The Impact of Marriage Property Law on Marriage and Spouses' Marriage-specific Investments[*]

Daniela Piazzalunga[†]

University of Turin and CHILD Collegio Carlo Alberto

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Abstract

This paper analyses the effects of different marital property regimes on the marriage-specific investment 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 and housework time. To assess causality, I exploit a decision taken by the English House of Lord in 2000, which provides a quasi-natural experiment, and apply a difference-in-difference, with individual fixed effects, using the British Household Panel Survey (BHPS). Preliminary results show that after the change towards an equal split of assets, married women reduced the hours worked by about 1.5-2.5 hours (slightly more if we also consider overtime). However, they didn't change the number of hours devoted to housework. Moreover, the results hide heterogeneities: as expected, in couples with higher level of assets and wealth (proxied by education) the labour supply of women decrease at the intensive margin by 4-5.4 hours per week, and at the extensive margin by 7%; again there is no impact on housework time. Among low educated women, no effect is found. The results are robust to different specifications. Results confirm that a more equal property regime changes the bargaining power of married women, but does not affect their investment in the marriage.

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1 Introduction and literature review

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), which often come at the disadvantage of their labour supply. However, it is also important to analyse the incentives that the different marital property regimes provide during the marriage, to investigate if and how they affect the traditional division of labour. In this paper I investigate if the division of assets at divorce affects female and male labour supply and housework time, after having investigated the implication for such policy on marriage and divorce rates.

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, indeed, that reforms leading to 'easier divorce' increased the divorce rate, proving that the Coase theorem does not apply to marital bargaining.

The second important strand of the literature, related to the first one as well, 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 focused on the impact of an easier divorce on women's labour supply (Stevenson, 2008; Bargain et al., 2012; Voena, forthcoming), marriage-specific capital - education, home ownership and children - (Grossbard-Shechtman et al., 2002; Stevenson, 2007), and domestic violence (Stevenson and Wolfers, 2006; Brassiolo, 2011)[1].

Some of those papers have considered if the introduction of unilateral divorce had a different impact depending on the underline marital property regime, but they fail to find a coherent results among them. Recently more attention has been given to the solely impact of different marital property regimes: Kapan (2008) for UK, Brassiolo (2013) for Spain, and Bayot and Voena (2014) for Italy find that community property reduce the labour participation of women. However, while Fisher (2012) also provides a theoretical model that predicts that a change to 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 equitable one increases women housework time, in a framework of efficient

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[1]See González (2014) for a nice summary of the impacts of divorce laws.

specialization within the household, with the husband being allowed to increase his labour supply or his human capital. Voena and her co-author provide some descriptive evidence on housework time: Bayot and Voena (2014) 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, and Voena (forthcoming) 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. To the best of my knowledge, a robust causal effect of a similar law is estimated only by Wong (2013). She investigates the impact of homemaking provisions in the US, namely the laws which recognition of the homemaking contribution in property division at divorce. She find that the homemaking provision reduces the labour supply of the wife and increases the time they devote to houseworks. With respect to Wong (2013), we do not have to worry about the contemporaneous changes from mutual consent to unilateral divorce. In addition, I estimate the impact of the a change towards a more equal distribution on the probability of marriage and divorce, on fertility and on savings.

2   Institutional background

To analyse the impact of the change from a title-based to a more equitable regime, I exploit a decision taken by the English House of Lord in October 2000 (*White v. White*, [2001] 1 A.C. 596), which provides a quasi-natural experiment.

Family law usually encompasses family relationship (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 alimonies, 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 in the past required as aggravating factor for the wife to file for divorce[2] (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 even without the consent of the other and without proving any fault[3]. González and Viitanen (2009) provide a summary of the reforms undertaken in Europe after 1950.

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

- Separation property (or 'title-based') regimes, which allocate the assets to the spouse who holds it;

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[2]Both sexes were placed on the same level in 1923.

[3]In the US, scholars refers to these changes as the 'no-fault revolution' (Wolfers, 2006) and 'unilateral divorce revolution' (Voena, forthcoming).

- Community property regimes, which split into half the total wealth own by the couple. It 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 which have a community property regime;

- Equitable distribution regimes, 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 facts (UK Government, 2015) :

- Adultery;
- (Unreasonable) behaviour[4];
- Desertion;
- Separation for more than 2 years (with mutual consent);
- 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), 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. However, there are gender differences: first of all, wives' 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%).[5]

The division of marital property follows the equitable distribution regime[6]: 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 is accustomed to (hereafter 'needs' 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

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[4]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

[5]These data are not provided for Scotland.

[6]In Ferguson v. Ferguson, 1994, the court described equitable distribution of marital property at divorce as more fair than the separate property system.

was entitled to much less than 50% of total wealth. This approach has been largely modified by the *White v White* case[7].

Mr. and Mrs. White had been married for a long period. When they divorced in 1994, their total assets accounted for more than £4 million, which make 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 'needs' approach. Then, the decision of the Court has been confirmed in October 2000 by the House of Lords, with a ruling which has been defined a 'landmark' (Smith, 2007) and a 'milestone(s) [on the] road to equality' (Dyer, 2002). Mrs. was awarded less than 50% of total wealth because Mr. White's family had contributed in the early years. This decision has been reinforced in the *Lambert v Lambert* case, 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 of role, and that she may have forgone other opportunities (see, for instance, Dyer, 2002):

> '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.'

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 (Tee, 2001). However, according to Smith (2003), the impact has been more widespread. 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 capita, whatever the level of the family's assets.'

The two journal articles just cited (as well as others not listed here) provide also some evidence on the fact that there is large media coverage about divorce cases, thus people are informed about them.

With respect to other countries, where individuals can choose between the default property regime and an alternative one, as in Italy (Bayot and Voena, 2014) and in France (Frémeaux and Leturcq, 2014), in the United Kingdom pre-marital contracts are infrequent, mainly because they

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[7]The English legal system is a common law system, where decisions of courts and tribunals make law

are not legally binding (Smith, 2003). Hence, there is no issue of individuals sorting themselves into different regimes according to some unobservable characteristics.[8]

Scotland and Northern Ireland constitute separate jurisdiction, with their 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 property regime).

Divorce law has been largely amended by the Family (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).[9] Since these changes could affect the behaviour of Scottish married people, that we use as a control group, we 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 ('unitary' model; Becker, 1981) has been abandoned, in favour of more flexible models, broadly under the cap of 'bargaining models' or 'non-unitary' models. The first models, based on cooperative game theory ('cooperative' models), have been extended to 'collective' models (Chiappori, 1988), which relies on the unique assumption that the outcomes are Pareto efficient, and to 'non-cooperative' models (Lundberg and Pollak, 1994).

'Non-unitary' models assume that the husband and the wife have two distinct utility function, 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 difference between cooperative and non-cooperative models is the definition of the threat point, either the well-being at divorce or in a non-cooperative equilibrium within marriage. Crucial are

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[8]On the other hand, *ex-post* agreements are binding and even encouraged: once the couple have reached 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', when individuals do not agree. Moreover, scholars expected pressure to make the pre-nuptial contract enforceable after the *White v. White* case (Smith, 2003). 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 is no reform, and in particular the period covered by our data is largely before that.

[9]Family Law (Scotland) Act 2006. It also partially introduced a common property system also for cohabiting couples.

the components of the bargaining power, namely those factors which affects the opportunity of the individuals outside the marriage, which are defined 'distribution factors' by Chiappori et al. (2002) when they affects individual bargaining power without changing their preferences and the budget constraint. Typical components of the bargaining power are (non-labour) income, wages, wealth, age, sex ratio, but also legislation - in particular divorce legislation. We focus here on the impact of divorce laws governing property division at divorce on the bargaining power of the spouses, modelled by Chiappori et al. (2002).

3.1 Marriage-specific investments

Let the wife to be the financially weaker spouse for the sake of the description - as however it is very often. A shift towards a more equal sharing of resources, such the one occurred in England and Wales with the *White v White* decision, causes a 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 is is hold in the name of her husband. Hence, a legal change from the 'need-based' approach to the 'yardstick of equality' increases the bargaining power of the wife with respect to that of the husband, and we should expect this to be reflected into allocation of time. The first implication is that the labour supply of the wife decreases under the more equal regime. On the other hand, the labour supply of men should increase. 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 increase in wealth that can derive should be shared with the wife upon divorce (substitution effect) (Brassiolo, 2013).

Chiappori et al. (2002) do not discuss the effect on other time-use outcomes, nor do so Kapan (2008) or Brassiolo (2013). However, it is interesting to investigating what would imply a reduction of the wife's labour supply. Fisher (2012), for instance, show 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' - since the benefits of such an investment will be shared in the case of divorce. Hence, the reduction in labour supply predicted by the model could be the consequence of the increased bargaining power of wives (Chiappori et al., 2002) or of more efficient investment in the marriage, which lead to a specialization within the couple (Fisher, 2012). In the first case, it is not implied that women increase their housework time, as it would be in the second one: since their have more bargaining power, and the allocation of time within the couple is shifted towards their preferences, they could use the spare time from work for leisure. Investigating the impact of the *White v White* change on housework time, I provide an empirical test of which channel prevails.

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 on both the marriage rate and divorce rate.

She suggests that some couple 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 men 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 increases the value of marriage and may induce more marriages. Thus, the total effect is ambiguous. Moreover, while she claims that the composition of new couples is also ambiguous, Brassiolo (2013) suggests 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. In the long run, the effect on divorce is also ambiguous, because it depends on the composition of the new couples. On the other hand, Brassiolo (2013) favours the idea that 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 also likely to be affected by the grounds for divorce. We 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 allow us to run out the selection effect, and for all married people, if one prefer to consider the total effect of the reform. Unfortunately, it is not possible to run out the selection induced by divorce.

4 Data and identification strategy

The dataset used to estimate the impact of the reform[10] on individuals behaviour are British Household Panel Survey (BHPS). The BHPS is a panel which cover from 1991 until 2008. The first wave covered about 5,500 household (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. We 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 (that we are using) take into account also for the presence of this sample, we keep it into the total sample.

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[10] For the sake of brevity, I sometimes refer to the *White v White* decision as 'reform', even though it was not a proper reform, but a judge decision which made law.

4.1 Sample selection

I do not consider the full period covered by BHPS, but only the period 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, which are our 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 available upon request).

In addition, I exclude Wales, because even though the same marriage law applies in England and Wales (while Scotland has its own ruling), the trend in hours worked in Wales was very different even before the reform, with respect to both England and Scotland (see Fig. 1 and 2). Thus, it is likely that other things were going on in Wales[11].

My main sample consist on married women aged 18-50, to avoid possible confounding effects coming from pension choices[12]. I also show results for married men aged 18-50, to assess if they react to the reform, and for non-married women.

To avoid confounding effect arising from a different selection into marriage after the reform, I consider only people married in 1999, and before and after[13].

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.

4.2 Empirical strategy

In order to investigate how the division of property at divorce affects couples' outcomes, we exploit the *White v. White* case as a quasi-natural experiment. The baseline specification is the standard one for a difference in difference, pooling the cross-sections of BHPS:

$$y_{irt} = \beta_1 Post * Treated + \boldsymbol{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + \epsilon_{irt} \tag{1}$$

The dependent variables (y) are: number of hours worked per week (usual, included paid overtime, included total overtime) and number of hours of housework per week[14]. We also estimate

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[11]Results including Wales are shown in the Appendix. Since the number of observation for Wales is pretty small, the results are similar, although significant only at 10%

[12]Results for people aged 18-55, and the most possible similar to Kapan (2008) are shown in the Appendix. Unfortunately, Kapan (2008) is not very detailed on the selection procedure which he applies, and I haven't been able to replicate exactly his results. Still, my results are in line with his findings.

[13]I also show results using the actual marital status every year - and considering only married people - and findings are very similar.

[14]To have comparable results for the impact on housework time, I also estimate the impact on labour supply, at the intensive and extensive margin. Wrt Kapan (2008), I explicitly take into account issues such as people moving

the impact on the probability of being employed, using a linear probability model with a dummy variables equal to 1 if the person is employed as dependent variables (l):

$$l_{irt} = \beta_1 Post * Treated + \boldsymbol{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + \epsilon_{irt} \tag{2}$$

In both equations, the additional control variables $\boldsymbol{X}$ are: age, age squared, the number of children aged 0-4 and the number of children aged 5-15 in the household, the level of education, household non labour income, age (linear and squared) and education of the spouse, regional female unemployment rate and a dummy for urban area. Moreover, we include region (r) and year (t) fixed effects. The dummy for the control group and for the post period which are usually included in the specification of the DD methodology are controlled for via the region and time fixed effects.

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

$$y_{irt} = \beta_1 Post * Treated + \boldsymbol{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + \eta_i + \epsilon_i rt \tag{3}$$

$$l_{irt} = \beta_1 Post * Treated + \boldsymbol{X}_{irt}\gamma + \sum_t \delta_t + \sum_r \lambda_r + \eta_i + \epsilon_i rt \tag{4}$$

The main assumption in a difference-in-difference specification is the common trend assumption. Fig. 1 and 2 show that before the reform England and Scotland presented a parallel trend.

In addition to the main results, I also evaluate if the reform had different impacts on some sub-groups of people. In particular, we expect to find a stronger impact of the reform among couples with higher level of assets, who have more wealth to split. Since income could be endogenous to the reform and to the labour supply of women, we consider education as a proxy for household income (a similar choice has been made by Brewer et al., 2012).

To assess the heterogeneous effects, we separate the sample into high and low educated individuals. We 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). [15]

In a following version of the paper, I will include also estimation of the impact on the probability of of working part-time and of being housewives. In addition, I will also estimate the impact on the probability of getting married, of divorce, on fertility, and home-ownership.

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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.

[15]In addition, BHPS has a specific module on assets and wealth in 1995, 2000 and 2005. We can also divide the sample on the basis of the level of wealth in 2000, which should not be affected strongly by the reform.

5   Descriptive

Figure 1 and 2 show the trend in weekly hours worked and in weekly hours of house chores in England and Scotland (and Wales). We can notice an increasing trend in the number of hours worked in both country, with Scottish women always working longer hours. While the trend is continuing for Scotland, after the reform the number of hours supplied by English women is reducing and below the pre-existing trend. On the other hand, the number of hours devoted to housework chores is decreasing over time for both Scotland and England, but for England the trend changes after 2000.

These figures are confirmed by Table 1, wich summarises the number of hours worked (or devoted to housework) in England and Scotland before and after the *White v. White* decision. There is a reduction of about 1.6 hours worked (1.9 if we consider total overtime) in England wrt Scotland, and reflected in an increase in housework time by 1.1 hour.

6   Results

6.1   Impact on labour supply and housework time

Table 2 presents the main results: after a shift toward a more equal marital property regime, on average married women reduce their labour supply by about 1.6 hours (FE) to 2.4 hours (OLS). Results for hours usually worked, with and without paid overtime are very similar. If we consider the total number of hours, including total overtime, the reduction is even larger[16]. There is a reduction also of the the probability of being employed (extensive margin), but it is not statistically significant.

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

Table 3 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, there is a significant reduction of the probability of being employed among them, by 7-11% . Still, there is also no significant impact on the number of hours dedicated to housework chores. Among low educated women, there is no significant impact at all.

The results of the regressions for married men are shown in Table 4. There is a negative coefficients on hours worked for them as well, but it is not significant, as we expected both because the elasticity of male labour supply is smaller, and because there are incentives in opposite directions.

There is a small negative effect on the numbers of hours in housework done by married men: in the full sample, there is a reduction by about half an hour, significant at 10% only when individual

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[16]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)

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 it not significant with fixed effects. In addition, what is interesting is that the coefficients has the opposite sign than the coefficient on housework for women, but the same magnitude. Probably, the implication of the *White v. White* change on husbands' housework time needs to be investigated further.

6.2   Divorce and marriage rates

I performed preliminary analysis of the impact of the impact of the reform on the incidence of marriage and divorce, comparing England and Wales with Scotland at the macro level. Preliminary results show that the *White v. White* decision had no impact on marriage rate, while it increases the divorce rate, at least during the first 4 years after the change (results not shown). However, additional results will follow in the probability of marriage and divorce at the micro level.

6.3   Robustness Checks

We also investigate the impact of the reform on non-married women labour supply and housework time, as a placebo: there is no significant effect (see Tables 5).

A possible concern may arise from the fact that we are using the full BHPS sample, composed also by a boost sample for Scotland and Wales introduced in 1999. Even though we are using cross-sectional weights, which should correct for the oversampling of Scotland and Wales, one may question our results, as the boost is only one year before the policy. As a robustness checks, I replicate my estimation excluding the boost sample for Scotland and the boost sample for low-income families. Results are robust to the exclusion of such samples (see Table A.1). The impact is even larger when considering OLS (a reduction of more than 4 hours), but very similar with fixed-effects.

Finally, in the Appendix (Table A.2) I also present the main results when I include also Wales. Although slightly less significant (but sit statistically different from 0), results are confirmed.

7   Conclusion

TO BE COMPLETED.

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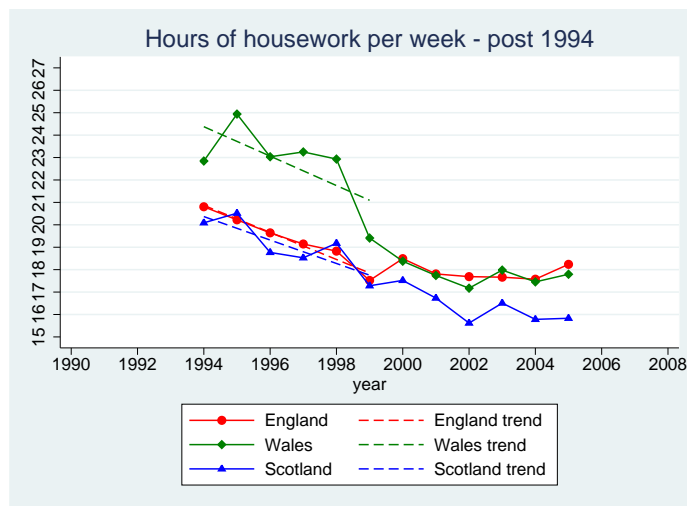
8 Figures

Figure 1: Hours worked per week, by country
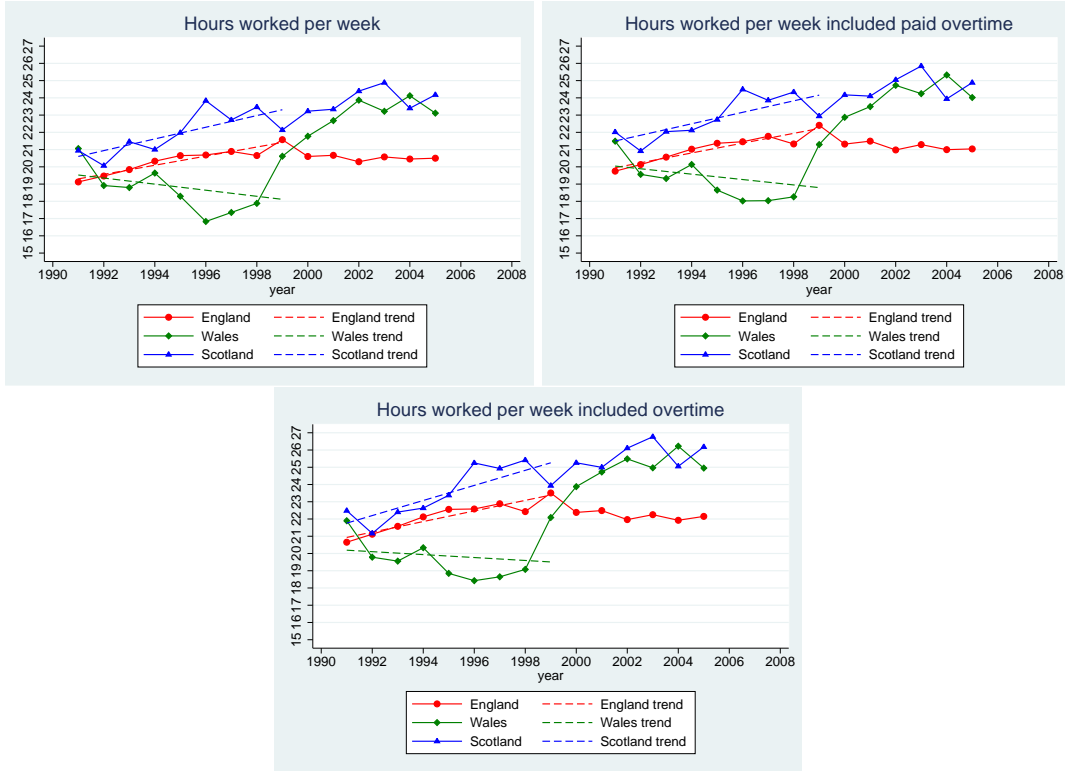
Source: BHPS

Figure 2: Hours of housework, by country

Source: BHPS

9 Tables

Table 1: Summary statistics: difference-in-difference

H. of work	Pre	Post	Difference
England	20.5	20.5	0.0
Scotland	22.2	23.9	1.7
Difference	-1.7	-3.3	**-1.6**
H. of work & paid overtime	Pre	Post	Difference
England	21.2	21.2	0.0
Scotland	23.1	24.6	1.6
Difference	-1.8	-3.4	**-1.6**
H. of work & total overtime	Pre	Post	Difference
England	22.3	22.2	-0.1
Scotland	23.8	25.7	1.9
Difference	-1.5	-3.5	**-2.0**
H. of housework	Pre	Post	Difference
England	19.2	17.9	-1.2
Scotland	18.8	16.4	-2.4
Difference	0.4	1.5	**1.1**

Table 2: Effects of the *White vs. White* case on married women's outcomes

Dependent variable	Pooled cross-sections	Panel-FE
Hours worked	-2.39**	-1.55**
	(1.07)	(0.73)
Hours workes included paid overtime	-2.40**	-1.59**
	(1.09)	(0.75)
Hours workes included total overtime	-2.71**	-1.73**
	(1.15)	(0.79)
Observations	*17,141*	*14,795*
R squared	*0.22*	*0.12*
Employment	-0.04	-0.01
	(0.03)	(0.02)
Observations	*17,219*	*14,852*
R squared	*0.17*	*0.07*
Housework	0.90	0.49
	(0.70)	(0.55)
Observations	*14,782*	*13,222*
R squared	*0.16*	*0.06*
Controls:		
Demographic controls	X	X
Spouses 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 3: Heterogeneous effects of the reform on married women's outcomes

Dependent variable	High educated		Low educated	
	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE
Hours worked	-4.66***	-4.09***	-1.34	-0.45
	(1.65)	(0.97)	(1.50)	(1.07)
Hours workes incl. paid overtime	-4.58***	-4.00***	-1.46	-0.40
	(1.68)	(0.98)	(1.53)	(1.11)
Hours workes incl. tot. overtime	-5.42***	-4.47***	-1.47	-0.24
	(1.87)	(1.12)	(1.56)	(1.11)
Observations	*6,804*	*5,677*	*10,337*	*8,103*
R squared	*0.18*	*0.12*	*0.22*	*0.11*
Employment	-0.11***	-0.07**	-0.01	0.03
	(0.05)	(0.03)	(0.04)	(0.03)
Observations	*6,836*	*5,699*	*10,381*	*8,136*
R squared	*0.19*	*0.07*	*0.11*	*0.08*
Housework	1.17	-0.36	0.82	1.21*
	(1.15)	(0.83)	(0.96)	(0.67)
Observations	*6,130*	*5,206*	*8,652*	*7,183*
R squared	*0.16*	*0.07*	*0.16*	*0.05*
Controls:				
Demographic controls	X	X	X	X
Spouses 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 4: Effect of the reform on married men's outcomes

| Dependent variable | Full sample | | Heterogeneous results | | | |
| | | | High educated | | Low educated | |
	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE
Hours worked	-0.65	-0.96	-1.63	-1.27	0.39	-0.11
	(1.15)	(0.66)	(1.45)	(1.05)	(1.73)	(0.79)
& paid overt.	-0.70	-0.57	-1.21	-0.96	0.77	0.18
	(1.27)	(0.80)	(1.60)	(1.15)	(1.83)	(0.93)
& total overt.	-0.23	-0.59	-1.51	-1.17	0.16	0.41
	(1.24)	(0.76)	(1.62)	(1.19)	(1.84)	(0.98)
Observations	*14,855*	*12,683*	*7,208*	*5,871*	*7,647*	*5,867*
R squared	*0.12*	*0.03*	*0.07*	*0.02*	*0.24*	*0.08*
Employment	-0.03	-0.01	-0.01	-0.00	-0.03	0.01
	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)
Observations	*14,931*	*12,742*	*7,241*	*5,900*	*7,690*	*5,894*
R squared	*0.19*	*0.05*	*0.09*	*0.04*	*0.31*	*0.11*
Housework	-0.48	-0.48*	-0.89**	-0.50	-0.32	-0.42
	(0.38)	(0.25)	(0.45)	(0.32)	(0.56)	(0.39)
Observations	*12,890*	*11,452*	*6,021*	*5,101*	*5,878*	*4,955*
R squared	*0.05*	*0.01*	*0.09*	*0.01*	*0.05*	*0.04*
Controls:						
Demographic controls	X	X	X	X	X	X
Spouses 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 in parentheses.

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

Table 5: Placebo: Effect of the reform on non-married women's outcomes

Dependent variable	Full sample		Heterogeneous results			
			High educated		Low educated	
	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE	Pooled cross-sections	Panel-FE
Hours worked	-0.46	0.06	-0.16	-0.18	-0.30	0.46
	(0.88)	(0.79)	(1.33)	(1.31)	(1.20)	(1.07)
& paid overt.	-0.37	0.03	0.08	-0.04	-0.30	0.33
	(0.93)	(0.81)	(1.38)	(1.34)	(1.27)	(1.10)
& total overt.	-0.43	0.09	-0.26	0.10	-0.32	0.31
	(0.96)	(0.84)	(1.50)	(1.45)	(1.29)	(1.12)
Observations	*23,768*	*14,982*	*9,738*	*5,824*	*14,030*	*7,322*
R squared	*0.28*	*0.16*	*0.21*	*0.11*	*0.30*	*0.10*
Employment	-0.00	0.02	0.00	0.02	-0.00	0.03
	(0.03)	(0.02)	(0.04)	(0.03)	(0.04)	(0.03)
Observations	*23,870*	*15,042*	*9,802*	*5,860*	*14,068*	*7,341*
R squared	*0.24*	*0.18*	*0.16*	*0.11*	*0.25*	*0.07*
Housework	0.26	0.36	-0.92	-0.34	0.93	0.61
	(0.54)	(0.40)	(0.62)	(0.52)	(0.79)	(0.65)
Observations	*18,941*	*12,937*	*8,303*	*5,197*	*10,638*	*6,306*
R squared	*0.32*	*0.06*	*0.29*	*0.09*	*0.33*	*0.04*

Standard errors clustered at the individual in parentheses

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

A Appendix

A.1 Variables definition

Hours worked are imputed to 0 for non-working people.

To define the level of education, several variables are available in BHPS. We used *qfedhi* (the highest level of eduction attained), imputing values from other variables (*ISCED* or *qfachi*) when *qfedhi* is missing and they are not.

The geographical level is available as Metropolitan area (*region*) or as Government Office Region (*region2*). We use the first one, which is more detailed, imputing information available for *region2* when *region* is missing.

A.2 Additional tables

Table A.1: Impact of the reform on married women's outcomes, excluding boost sample

Dependent variable	Pooled cross-sections	Panel-FE
Hours worked	-4.43***	-1.89*
	(1.30)	(1.04)
Hours workes included paid overtime	-4.37***	-1.86*
	(1.33)	(1.06)
Hours workes included total overtime	-4.94***	-2.04*
	(1.40)	(1.13)
Observations	*14,794*	*12,624*
R squared	*0.23*	*0.13*
Employment	-0.09***	-0.01
	(0.03)	(0.03)
Observations	*14864*	*12674*
R squared	*0.17*	*0.08*
Houseworks	0.47	0.02
	(0.91)	(0.81)
Observations	*12,481*	*11,091*
R squared	*0.18*	*0.06*
Controls:		
Demographic controls	X	X
Spouses controls	X	X
Time FE	X	X
Region FE	X	X
Individual FE		X

Table A.2: Impact of the reform on married women's outcomes, including Wales

Dependent variable	Pooled cross-sections	Panel-FE
Hours worked	-2.14**	-1.26*
	(1.07)	(0.71)
Hours workes included paid overtime	-2.18**	-1.28*
	(1.09)	(0.72)
Hours workes included total overtime	-2.46**	-1.39*
	(1.15)	(0.77)
Observations	*19,526*	*17,057*
R squared	*0.21*	*0.11*
Employment	-0.04	-0.00
	(0.03)	(0.02)
Observations	*19,612*	*17,123*
R squared	*0.17*	*0.07*
Houseworks	0.82	0.39
	(0.70)	(0.54)
Observations	*17,031*	*15,371*
R squared	*0.16*	*0.05*
Controls:		
Demographic controls	X	X
Spouses controls	X	X
Time FE	X	X
Region FE	X	X
Individual FE		X