0.00	0.06	0.00	0.00	0.00
R of South East	0.24	0.00	0.00	0.00	0.22	0.01	0.00	0.00
South West	0.10	0.00	0.00	0.00	0.11	0.00	0.00	0.00
East Anglia	0.05	0.00	0.00	0.00	0.06	0.00	0.00	0.00
East Midlands	0.10	0.00	0.00	0.00	0.11	0.00	0.00	0.00
West Midlands Conurbation	0.04	0.00	0.00	0.00	0.04	0.00	0.00	0.00
R of West Midlands	0.07	0.00	0.00	0.00	0.06	0.00	0.00	0.00
Greater Manchester	0.04	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Merseyside	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00
R of North West	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00
South Yorkshire	0.03	0.00	0.00	0.00	0.04	0.00	0.00	0.00
West Yorkshire	0.04	0.00	0.00	0.00	0.03	0.00	0.00	0.00
R of Yorks & Humberside	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Yyne & Wear	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00
R of North	0.04	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Scotland	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Observations	10,814		1,511		5,434		2,070	

Using cross-sectional weights.

Table A.3: Married men's summary statistics

	Before 2000				Since 2000			
	England		Scotland		England		Scotland	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Hours worked	38.15	0.18	38.73	0.57	38.41	0.22	38.85	0.40
Hours worked & paid overtime	40.70	0.19	41.33	0.60	40.48	0.23	40.58	0.42
Hours worked & total overtime	43.00	0.20	42.90	0.61	42.83	0.25	42.50	0.43
Employed	0.92	0.00	0.91	0.01	0.94	0.00	0.93	0.01
Hours of housework	5.15	0.07	5.58	0.19	4.96	0.08	5.96	0.15
Mainly-joint resp for children	0.38	0.01	0.40	0.02	0.36	0.01	0.45	0.02
Age	39.02	0.08	38.52	0.24	40.86	0.09	40.39	0.17
N of children aged 0-4	0.32	0.01	0.32	0.02	0.27	0.01	0.30	0.02
N of children aged 5-15	0.86	0.01	0.77	0.03	1.04	0.02	0.96	0.03
Higher degree	0.04	0.00	0.05	0.01	0.03	0.00	0.05	0.01
First degree	0.12	0.00	0.09	0.01	0.16	0.01	0.11	0.01
Teaching qf	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Other higher qf	0.27	0.01	0.26	0.01	0.37	0.01	0.34	0.01
Nursing qf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GCE A levels	0.14	0.00	0.17	0.01	0.11	0.00	0.16	0.01
GCE O levels or equiv	0.18	0.00	0.22	0.01	0.14	0.01	0.19	0.01
Commercial qf, no o levels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CSE grade 2-5, scot grade 4-5	0.06	0.00	0.00	0.00	0.07	0.00	0.01	0.00
Apprenticeship	0.02	0.00	0.07	0.01	0.00	0.00	0.04	0.01
Other qualification	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No qualification	0.16	0.00	0.13	0.01	0.09	0.00	0.10	0.01
HH equiv income	28,733	216	29,068	798	30,820	280	30,536	588
Spouse's age	37.27	0.09	36.59	0.24	39.36	0.10	38.86	0.18
Higher degree (husband)	0.02	0.00	0.01	0.00	0.02	0.00	0.03	0.00
First degree (husband)	0.10	0.00	0.13	0.01	0.13	0.01	0.14	0.01
Teaching qf (husband)	0.04	0.00	0.03	0.01	0.03	0.00	0.03	0.00
Other higher qf (husband)	0.17	0.00	0.17	0.01	0.28	0.01	0.27	0.01
Nursing qf (husband)	0.03	0.00	0.07	0.01	0.02	0.00	0.04	0.01
GCE A levels (husband)	0.10	0.00	0.23	0.01	0.10	0.00	0.17	0.01
GCE O levels or equiv (husband)	0.26	0.01	0.21	0.01	0.23	0.01	0.18	0.01
Commercial qf (husband)	0.05	0.00	0.03	0.01	0.04	0.00	0.01	0.00
CSE grade 2-5 (husband)	0.06	0.00	0.00	0.00	0.06	0.00	0.01	0.00
Apprenticeship (husband)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other qualification (husband)	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00
No qualification (husband)	0.16	0.00	0.11	0.01	0.08	0.00	0.12	0.01
Female unempl Rate	6.42	0.01	6.80	0.03	4.47	0.00	5.14	0.01
Urban dummy	0.76	0.00	0.74	0.01	0.76	0.01	0.68	0.01
Inner London	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00
Outer London	0.08	0.00	0.00	0.00	0.06	0.00	0.00	0.00
R of South East	0.24	0.00	0.00	0.00	0.22	0.01	0.00	0.00
South West	0.09	0.00	0.00	0.00	0.11	0.00	0.00	0.00
East Anglia	0.04	0.00	0.00	0.00	0.05	0.00	0.00	0.00
East Midlands	0.10	0.00	0.00	0.00	0.11	0.00	0.00	0.00
West Midlands Conurbation	0.04	0.00	0.00	0.00	0.04	0.00	0.00	0.00
R of West Midlands	0.07	0.00	0.00	0.00	0.07	0.00	0.00	0.00
Greater Manchester	0.04	0.00	0.00	0.00	0.04	0.00	0.00	0.00
Merseyside	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00
R of North West	0.05	0.00	0.00	0.00	0.06	0.00	0.00	0.00
South Yorkshire	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00
West Yorkshire	0.04	0.00	0.00	0.00	0.03	0.00	0.00	0.00
R of Yorks & Humberside	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Yyne & Wear	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00
R of North	0.05	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Scotland	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Observations	8,888		1,203		4,507		1,611	

Using cross-sectional weights.

Table A.4: Summary statistics of housework chores: difference-in-difference

	Women			Men		
	Pre	Post	Difference	Pre	Post	Difference
Grocery shopping						
England	0.59	0.63	0.04	0.11	0.11	0.00
Scotland	0.62	0.61	-0.01	0.08	0.12	0.04
Difference	-0.03	0.02	<b>0.05</b>	0.03	-0.01	<b>-0.04</b>
Cooking						
England	0.71	0.69	-0.03	0.10	0.11	0.01
Scotland	0.67	0.62	-0.05	0.14	0.17	0.03
Difference	0.04	0.06	<b>0.02</b>	-0.04	-0.06	<b>-0.02</b>
Washing/ironing						
England	0.83	0.81	-0.02	0.05	0.04	-0.01
Scotland	0.80	0.74	-0.06	0.08	0.07	0.00
Difference	0.03	0.07	<b>0.04</b>	-0.03	-0.03	<b>-0.01</b>
Cleaning						
England	0.72	0.72	0.00	0.06	0.06	-0.01
Scotland	0.69	0.68	-0.01	0.08	0.08	0.00
Difference	0.03	0.04	<b>0.01</b>	-0.02	-0.03	<b>-0.01</b>

Using cross-sectional weights. Difference-in-difference in bold.

Not available for 1992 and 1993.

Table A.5: Impacts of the *White* case on the probability that the individual is mostly doing the following household jobs

Dependent variable	Women		Men	
	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE
Grocery shopping	0.04 (0.03)	0.03 (0.02)	-0.05** (0.02)	0.00 (0.02)
<i>Observations</i>	14,912	13,333	12,983	11,522
<i>R squared</i>	0.06	0.02	0.03	0.01
Cooking	0.03 (0.03)	-0.02 (0.02)	-0.02 (0.03)	0.00 (0.02)
<i>Observations</i>	14,911	13,333	12,983	11,522
<i>R squared</i>	0.05	0.02	0.03	0.01
Washing/ironing	0.04 (0.03)	0.01 (0.02)	-0.01 (0.01)	-0.00 (0.01)
<i>Observations</i>	14,908	13,331	12,979	11,520
<i>R squared</i>	0.05	0.01	0.03	0.01
Cleaning	0.02 (0.03)	0.02 (0.02)	-0.00 (0.02)	-0.00 (0.01)
<i>Observations</i>	14,908	13,329	12,981	11,520
<i>R squared</i>	0.06	0.01	0.03	0.01
<i>Controls:</i>				
Demographic controls	X	X	X	X
Spouse controls	X	X	X	X
Time FE	X	X	X	X
Region FE	X	X	X	X
Individual FE		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A.6: Effects of the *White* case on women's outcome: robustness checks

Dependent variable	(1) No Scotland boost		(2) Excluding London		(3) Including Wales	
	Pooled cross-sect.	Panel FE	Pooled cross-sect.	Panel FE	Pooled cross-sect.	Panel FE
Hours worked	-4.26*** (1.38)	-1.91* (1.02)	-2.37** (1.11)	-1.33* (0.75)	-2.44** (1.10)	-1.19* (0.72)
& paid overtime	-4.27*** (1.40)	-1.90* (1.04)	-2.42** (1.13)	-1.39* (0.76)	-2.18** (1.09)	-1.28* (0.72)
& total overtime	-4.70*** (1.49)	-2.04* (1.11)	-2.73** (1.19)	-1.53* (0.80)	-2.48** (1.12)	-1.21* (0.73)
<i>Observations</i>	15,526	13,291	15,982	13,778	19,556	17,080
<i>R squared</i>	0.21	0.13	0.21	0.12	0.20	0.11
Employment	-0.10*** (0.04)	-0.02 (0.03)	-0.05 (0.03)	-0.01 (0.02)	-0.04 (0.03)	-0.00 (0.02)
<i>Observations</i>	15,600	13,344	16,053	13,828	19,642	17,146
<i>R squared</i>	0.15	0.08	0.14	0.07	0.14	0.07
Houseworks	0.41 (0.88)	0.20 (0.78)	0.76 (0.70)	0.46 (0.56)	0.83 (0.69)	0.38 (0.54)
<i>Observations</i>	13,204	11,749	13,812	12,314	17,058	15,393
<i>R squared</i>	0.18	0.06	0.17	0.06	0.17	0.05
Mainly resp. for child.†	0.09 (0.06)	0.07 (0.04)	0.09** (0.04)	0.05* (0.03)	0.09** (0.04)	0.05 (0.03)
<i>Observations</i>	8,138	6,547	8,412	6,763	10,352	8,430
<i>R squared</i>	0.18	0.02	0.06	0.02	0.06	0.02
<i>Controls:</i>						
Demographic controls	X	X	X	X	X	X
Spouse controls	X	X	X	X	X	X
Time FE	X	X	X	X	X	X
Region FE	X	X	X	X	X	X
Individual FE		X		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

† It applies only to women with child(ren) under 12 in the family.

Table A.7: Effect of the *White* case on women's housework time (from 1992)

Dependent variable	Full sample		Heterogeneous results			
	Pooled cross-sect.	Panel FE	High educated		Low educated	
			Pooled cross-sect.	Panel FE	Pooled cross-sect.	Panel FE
Housework 1992-2005	1.48** (0.73)	0.62 (0.59)	1.86 (1.22)	-0.18 (0.86)	1.35 (1.00)	1.34* (0.70)
<i>Observations</i>	17,010	14,684	6,778	5,654	10,232	8,024
<i>R squared</i>	0.18	0.07	0.17	0.08	0.18	0.07
<i>Controls:</i>						
Demographic controls	X	X	X	X	X	X
Spouse controls	X	X	X	X	X	X
Time FE	X	X	X	X	X	X
Region FE	X	X	X	X	X	X
Individual FE		X		X		X

Standard errors clustered at the individual level in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## **B The definition of control variables**

To define the level of education (one of the control variable), several variables are available in BHPS. I use *qfedhi* (the highest educational qualification attained), imputing values from other variables (*ISCED* or *qfachi*, the highest academic qualification) when *qfedhi* is missing and they are not. The geographical level is available as Metropolitan area (*region*) or as Government Office Region (*region2*). I use the first one, which is more detailed, imputing information available for *region2* when *region* is missing.

The other control variables use directly the information available in the British Household Panel Survey.

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