

**SHARING OR NOT SHARING?
HOUSEHOLD DIVISION OF LABOR AND MARITAL
STATUS IN FRANCE 1985-2009**

**Lamia Kandil
Hélène Périvier**

Revised version

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ABSTRACT

This paper aims to explain why the division of domestic labor within couples differs according to their marital status. We analyze the evolution of the gender division of labor in France using time-use surveys (1985, 1999 and 2009). In 1985 and in 1998, married women were performing a larger share of domestic labor than cohabiting women. In 1985 this gap is explained by differences in the observed characteristics of married and cohabiting couples, whereas by the late 1990s cohabiting couples were opting for an organization that was less unequal than that of married couples, all else being equal. In 2009, the average share of domestic labor performed by women was about the same whether they were cohabiting or married (72% and 73.5%), but it was significantly lower for women in civil union, which was introduced in 1999 (65.1%). The self-selection process of couples regarding their gender ideology might explain this result: the civil partnership attracts more egalitarian couples.

KEY WORDS

Domestic labor, Marital status, Gender, Time use survey, Matching method

JEL

D13 ; J12 ; J16 ; J22

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Abstract

This paper aims to explain why the division of domestic labor within couples differs according to their marital status. We analyze the evolution of the gender division of labor in France using time-use surveys (1985, 1999 and 2009). In 1985 and in 1998, married women were performing a larger share of domestic labor than cohabiting women. In 1985 this gap is explained by differences in the observed characteristics of married and cohabiting couples, whereas by the late 1990s cohabiting couples were opting for an organization that was less unequal than that of married couples, all else being equal. In 2009, the average share of domestic labor performed by women was about the same whether they were cohabiting or married (72% and 73.5%), but it was significantly lower for women in civil union, which was introduced in 1999 (65.1%). The self-selection process of couples regarding their gender ideology might explain this result: the civil partnership attracts more egalitarian couples.

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1. Introduction

Despite the increase in female participation in the labor market, women still do a greater proportion of housework and childcare than men. Research on the domestic division of labor within couples suggests that cohabiting couples have less traditional organization than married couples: cohabiting women perform less domestic labor than married women whereas cohabiting men report performing more domestic labor than married men (Blair and Lichter 1991; Baxter 2001; Davis et al. 2007; Dominguez-Folgueras 2012; Bianchi et al. 2014). The differences in sharing the housework according to the union type can be explained by three main factors. The sociologic, economic and demographic characteristics of couples might differ from one type of union to another (hereafter called *characteristics effect*): cohabiting couples can have specific characteristics relative to married couples (education level, involvement in paid work, number of children...) leading to a more egalitarian organization (Dominguez-Folgueras 2012). The differences in legal regulation of unions (hereafter called *marital status effect*) constitute another factor: the degree of institutional support of the marriage relative to cohabitation can create greater incentives for married partners, especially women, to invest in home production. Conversely, specialized couples can opt for marriage because it offers a legal frame adapted to their organization (Barg and Beblo 2012). The gender gap in paid and domestic work between partners is then expected to be larger in the most regulated unions (Bianchi et al. 2014). Finally, values such as religion, preferences in terms of parenthood or gender norms are another category of factor. Indeed, couples with egalitarian values are opting for a more equal sharing in the domestic work (Greenstein 2000; Nitsche and Grunow 2016). Consequently, if a specific union type attracts individuals holding gender equal values, then the share of domestic work performed by the woman within these couples is expected to be lower than in the other types of union. Cohabiting couples can be committed to more egalitarian values than married couples inducing a lower share of domestic work performed by the woman (hereafter called *gender ideology effect*).

This paper contributes to the existing literature in three ways. Firstly, it explains the gap in sharing domestic labor within couples according to their marital status and the evolution of the gender division of labor, using three waves of the French time-use surveys (1985-86, 1998-99 and 2009-10). We account for the self-selection of couples in the different types of union with regard to their observable characteristics. Ignoring this effect may bias the impact of the institutional context. Secondly, it provides a key contribution to the understanding of the connections between legal regulation of unions and gender ideology to explain the gendered division of labor in couples, whereas most papers focus on one or the other factor. Thirdly, it sheds light on the impact of a modification in the legal regulation of unions on couples' choices. The French case is particularly enlightening to this respect. In 1999, a legal framework [*Pacte civil de solidarité* – PACS] that is intermediary in terms of regulation between cohabitation and marriage has been implemented. This civil union is gender neutral, and not restricted to same sex couples. Other countries, such as the Netherlands (1998), Portugal (1999), Belgium (2000) and Luxembourg (2004) have implemented similar legislations. This new institutional context enables us to reveal the role of the gender ideology as a factor explaining the difference in the division of domestic labor within couples according to the type of unions.

Using the OLS methodology, we analyze the differences in division of domestic labor according to the types of union controlling for the characteristics observed in the time-use Surveys. Yet, the OLS cannot identify the three potential factors explaining these disparities due to the self-selection of couples into different types of union. Thus, the matching methodology is used to control for the *characteristics effect* - a potential remaining gap in terms of sharing the domestic task according to the marital status is thus far explained by the two other effects. Time-use surveys do not contain information relative to values. To disentangle the *marital status effect* and the *gender ideology effect* we use data from the International Social Survey Programme (ISSP), including information on values and on gender ideology. Confronting the expected sense of each effect and the observations in the data for the different years, we identify which one prevails in explaining the differences in the division of domestic labor according to marital status.

We find that in 1985 and in 1998, the proportion of domestic work performed by women was higher in married couples (80.9% in 1985, 82.1% in 1998) than in cohabiting couples (75.1% in 1985, 75% in 1998). For 1985, the gap is

explained by differences in observable characteristics of couples between the two types of union. However, in the late 1990s, cohabiting couples opted for a less unequal organization than married couples did, all else being equal. While at the beginning of the period, cohabitation was often a “prelude to marriage” (Villeneuve-Gokalp 1990), by the late 1990s it had become a widespread and socially accepted alternative to marriage (Toulemon 1996; Prioux 2009). In 2009, the average domestic work performed by women is about the same whether they cohabit or are married (72% and 73.5%), but it is significantly lower for women in civil partnerships (65.1%). This gap is not due to differences on observable characteristics. Two non-exclusive interpretations are possible. The *marital status effect* can explain the gap between cohabiting and married couples observed in 1998, but it does not explain the results observed in 2009: PACS couples opt for a more equal organization than cohabiting couples, and cohabiting and married couples opt for a comparable organization. A self-selection of couples based on unobservable characteristics constitutes a second interpretation. More specifically, this unobserved heterogeneity involves, among other effects, values regarding gender equality to which individuals are committed (*gender ideology effect*). We speculate that this last effect could explain the dynamics observed in the three surveys. Statistics from the ISSP substantiate this hypothesis: persons who opt for a civil union (PACS) adhere to more gender egalitarian values than those who cohabit or are married. Therefore, our findings can be interpreted as following: in 2009, civil partnership attracts the most egalitarian couples in terms of their gender ideology, while prior to the introduction of the civil partnerships these couples opted for cohabitation.

2. Background

2.1 Why do couples specialize?

Economic resources and gender norms are key factors that affect the division of housework among couples. The bargaining power impacts the degree of specialization of labor within the couple, depending on the actual or potential contribution of each partner to the family’s income. Indeed, men whose partner earns more than them do more housework than other men, although women still do more than their partner (Lyonette and Crompton 2015). Women’s housework is negatively associated with their own earning, and this effect is greater than the effect of their partner’s earning (Gupta 2006). The contribution of each partner to the household’s income determines their respective bargaining power and then the sharing of domestic labor. The empirical literature on the time availability factor evaluates the effect of the paid work of both partners on the distribution of domestic work. Women working full-time contribute less to the domestic work than women who are inactive or working part-time, and dual-earner couples are more egalitarian in terms of sharing domestic work (Gershuny 2000). Men who spend less time in paid work, spend more time on domestic work. When both partners work full time, the distribution of domestic and family work becomes less unequal, but women still perform a larger share than do their partners (Ponthieux and Schreiber 2006). Unemployment is associated with a reallocation of time spent in housework that is more disadvantageous for unemployed wives than for unemployed husbands (Gough and Killewald 2011).

The theory of “gender deviance neutralization” contradicts the empirical findings coming from the economic resources and time availability literature. According to this approach, gender norms influence the gender division of labor via the daily construction of identity. Men who are financially dependent on their partners compensate for this deviance from gender norms by investing less in domestic chores. For the same reasons, women working full-time tend to increase their contribution to domestic duties if their partner loses his job (Brines 1994; Greenstein 2000; Evertsson and Neramo 2004). Killewald and Gough (2010) have shown that the relationship between wives’ earning and their housework is not linear: high income women do not decrease the time they spend in housework when their earning increases as they already outsource a large part of domestic work, but low income women do (Killewald and Gough 2010). Finally, the injunction to perform gender has less impact on decisions to share housework than the relative bargaining power of each partner through their wages (Bianchi et al., 2000; England, 2011; Ponthieux & Meurs, 2015; Sullivan, 2011). Beyond the economic and gender perspectives, the institutional environment might affect the division of housework. The type of unions might explain the specialization of couples or might be an outcome of it.

2.2 Marital status and division of labor within couples

In general, cohabiting couples adopt patterns of sharing domestic and family work that are more egalitarian than married couples (Baxter, 2005; Bianchi et al., 2014; Davis et al., 2007; Dominguez-Folgueras, 2012). Socio-economic and demographic factors impact both the division of labor within the couple and the choice of marital status (*characteristics effect*). The greater specialization of married couples with respect to cohabiting couples observed in many countries is partly due to differences in the observable characteristics of couples (educational level, wages, etc.). In Italy, cohabiting women are more educated and better integrated into the labor market and perform less housework than married women (Kiernan 2002, Bianchi et al. 2014). But economic resources alone cannot explain the gender division of labor according to the types of union, since married women bear a greater burden of the domestic work compared to cohabiting women regardless of their respective incomes. Having children is also an important factor to be considered: married couples can specialize more than cohabiting couples due to their greater likelihood of having a child (Barg & Beblo, 2012).

The legal regulation of each type of unions provides another factor to explain the differences in sharing domestic labor according to the type of union. Marriage tends to confer more legal rights and obligations than cohabitation. The risk and uncertainty in case of separation is then higher for cohabiting than for married individuals. In this context, the degree of specialization between partner is expected to be larger in the most regulated unions like marriage, and lower in cohabiting relationships. Bianchi et al. (2014) test this hypothesis by using the difference in marital regimes in three countries (France, the USA and Italy). They expect that the differences in time spent in paid and domestic work between cohabiting and married couples will be largest in Italy, where the legal regulation of cohabitation is lowest, followed by the United States and smallest in France, where cohabitation, in which they include PACS unions, is close to marriage. They find that cohabiting women do less domestic work than married ones, but after having controlled for observable characteristics, the difference disappears for France and the USA, except in Italy. In Nordic countries, cohabiting couples have similar rights to those granted to married couples (Sanchez Gassen and Perelli-Harris 2015) and couples are less specialized than in other countries (Davis et al. 2007).

The sense of the causal relationship between marital status and specialization (*marital status effect*) is undetermined *a priori*. Couples can specialize after marrying in response to the social protections and benefits associated with marriage. In this case, the regulatory framework for marriage offers an incentive for couples to adopt a gender specialization. Couples can also specialize and then marry to benefit from the protection adapted to their organization. Marriage is then the response, rather than the cause, to the couple's specialization. The marriage institution would then be viewed as an insurance system that guarantees protection and commitment of the working partner, the man, to the partner who specializes in domestic work, the woman. This protection extends beyond the union itself with a right to a compensatory allowance in case of divorce. The two relationships do not exclude one another: it is possible that couples begin to specialize before marriage, then marry as a result, and reinforcing this specialization (Barg and Beblo 2012).

The gender ideology approach provides another perspective of the division of labor within couples. Gender ideology can be measured using a scale ranging from upholding an egalitarian value of the couple (favorable to sharing domestic and family responsibilities) to upholding conservative values of the couple (favorable to the male breadwinner model). Men who have egalitarian values are more involved in housework than men with conservative values (Greenstein 2000). With a life course perspective, egalitarian ideology of both partners leads to more egalitarian division trajectories in Germany (Nitsche and Grunow 2016). The social perceptions associated with each type of union explain the link between gender ideology and the type of union (*gender ideology effect*). Cohabitation can be seen as a prelude to marriage, or it can represent an alternative based on a rejection of marriage viewed as a patriarchal institution, or it can be well accepted and widespread along with marriage (Heuveline and Timberlake 2004). Married couples behave more in accordance with gender norms, and specialize more than unmarried couples do (Shelton and John 1993). In Italy, cohabiting women adhere to more egalitarian values and perform less housework than married women. They have a higher labor force participation rate (Bianchi et al., 2014; Dominguez-Folgueras, 2012). This effect is linked to the self-selection on observable characteristics: in the most educated couples, partners share more egalitarian norms (Dominguez-Folgueras 2012). Along with gender ideology, other characteristics can induce a selection in the different types of union (such as religious belief, subjective perception of parenthood and so on.). As far as gendered division

of labor within couples is concerned, we focus on the gender ideology as the main contributor among values to explain the specialization within couples.

3. Data and descriptive statistics

3.1 France as a case study

French women perform 71% of the housework (cleaning, cooking, laundry) and 65% of the family work (caring for children) (Champagne et al. 2015). While the time women spend on domestic work has decreased since the 1980s, the amount men spend has remained stable. An analysis of the division of labor within couples, not averaged over the population, helps to refine these trends. Indeed, women in couples perform more housework and family work than do other women (Roy 2012). The arrival of children reinforces the unequal sharing of tasks within the couple, even though fathers are devoting more time to the education of children, as the amount spent by mothers has also increased since the 1980s (Régnier-Loilier and Hiron 2010; Ricroch 2012).

Since the late 1990s, cohabitation has been a socially accepted mode of union, and the arrival of a child no longer triggers a marriage. In France, as in the Nordic countries, the proportion of children born outside marriage is among the highest in Europe (Prioux 2009). But the differences in social, tax and legal regulations between the two unions are much more marked in France than in the Nordic countries (Sanchez Gassen et al. 2015). The French welfare state provides protections for married women and compensation for their investment in domestic production (for example, survivors' benefits, rights and duties between partners with compensation in case of divorce). Cohabitation is not subject to any kind of compensation or obligation towards the partner who specializes in domestic production and family work, even partially¹. If the partnership ends, the risk associated with the gender division of labor for cohabiting couples is then borne entirely by the woman. The implementation of the civil partnerships (PACS) in 1999 has partly and gradually incorporated some protections initially reserved for marriage (Table 1). Since 2005, PACS couples are subject to joint taxation as married couples. This has increased the PACS rate (Leturcq 2012). Progressively, heterosexual couples opting for the PACS have risen: in 2011, 75% of couples are married, 20% are cohabiting couples and 5% are under the PACS legislation (Buisson & Lapinte 2013). This specific type of civil union is a symptom of the rejection by the French society of cohabitation as a form of union with rights and duties: “no duties, thus no rights with respect to the welfare state” (Martin and Théry 2001).

The few studies available show that French women perform more domestic work than men regardless of whether they are married or cohabiting. These studies focus on individual averages calculated on all the people living in couples. Dominguez-Folgueras (2012) found that unmarried couples are more egalitarian than married couples regarding the distribution of domestic chores, but the data used (MTUS²) does not make it possible to distinguish between cohabiting couples and PACS couples. Bianchi et al (2014) show that the paid working hours of married women and cohabiting women are roughly the same (within 4 minutes) (Bianchi et al. 2014). They focus on the role of the institutional on the gender gap in paid and unpaid work between married and cohabiting individual.

This paper examines this matter in greater depth by looking at couples, and not individuals, to show the links between the gender division of labor and marital status in France. Taking account of civil partnerships as a form of union distinct from marriage and cohabitation helps to clarify the existing literature with respect to behavior in terms of the division of labor within couples. After having controlled for the *characteristics effect*, we test the two following hypotheses using the changes over time and the impact of the introduction of the PACS in 1999:

¹ The obligations toward children are the same under each type of union.

² Multinational Time Use Surveys.

- ✓ Hypothesis 1: According to the *marital status effect*, the more regulated is a union, the stronger is the division of labor within the couple. Marriage is the most institutionalized union, followed by the PACS (for the year 2009), and then cohabitation that confers few legal protections and obligations (Table 1). We expect to observe the share of domestic work performed by the woman should be lower in cohabiting couples, followed by PACS couples (for the year 2009) and then higher in married couples.

- ✓ Hypothesis 2: The *gender ideology effect* implies that couples with egalitarian values opt for a more equal sharing process in the domestic work. Then, it follows that if a specific union form attracts more egalitarian couples, then the proportion of work performed by the woman within these couples is lower than in other types of union.

Table 1 Social protection, legal and tax frame for different types of union in France

	Marriage	Civil partnership (PACS)	Cohabitation
Formality	<ul style="list-style-type: none"> - Act performed before a civil registrar - In the absence of a prior marriage contract, the spouses are married under the legal regime of community property limited to acquired assets 	<ul style="list-style-type: none"> - Joint declaration before the Court Clerk (or civil partnership agreement before a Notary Public) 	<ul style="list-style-type: none"> - Cohabitation without formality
Obligations	<ul style="list-style-type: none"> - Material aid and reciprocal assistance - Contribution to the marriage burden in proportion to respective capabilities - Joint solidarity for current debts 		<ul style="list-style-type: none"> - No obligation
Income tax	<ul style="list-style-type: none"> - Common taxation with joint solidarity of the spouses or partners for payment (<i>since 2005 for civil partnerships; before 2005 separate taxation during the first 3 years of partnership then joint</i>) 		<ul style="list-style-type: none"> - Separate taxation - No joint solidarity
ISF wealth tax	<ul style="list-style-type: none"> - Joint taxation 		<ul style="list-style-type: none"> - Joint taxation in case of declared cohabitation
Inheritance rights	<ul style="list-style-type: none"> - The surviving spouse inherits in full and benefits from a right to the home 	<ul style="list-style-type: none"> - Civil partners do not inherit from one another: a will is necessary - Temporary right to the home 	<ul style="list-style-type: none"> - Cohabitants do not inherit from one another: a will is necessary
Transfer duties	<ul style="list-style-type: none"> - Exemption from inheritance tax (<i>since 2008 for civil partnerships</i>) - For a gift of current goods, abatement and then application of a progressive tax rate (from 5% to 45%) 		<ul style="list-style-type: none"> - No exemption on inheritance tax - Transfer duty of 60% after abatement

Health insurance and social security	<ul style="list-style-type: none"> - A partner without their own social security coverage benefits from their partner's coverage, regardless of marital status - Conditional right to survivor's benefit 		
Pension rights	<ul style="list-style-type: none"> - Conditional right of the widow or widower to a survivor's pension 	<ul style="list-style-type: none"> - No right to a survivor's pension 	
Divorce / Dissolution	<ul style="list-style-type: none"> - Divorce pronounced legally by a judge in the family court - Grant of a compensatory allowance intended to correct disparities in living standards related to the divorce 	<ul style="list-style-type: none"> - Mutually agreed termination (Notary Public) or unilateral (bailiff) - No compensatory allowance - The civil partnership terminates upon marriage 	<ul style="list-style-type: none"> - Termination freely - No compensatory allowance

Source : Jurisdefi, *La vie du réseau*, March 2013, no. 5

3.2 The data

Time-use surveys available for 1985, 1998 and 2009 are used to explore changes in the repartition of domestic labor within couples according to their marital status. The Insee³ executed these three Time-use surveys over 12 months and within metropolitan France. They include a questionnaire describing the household's composition, a second questionnaire provides information about the surveyed subject, and an individual diary (detailing activities within an interval of 5 minutes for the 1985 survey and 10 minutes for the two other surveys). This methodology to collect data in the French time use survey is identified in the literature to be the most reliable (Geist 2010; Ponthieux 2015), even though some gender biases can still exist. For the 1985 and 1998 surveys, two types of couples are distinguished: married couples and cohabiting couples. Since the PACS law was passed in 1999, the 2009 survey added PACS couples. Married couples are those who declare their marital status to be "married" (or "remarried"), PACS couples are those who declare they have contracted a civil partnership, and cohabiting couples are couples who live together but have not declared being married or in a PACS.

For the 1985 and 1998 surveys, the individuals complete a diary for a day of the week (which can be a day of the workweek or of the weekend). For the 2009 survey, each individual fills out a diary for a weekday except the weekend and a diary for one day of the weekend. When an individual is surveyed, this necessarily implies the partner will be too, and both partners fill out their diary on the same day⁴. As the use of time and its distribution between partners vary between weekends and weekdays, we take this into account using an indicator to control for the day during which the notebook was filled out.

The sample used for the analysis includes households for which the reference person lives as part of a couple with another member of the household. Only the 2009-10 time-use survey has a variable relative to the fact that the partners have lived together for over a year, and this variable has not been filled in well: not retaining the couples for whom the value is missing would have led to reducing the sample size by 1108 couples. Complex households, with other housemates (accommodation of parents or relatives) are excluded from the analysis, at least one member of the couple is active; couples in which one partner is student, retired or disabled have been excluded from the analysis, only couples

³ The National Institute of Statistics and Economic Studies.

⁴ The days reported by both partners are randomized and fixed by the investigators; they are not left to the choice of respondents.

in which both partners have filled in the diaries are retained, only couples in which both partners are between age 25 and 55 are included, same-sex couples are excluded; their representation in the databases is too small to control for this characteristics in the econometric analysis. In the 2009 survey, the initial data holds 16 242 individuals (20 370 individuals in the 1998 survey and 10 373 individuals in the 1985 survey). After the selection based on the criteria described above, the final sample consists of 2873 couples (2715 couples for the 1998 survey, and 3334 couples for the 1985 survey). We also have withdrawn from the sample the few couples for which we do not have all the requested information to run the analysis.

The datasets contain detailed information on the tasks performed by each partner during the day. The scope of domestic work used for the analysis includes the most burdensome everyday activities: cooking, dishwashing, laundry, putting away and cleaning, household management, trips, caring for children, caring for adults, and miscellaneous.⁵ This definition used by Roy (2012) excludes tasks considered intermediate or semi-leisure: sewing, repairing, gardening, fishing, or time spent in leisure with children or in education etc. The definition of both housework and childcare used for the analysis is restricted to the routine tasks. The description of the sample regarding the different characteristics is given in the Table 2.

⁵ Maintenance of heating and water, other household maintenance work, etc.

Table 2: Characteristics of individuals and households based on the type of union, by survey

	1985		1998		2009		
	Marriage	Cohabitation	Marriage	Cohabitation	Marriage	Cohabitation	PACS
Characteristics of members of the couple related to the labor market							
Inactive woman	33%	17%	22%	12%	13%	9%	8%
	[1026]	[41]	[480]	[62]	[268]	[63]	[15]
Part-time woman	14%	11%	12%	11%	12%	12%	11%
	[431]	[26]	[272]	[57]	[238]	[81]	[19]
Unemployed man	3%	8%	4%	9%	5%	9%	6%
	[98]	[20]	[95]	[48]	[103]	[63]	[11]
Unemployed woman	3%	10%	7%	12%	5%	8%	3%
	[106]	[24]	[146]	[64]	[94]	[58]	[5]
Bargaining power	nd	nd	-0,15	-0,09	-0,10	-0,07	-0,09
			(-0,99;0,99)	(-0,5;0,71)	(-0,89;0,89)	(-0,80;0,59)	(-0,69;0,28)
Individual characteristics							
Man w/o high school degree	75%	67%	66%	60%	52%	57%	31%
	[2318]	[164]	[1444]	[309]	[1043]	[388]	[55]
Woman w/o high school degree	74%	61%	62%	56%	41%	42%	20%
	[2277]	[149]	[1362]	[286]	[816]	[288]	[35]
Man w/ high school degree	12%	12%	11%	13%	9%	9%	11%
	[358]	[29]	[252]	[68]	[182]	[63]	[19]
Woman w/ high school degree	12%	17%	14%	13%	14%	13%	8%
	[362]	[41]	[318]	[70]	[277]	[90]	[14]
Man w/ high school degree plus	13%	21%	23%	27%	39%	34%	58%
	[413]	[50]	[505]	[137]	[787]	[232]	[104]
Woman w/ high school degree plus	15%	22%	23%	31%	46%	45%	72%
	[451]	[53]	[521]	[158]	[919]	[305]	[129]
Average age of the 2 partners in years	38	33	41	36	42	37	34
Age difference (man minus woman)	2,3	2,0	2,2	2,3	1,9	2,1	2,1
Characteristics of the household							
Average Number of dependent children	1,7	1,0	1,7	1,2	1,7	1,3	1,1
	(0;8)	(0;5)	(0;10)	(0;6)	(0;9)	(0;5)	(0;5)
% of couple who own a Washing dishes	42%	25%	63%	40%	80%	58%	73%
	[1285]	[61]	[1392]	[207]	[1603]	[399]	[130]
% of couple who own a Washing clothes	98%	95%	99%	97%	99,65%	98%	99%
	[3043]	[232]	[2181]	[498]	[2005]	[667]	[177]
% of couples who have a child < 3 yrs	23%	28%	15%	25%	14%	20%	34%
	[710]	[67]	[346]	[128]	[282]	[140]	[61]
% of couples living in rural area	29%	18%	30%	22%	30%	30%	23%
	[904]	[43]	[666]	[113]	[604]	[206]	[41]
Total domestic work time performed by the 2 partners (mn/day)	343	284	306	282	291	281	299
	(5;1080)	(15;950)	(10;1080)	(10;1110)	(10;1207)	(10;920)	(10;980)
Share of domestic work performed by the woman	81%	75%	82%	75%	73%	72%	65%
Total no. of couples	3091	243	2201	514	2012	683	178

Sources: Time-use surveys, 1985-86, 1998-99, 2009-10, Insee.

Scope: Couples in which two members have filled out the diaries and at least one of whom is active.

NB: Bargaining power is defined as the ratio between the hourly wage gap (woman minus man) and the sum of the hourly wage of both partners.

Interval measures between parentheses / Sample size in brackets

3.3 Times dedicated to paid work and domestic work

Table 3 describes the weekly time spent on domestic work and paid work by women and men living in couples according to their marital status and the average share performed by the woman for each category of couples, for the three surveys. The average share of domestic work performed by the woman in married couples was 80.9% in 1985 (82.1% in 1998) against 75.1% in cohabiting couples. However, in 2009 the average share of domestic work performed by the woman is much the same whether married (73.5%) or cohabiting (72%). This convergence is the result of two trends: the share carried out by married women has declined significantly, which is part of a general downward trend in the time women spend on domestic work. Thus, the extent of the gender division of labor in married couples grew closer to the level observed in cohabiting couples. Simultaneously, the introduction of the PACS in 1999 changed the institutional context: women in civil partnerships are the ones who perform the lowest share of domestic work in average (65.1%). At the same time, men in PACS couples carry out 2 hours and 30 minutes more of domestic tasks than married men, compared with a gap of only 3 minutes between married and cohabiting men.

Data concerning time dedicated to paid work are incomplete (as detailed in the footnote of the table), so the results must be interpreted with caution. Nevertheless, we observe that women in PACS couples worked more than others, around 31 hours a week against 28 hours for cohabiting women and 27 hours 50 minutes for married women. Combined with the trend in domestic work, this explains why the average share of total work (paid and domestic work) performed by the woman is higher in cohabiting couples (52%) compared with married (50.4%) and PACS couples (50.7%). Married women performed around 1 hour and 53 minutes more of domestic work compared to PACS women and 56 minutes more than cohabiting women. They perform 3 hours and 10 min less of paid work than PACS women and 22 minutes less than cohabiting women. In average the share of total work performed by the woman is comparable in married couples and PACS couples, but the repartition between paid and domestic work differs.

Table 3: Descriptive statistics on the division of labor within couples according to the types of union

in hours per week (hr:mn:sc)	Marriage			Cohabiting			PACS
	1985	1998	2009	1985	1998	2009	2009
Paid work performed by the woman	22:02:00	23:19:00	27:50:00	26:59:00	25:34:00	28:12:00	31:00:00
Paid work performed by the man	40:07:00	36:29:00	38:09:00	36:35:00	34:15:00	35:25:00	37:27:00
<i>Average share of paid work performed by the woman (in %)</i>	30,3%	34,5%	39,9%	39,5%	39,8%	43,0%	44,5%
Domestic work performed by the woman	23:23:00	20:56:00	17:48:00	18:02:00	17:47:00	16:52:00	15:55:00
Domestic work performed by the man	5:12:00	4:37:00	6:29:00	5:40:00	5:43:00	6:32:00	8:59:00
<i>Average share of domestic work performed by the woman (in %)</i>	80,9%	82,1%	73,5%	75,1%	75,0%	72,0%	65,1%
Total work performed by the woman	45:24:00	44:15:00	45:39:00	45:00:00	43:21:00	45:04:00	46:56:00
Total work performed by the man	45:19:00	41:06:00	44:39:00	42:15:00	39:57:00	41:58:00	46:27:00
<i>Average share of total work performed by the woman (in %)</i>	59,6%	51,2%	50,4%	52,3%	52,2%	52,0%	50,7%
Total number of couples	3091	2201	2012	243	514	683	178

Sources: Time-use surveys, 1985-86, 1998-99, 2009-10, Insee.

Scope: Couples in which two members have filled out the diaries and at least one of whom is active.

Lecture : the average woman's share of "total work" and of " domestic work" correspond to the average of the share performed by the woman at the level of the couple. It slightly differs from the share of the average total or domestic work performed by women in the sample

Notes: Hours of paid work were missing for some working persons in the samples. They were completed by assigning to them the average hours of paid work observed in the survey's sample on working persons, by sex and marital status.

For the year 1985, 212 working men have missing values on hours of paid work out of 3189 working men (183 observations for working women out of 2137)

For the year 1998, 458 working men have missing values on hours of paid work out of 2571 working men (282 observations for working women out of 1963)

For the year 2009, 685 working men have missing values on hours of paid work out of 2687 working men (664 observations for working women out of 2370)

4. Econometric strategy

4.1. The OLS Regression

The first step of the econometric strategy consists in estimating a simple model in which the dependant variable is the share of domestic work performed by the woman in the couple. The share of domestic work performed by the woman in the couple is defined as the ratio between the domestic work time spent by the woman and the domestic work time spent by both members of the couple. The explanatory variables include individual and couple characteristics (see the Table 4). The reference couple is a married couple, both working full time, both with an educational level of less than the French Bac (high school diploma), with no dependent children and residing in an urban area. The results are interpreted taken this level as the reference.

$$y_i = \alpha_1 + z_i\beta + \alpha_2pacs + \alpha_3coh_i + \epsilon_i \quad (1)$$

y_i is the share of the domestic work performed by the woman in the couple i . z_i is the vector of the explanatory variables and β is the vector of the corresponding parameters. $pacs$ and coh are dummy variables which take 1 for couples in a civil partnership and for cohabiting couples, respectively. ϵ_i is the error term.

The difference in the gendered division of labor based on marital status obtained by the OLS method can be represented as follows:

$$\underbrace{E(y_{i1}|mar_i = 1) - E(y_{i0}|mar_i = 0)}_{observed} = \underbrace{(E(y_{i1} - y_{i0}|mar_i = 1))}_{marital\ status\ effect} + \underbrace{(E(y_{i0}|mar_i = 1) - E(y_{i0}|mar_i = 0))}_{self\ selection\ bias} \quad (2)$$

y_{ij} is again the share of the domestic work performed by the woman in the couple i . The index i designates the couple and $j \in 0,1$ determines the type of couple; 0 for cohabiting or civil partnership couples and 1 for married couples. The variable mar designates the treatment, in this case the marriage event, which equals 1 if the couple is married and 0 if not.

The choice of marital status is not a random event. This implies that the three effects that we have identified previously can explain the differences in the division of labor in couples according to their marital status. The *marital status effect* refers to relation between the choice of the type of union and the degree of the gender division of labor within the couple. The *characteristics effect* refers to the effect of the self-selection of couples in the different types of union based on their socio-economic and demographic characteristics. The unobserved heterogeneity implies a self-selection of couples in a specific union form based on features that are not available in the time-use surveys. They include the gender ideology hold by both partners. The last term of the equation (2) refers to a self-selection bias based on observed characteristics (*characteristics effect*) and unobserved heterogeneity among which one finds the values and gender ideology (*gender ideology effect*). The OLS estimate cannot be used for the identification of these different effects.

4.2. The Matching method

The matching method is used to control for the *characteristics effect*, the potential remaining gap is then explained by the two other effects. This methodology associates with each married couple one or more non-married couples who have similar socio-economic characteristics. The identification assumption underlying the matching method is based on unconfoundedness conditional independence: if we assume that there exists a vector of observable characteristics x_i that captures the self-selection bias, thus conditionally on x_i , then passing through the “marriage” treatment regardless of the type of couples is random: $y_{i0} \perp mar_i | x_i$

This implies that:

$$E(y_{i0}|mar_i = 1, x_i) = E(y_{i0}|mar_i = 0, x_i) \quad (3)$$

The share of domestic work performed by the woman in married couples is compared with what would have prevailed if these couples were not married. A pairing between married and unmarried couples (cohabiting or in civil partnerships for the 2009-10 survey) starting from the same characteristics would make it possible to build a perfect counterfactual. In practice, this matching is not feasible. The matching problem is reduced to a single dimension; a “propensity score matching” is estimated (Rosenbaum et al. 1983):

$$p(x_i) = \Pr(mar_i = 1|x_i) \in [0,1] \quad (4)$$

This propensity score verifies an important theoretical property: a “Balancing Score”: $x \perp mar|p(x)$

The conditional distribution of x knowing $p(x)$ is orthogonal to the choice of marital status. This property implies that within subgroups of couples who have the same propensity scores $p(x)$, the distribution of x should be identical between the different types of couples, regardless of marital status. Once conditioned on the propensity score, and given the hypothesis of conditional independence, the independence between the sexual division of labor and the choice of marital status is also satisfied:

$$y_{i0} \perp mar_i|x_i \xrightarrow{\text{implies}} y_{i0} \perp mar_i|p(x_i) \quad (5)$$

The probability of marrying is estimated over all couples. The distributions of this score for the married couples and the cohabiting couples (and civil partnerships for 2009-10) are compared. Only couples with a common support of distributions are retained in the estimates⁶. The matching is then performed between the married and unmarried couples (cohabiting or civil partners) who have identical propensity scores. The results presented below are based on the “Epanechnikov Kernel matching method”: every married couple is paired with all the unmarried couples weighted by their distance in terms of the propensity score⁷. A counterfactual is thus obtained for each married couple:

$$\hat{y}_{i0} = \frac{1}{n_0} \sum_{i'|mar=0} w_{i'} y_{i'}, \quad \forall i \neq i' \quad (6)$$

where $w_{i'} = \frac{K((p(x_{i'})-p(x_i))/h)}{\sum_{i'|mar=0} K((p(x_{i'})-p(x_i))/h)}$ (K: Epanechnikov Kernel)

The share of domestic work performed by the woman in each married couple is compared with that of the counterfactual:

$$\widehat{\Delta} = \frac{1}{n_{mar}} \sum_{i=1}^{n_{mar}} (y_{i1} - \hat{y}_{i0}) \quad (7)$$

marital status effect + unobserved heterogeneity effect

⁶ The hypothesis of conditional independence is also verified before carrying out the matching process.

⁷ Robustness tests based on other methods were also carried out, but are not presented here.

Using this procedure, the estimated differences in the distribution of tasks between the different forms of union cannot result from the self-selection of the couples with respect to their observable characteristics. These differences are interpreted as the result of the two remaining effects.

4.3 Bargaining power and prediction of hourly wages

The bargaining power constitutes an important explicative variable of the share of domestic work performed by the woman. It is approximated by the relative wages of the two partners⁸. It is defined as the hourly wage gap between the partners relative to the sum of their hourly wages⁹. Since the wages of non-working women are not observed, a wage equation was estimated in order to assign to these women a potential predicted wage¹⁰. This corresponds to the wage that these women could claim according to their observable characteristics (educational degree, past work experience, etc.). The information on wage income is not available for the 1985 time-use survey.

The estimation of the wage equations takes into account the effect of selection on the labour market using Heckman's method (1979), by simultaneously estimating the equations for the wage (8) and for participation (9) on the labor market (Heckman 1979). For the calculation of bargaining power, the wages predicted, based on the estimated wage equations, were assigned to individuals for whom the salary was not observed (unemployment or inactivity, or when the pay field was not filled in), and to their partners. The observed wage was used for everyone else.

$$\ln(w_i) = x_{i1}\beta_1 + \varepsilon_{i1} \quad (8)$$

w is the hourly wage, the index i designates the individual and x_{i1} the vector of the control variables: potential experience and its square, potential experience¹¹ and its square multiplied by the number of children in the household, and the number of children in the household. These last three variables are used in the estimation of the woman's wage so as to account for career breaks. The diploma obtained (less than high school degree, high school degree, above the high degree), the type of union (marriage, civil partnerships, cohabitation), and residence in a rural area. β_1 is the vector of the corresponding coefficients and ε_{i1} is the error term.

For the selection equation (10), the latent variable s_i^* is not observed, it determines the selection (employment) on the labour market, and so we use an observable variable that is defined as follows: $s_i = 1(s_i^* > 0)$, or $1(\cdot)$ is the usual indicator function.

$$s_i^* = x_{i2}\beta_2 + \varepsilon_{i2} \quad (9)$$

⁸ Other parameters influence the bargaining power of the members of the couple, including the state of the labor market and the legal and institutional context. This latter partly determines the financial terms governing the breakdown of a couple and thus alters the bargaining power of each member.

⁹ Two variants were tested: one in which the bargaining power is defined as the ratio between the hourly wage of the woman and the sum of the hourly wages of the couple, and the other by a dummy variable that equals 1 if the man's wage is more than twice that of his partner. The different ways of integrating the relative bargaining power of the two members of the couple into the analysis do not alter the results profoundly.

¹⁰ A wage equation was also estimated for men, and the predicted wages were assigned to the partners of these non-working women, to be used in the calculation of the bargaining power variable instead of their observed wages. Similarly, a potential predicted wage was assigned to non-working men, and to their partners.

¹¹ Difference between the age and the age upon completion of studies.

Hence the probability of working versus the fact of being unemployed or inactive: $\Pr(s_i = 1|x_{i2}) = \Pr(s_i^* > 0)$

x_{i2} is the vector of control variables that contains the variables used in the wage equation x_{i1} and the exclusion restriction variables z_i : the existence of an unearned income (interest, savings income, dividends). For women, variables are introduced relating to the presence of children under age 3 and age 3 to 6 and the partner's educational diploma. β_2 defines the vector of corresponding coefficients and ε_{i2} is the error term. The error terms of the two equations ε_1 and ε_2 follow a normal joint distribution, with zero mean and a variance-covariance matrix Σ . For identification purposes the variance of ε_2 is normalized to 1. The reference person is a married individual, with less than a Bac diploma, living in an urban area. The results are interpreted in relation to this reference.

Table 4: Estimation wage equations for the women and for the men

	Women		Men	
	Coef.	Std. dev.	Coef.	Std. dev.
Equation (log) of hourly wage				
Prof. experience	0,023***	0,007	0,023***	0,004
Prof. experience ²	0,0004**	0,0002	0,0004***	0,0001
Prof. experience x no. of children in household	0,002	0,005		
Prof. experience ² x no. of children in household	-0,00008	0,00011		
No. of children	-0,075*	0,044	-0,013	0,009
High school dip. (ref. less than HSD)	0,119***	0,031	0,233***	0,033
High school dip. or more (ref. less than HSD)	0,310***	0,026	0,290***	0,023
Civil partners (ref: marriage)	-0,015	0,046	0,008	0,041
Cohabiting (ref: marriage)	-0,017	0,025	-0,086***	0,023
Rural area	-0,014	0,022	-0,052***	0,021
Constant	1,725	0,067	1,890***	0,051
Total individuals	2902		2903	
Equation of employment				
Prof. experience	0,024	0,016	-0,026**	0,012
Prof. experience ²	-0,001*	0,0004	0,0004	0,0003
Professional experience x no. of children in the household	-0,004	0,009		
Prof. experience ² x no. of children in the household	0,00016	0,0002		
No. of children	-0,133	0,099	-0,075***	0,022
Presence of children aged 3 to 6	-0,108***	0,052		
Presence of children < 3 yrs	-0,184***	0,063		
High school dip. (ref. less than HSD)	0,076	0,077	0,129	0,091
High school diploma or more (ref: less than HSD)	-0,197***	0,062	-0,304***	0,062
Partner HSD (ref: less than HSD)	0,035	0,077	-0,1	0,065
Partner HSD or more (ref : less than HSD)	-0,157***	0,051	-0,136***	0,053
Civil partners (ref: marriage)	-0,058	0,102	-0,045	0,104
Cohabiting (ref: marriage)	0,073	0,06	-0,124***	0,06
Rural area	0,061	0,053	-0,144***	0,053
Non-wage income	0,02	0,044	-0,027	0,043
Constant	0,457	0,151	1,21	0,136
Correlation (wage, employment) ρ	0,749	0,028	0,82	0,019
LR independence test of equations ($\rho=0$)	Chi2(1) = 51,91		Chi2(1) = 94,00	
	Prob > Chi2 = 0.0000		Prob > Chi2 = 0.0000	
Log likelihood	-2651.497		-2561.409	
Total non-censored individuals	1729		2027	
*** Significance at threshold of 1%, ** at threshold of 5%				

5. Results and analysis

5.1. OLS regression estimates

For the 2009 survey, the diary variable is set to 1 if the partners completed their respective diary on a weekday (2 diaries per household), the value 2 if the two partners completed their respective diary on the weekend (2 diaries per household)¹² and the value 3 if one partner has filled in two diaries and the other only one diary (3 diaries per household). The reference is the situation in which both partners each filled in two diaries (so 4 diaries for the household). For the 1985 and 1998 surveys, the “weekend” variable is set to 1 if the diaries were filled in on the weekend. Regardless of the year of observation, the share of domestic work performed by the woman is lower on weekends, as men are more involved in domestic tasks on weekends.

The estimates indicate that the share of domestic work performed by women declines as the level of household income rises. Couples with higher incomes outsource more domestic tasks, especially those carried out by women (cleaning and laundry in particular). The variables related to household equipment and appliances indicate that in 1985, having a washing machine cut the share of domestic work performed by women by 4.3 percentage points: without a washing machine, laundry, a task performed mainly by women, is a time-consuming activity. In 1998 and 2009, this variable lost its significance, which is due to the increase in the levels of household equipment: by the late 1990s, most households with the characteristics of the sample have a washing machine.

We find that the woman performs a smaller share of the domestic work whenever her bargaining power in the couple increases. This effect is significant only for 2009.

As shown in the literature, the paid working time of the two partners plays an important role in the division of the domestic work: when a member of the couple is less involved in the labor market (inactivity, unemployment or part-time), then he or she tends to perform more of the work. In couples in which the woman does not have a job, the share of domestic work she performs rises by about 14 percentage points. Similarly, when the man is inactive, the amount of domestic work performed by his partner falls by 8.5 percentage points in 1985 and around 18 percentage points in 2009¹³. Over a 25-year period, a greater substitutability of social time can be seen for men, making gender identity potentially less important. For women, working part-time or being unemployed positively influences the amount of domestic work they perform; conversely, the woman’s share of domestic work decreases if the man works part time or is unemployed.

¹² The partners fill out their individual diary on the same day.

¹³ In 1998, only one couple was in this configuration.

Table 5: OLS regression estimates of the share of domestic work performed by the woman

Share of domestic work performed by the woman	1985		1998		2009	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Total no. of couples	3334		2715		2873	
Total domestic working time Diaries 2009-10	-0,00005**	0,00002	-0,00011***	0,00003	-0,00009***	0,00003
1					0,004	0,009
2					-0,016	0,013
3					0,001	0,04
Weekend diary 1998-99 and 1985-86	-0,017**	0,007	-0,030***	0,009		
Income per uc couple 2009-10					-0,032**	0,013
2					-0,024*	0,014
3					-0,019	0,016
4						
Income 1998-99 and 1985-86						
1			-0,036***	0,013		
2			-0,040**	0,017		
Resource to a paid cleaner 2009-10 and 1998-99			0,005	0,009	-0,001	0,009
Resource to an unpaid cleaner 2009-10					-0,001	0,013
Resource to a cleaner, unpaid or not, 1985-86	-0,008	0,009				
Microwave			0,012	0,01	0,032**	0,015
Dishwasher	-0,003	0,007	-0,008	0,009	-0,005	0,011
Washing machine	-0,043*	0,023	0,034	0,036	-0,004	0,046
Inactive man	-0,085**	0,034			-0,183**	0,075
Inactive woman	0,138***	0,008	0,129***	0,012	0,138***	0,015
Part-time man	-0,045***	0,015	-0,080**	0,035	-0,049*	0,029
Part-time woman	0,062***	0,01	0,051***	0,013	0,042***	0,014
Unemployed man	-0,128***	0,017	-0,141***	0,019	-0,125***	0,018
Unemployed woman	0,122***	0,016	0,118***	0,016	0,123***	0,019
Bargaining power			-0,039	0,035	-0,133***	0,029
Civil partners (PACS)					-0,045**	0,018
Cohabiting	-0,013	0,012	-0,035***	0,011	-0,005	0,011
Average age of couple	0,002***	0	0,003***	0,001	0,001*	0,001
Age difference	-0,001	0,001	-0,002	0,001	-0,002**	0,001
Woman w/ high school diploma	-0,025**	0,01	0,014	0,013	-0,017	0,014
Woman w/ more than high school diploma	-0,030***	0,01	-0,032**	0,015	-0,017	0,012
Man w/ high school diploma	-0,038***	0,01	-0,022	0,014	-0,066***	0,016
Man w/ more than high school diploma	-0,067***	0,011	-0,045***	0,015	-0,060***	0,011
Presence of a child	0,018**	0,008	0,026**	0,011	-0,020*	0,011
Presence of a child under age 3	-0,002	0,008	0,01	0,013	0,017	0,013
Rural area	0,027***	0,007	0,013	0,009	0,008	0,009
Constant	0,753	0,032	0,695	0,047	0,722	0,058

*** significance at threshold of < 1%, ** at threshold of < 5% and * at threshold of < 10%.

Sources: Time-use surveys, 1985-86, 1998-99, 2009-10, Insee.

Scope: Couples in which two members have filled out the diaries and at least one of whom is active.

As expected, men's participation in domestic work increases with their level of education. Conversely, the share performed by women falls in line with their level of education. More educated women have greater bargaining power¹⁴, and more educated men in general have more egalitarian values (Dominguez-Folgueras 2012). This is consistent with the results of other studies on this topic (Anxo 2002; Bianchi et al. 2000; Gershuny 2000). In 1985 and 1998, having children significantly increased the share of domestic work performed by women, with an impact of around 2 percentage points. For the year 2009, this effect was reversed, as the presence of a child reduced the domestic work performed by women (2 percentage points). This trend reflects men's greater investment in the family¹⁵. On the other hand, the coefficient of the variable related to the presence of a child under age 3 is not significant for the three surveys: the model contains other variables that capture this effect by providing redundant information. To explore this specific point, we have run some estimations. The results show that "inactivity" is highly correlated with having a young child: the effect of having a young child on the share of domestic work performed by the woman is partially captured by the variable related to her labor market status.

Finally, the effect of variables related to marital status changes according to the year of observation. In 1985, the share of domestic work performed by cohabiting women was not significantly different from that of married women, while in 1998 it was about 3.5 percentage points lower. In 2009, the share of domestic work performed by cohabiting women did not differ significantly from that performed by married women, a result that is consistent with the findings of Bianchi et al. (2014). However, all else being equal, the share of domestic work carried out by women in civil partnerships is about 4.5 percentage points lower than married women's share.

The restricted definition of childcare chosen in the analysis limits the risk of putting together tasks with different subjective values for men and women. Nevertheless, we test our results by withdrawing childcare from domestic activities. Indeed, Sullivan (2013) suggests that housework is not enjoyable for both partners, whereas childcare is a rewarding task appreciated by men and women. It is possible that the more equal sharing of tasks within civil partnerships occurs because fathers in these partnerships are more involved than married fathers with their children. This would not then involve a more equal sharing in relation to gender norms but rather a different relationship to fatherhood, even though in our analysis childcare gathers only routine tasks. The estimates for activity excluding childcare indicate that the share of domestic work performed by women in civil partnerships is 5 percentage points lower than that performed by married women (significant at the 1% threshold)¹⁶. Couples in civil partnerships therefore opt for a more egalitarian distribution of housework than married couples, independently of activity directly related to their children. The share of domestic work performed by cohabiting women remains not significantly different from that performed by married women.

The marital trajectory of the couples (number of unions preceding the one observed, type of past union, duration of the union under observation, etc) influences the distribution of domestic work within couples (Nitsches et al. 2016; Baxter, 2015). The "Decisions in the couples" module supplementing the 2009 time-use survey included questions related to the respondents' marital past. The effect of the length of the relationship on the share of domestic work performed by the woman is positive, but not significant. The effect of the PACS remains negative and significant at the 10% threshold: taking into account the observed length of the relationship, civil partnership couples are more egalitarian

¹⁴ For the 2009 survey, the effect of the woman's education is weaker and less significant than for the other two surveys, but the effect of the "bargaining power" variable, calculated from the relative wages of the two partners, is significant, whereas it is not in 1998-99, and it was not introduced in 1985-86. The two variables "partner's education" and "bargaining power" capture some of the same effect.

¹⁵ Estimates made by excluding the activities directly related to children indicate that this negative effect persists (about 2 percentage points significant effect at the 5% threshold).

¹⁶ The results are not presented so as to enhance readability of the paper.

than married couples, whereas cohabiting couples are not. Ten years ago, cohabiting couples were more egalitarian than married couples.

5.2. Results of the Matching method

The results obtained with the matching method are consistent with those obtained by the OLS method. The set of variables x_i used in order to estimate the propensity score $p(x_i)$ are a subset of the OLS explanatory variables: the income of the household, the labor market status for the two partners, the bargaining power, the average age of partners and the difference in their ages, their level of education, the presence of a child, the presence of a child under age 3, and the area of residence. Then, the average treatment effect is estimated by comparing the share of domestic work in each married couple with its counterfactual, controlling for the same variables used in the OLS method.

Table 6: Estimated difference in the share of domestic work performed by the woman based on marital status (standard errors in parenthesis)

	Marriage/Cohabiting		Marriage/Cohabiting	Marriage/Civil partners
	1985	1998	2009	
OLS	-1.26 (0.012)	-3.48*** (0.011)	-0.52 (0.011)	-4.54** (0.018)
<i>Obs. (couples)</i>	3334 3091/243	2715 2201/514	2873 2013/683	2873 2013/178
Matching $\hat{\Delta}$	-0.2 (0.015)	-5.9** (0.019)	-0.1 (0.016)	-8.6** (0.036)
<i>Obs. (couples)</i>	2913 2730/183	1802 1553/249	1907 1459/448	1644 1504/140

Notes: The values are expressed in percentage points. Standard errors are obtained by bootstrapping for the matching pairs model.

*** significance at threshold of 1%, ** at threshold of 5% and * at threshold of 10%.

Sources: Time-use surveys, 1985-86, 1998-99, 2009-10, Insee.

Scope: Couples in which two members have filled out the diaries and at least one of whom is active.

By using the matching method, the estimated differences in the sharing of tasks in the different forms of union cannot be due to the self-selection of the couples with respect to their observable characteristics. These differences can result either from the *marital status effect*, or from unobserved characteristics, which includes values and gender ideology. This *gender ideology effect* explains that more egalitarian couples tend to be concentrated in a type of union. Since the time use surveys do not provide any information regarding gender ideology, this dimension cannot be controlled for in the matching procedure.

5.3. Interpreting the results: the role of gender ideology

In order to disentangle these two effects, we confront the results to the two hypotheses to be tested for each year. In 1985, the share of domestic work performed by the woman is not affected by the fact that she is cohabiting. The observed gap between both types of couples is explained by differences on observables characteristics (cohabiting couples are younger than married one, etc.). This contradicts the hypothesis 1, that implies a lower share of domestic work performed by cohabiting women compared to the married. This can be explained by the fact that in the early 1980s, cohabitation was still a marginal practice and resembled a “prelude to marriage” or a “pre-marriage test”. The gender division of labor preceded the formalization of the union either because the couples anticipated in their organization that they were going to marry, or because once specialization had been established, they wound up marrying. Thus, no significant difference in terms of the gender division of labor was observed between the two types of union.

In 1998, the result indicates that the domestic work performed by married women would have been 5.9 percentage points lower if these women were cohabiting. This result is in line with hypothesis 1. In the late 1990s, cohabitation was spreading as a socially accepted alternative to marriage. Couples were stabilizing their relationship outside marriage, and the arrival of children did not lead them to formalize their union. The gender division of labor in these couples is more egalitarian than what occurs in married couples, and this is not due to the profile of these couples in terms of their demographics. The *marital status effect* can explain this result, in accordance with the hypothesis 1, although the direction of the relationship cannot be clarified: marriage reinforces the degree of the gender division of labor within couples and couples who anticipate such specialization opt for this type of union. The unobserved heterogeneity may also explain this gap. In particular, the *gender ideology effect*, as stated in hypothesis 2, is likely to influence the decision to opt for a type of union: cohabitation in the 1990s attracted people who were looking for a type of union that differed from marriage's conservative norms and reflected egalitarian values.

In 2009, no significant difference is observed between married couples and cohabiting couples. Thus, contrary to what was observed for 1998, cohabiting couples were not more egalitarian than married couples with respect to the distribution of domestic work. In contrast, in PACS couples, the share of domestic work performed by the woman was significantly lower (about 8.6 percentage points) than the share observed in married couples. This result contradicts hypothesis 1. According to the *marital status effect*, married couple should be the less egalitarian, followed by the PACS couples and then the cohabiting couples should be the most egalitarian. The *gender ideology effect* offers another line of explanation in accordance with the hypothesis 2.

This hypothesis is further reinforced when using the International Social Survey Programme: Family and Changing Gender Role, III (2002) and IV (2012)¹⁷. This survey provides information regarding the evolution of the gender ideology hold by individuals according to their marital status. We have selected a sample that is as close as possible from the one used in the time-use survey analysis. In 2002, the survey does not contain information about the PACS status, therefore those couples are identified as unmarried: the cohabiting category contains the PACS couples. This lack of information in the database is not problematic as in 2002 few people were opting for the PACS¹⁸. The results give support to the *gender ideology effect* as an explanation of the gap in the division of labor observed in the different types of union.

We use the answer to the following question as a proxy of the gender ideology hold by respondents: "*A man's job is to earn money; a woman's job is to look after the home and family*". For married persons, the proportion of respondents that disagree or strongly disagree with this statement has increased from 75% to 82%, this dynamic is mainly due to the increase of people answering that they strongly disagree, whereas for cohabiting respondents these proportions are stable during the decade (87%) (Graph 1). Married couples hold conservative values less than before, the proportion of married persons answering that they strongly agree or agree with the conservative statement has decline from 13% in 2002 to 7% in 2012. For the respondents who live in a PACS couple, in 2012, the proportion of those who reject the statement is higher, specially the percentage of persons who strongly disagree (82% compared to 67% for persons who cohabit or 62% for those who are married).

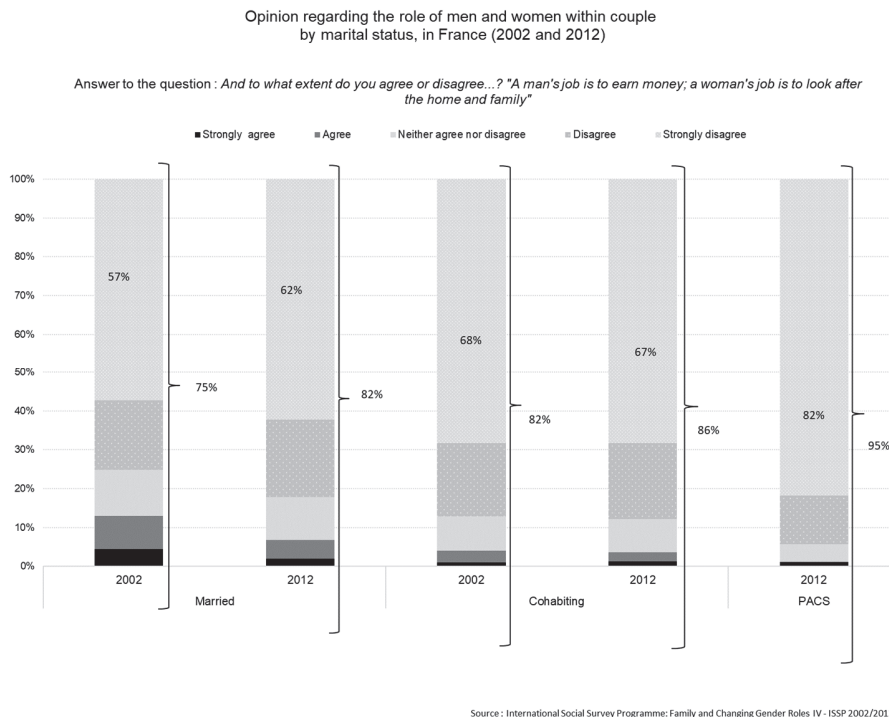
Adding to these descriptive statistics, we have estimated a logit model where the dependent variable is the following: the respondent strongly disagrees with the statement, relative to all other degrees of agreements. The estimation controls for the sex of the respondent, the level of education of both partners, their age, the number of children, and the marital status. The results indicate that in 2012, everything being equal, respondents answer more often that they strongly disagree with the conservative statement when their marital status is PACS relative to marriage, whereas it is

¹⁷ 2002 is the first ISSP related to Family and Changing Gender Roles that includes France.

¹⁸ In 2002 (in 2012), 21 683 PACS (153 715) were signed against 286 169 marriages (245 930), (Insee, 2017)

not statistically significant for cohabiting respondents¹⁹. This result is corroborated by the sociological literature on PACS. The decision to opt for the civil union is associated with a system of values that is based on an egalitarian view of the role of men and women in the society and in the family (Rault et al. 2010; 2013). Meanwhile, couples holding the most egalitarian values are, all else being equal, attracted by civil partnerships, whereas before the implementation of this institutionalized form of union, they were more attracted by cohabitation.

Fig 1:



This result implies that civil union attracts individuals holding the most egalitarian values, and then PACS couples are those within which the share of domestic labor performed by the woman is lower. It confirms hypothesis 2. In 2009, the *gender ideology effect* seems to more than offset the *marital status effect*, after having controlled for the *characteristics effect*.

¹⁹ Being a female respondent increases the probability to strongly disagree, and the more educated the respondent is the more often the person disagree. Having children decreases the probability to strongly disagree with the statement. This can be explained by a reinforcement of gender role associated with the parenthood.

6. Conclusion

This paper enriches the existing literature on the sharing of domestic tasks according to the marital status of couples. Based on the case of France, we show a convergence in the proportion of domestic tasks performed by married and cohabiting women. In 2009, after controlling for the differences in observable characteristics of these two types of couples, no significant difference remains. Couples in civil partnerships were more egalitarian than other couples in the way they organize domestic chores. This result reflects two phenomena. The first is the trend towards a decline in the time women spend on domestic work, well documented in the literature. Thus, the extent of the gender division of labor in married couples is reduced and gradually converges with the level observed in cohabiting couples. The second trend is due to the introduction of civil partnerships, PACS, in the late 1990s, which has attracted the most egalitarian couples. Indeed, estimates indicate that this difference is not the result of the self-selection of the couples in terms of their observables, but it is more likely to be due to a *gender ideology effect*: the couples opting for the PACS hold more egalitarian values than couples opting for the other two forms of union.

We have focused on the share of domestic work performed by the woman in the couple to analyze the degree of specialization in couples. With regards to the definition of gender equality, the total amount of work performed by each partner would have been another relevant indicator. Table 2 indicates that cohabiting women are those who perform the larger share of total work (paid and domestic work) (52%) compared to both married and PACS women. For the latter two, the share of total work they perform is around 50%, but for married women it is unbalanced as they do 73.5% of domestic work and 39.9% of paid work, whereas PACS women do 65.1% of domestic work and 44.5% of paid work. This result raises the issue of gender equality in a long-term perspective, as domestic work does not provide direct social rights and cohabitation does not provide rights to compensatory allowance (in case of separation) or to derivative social rights (in terms of pensions). Cohabiting women might be exposed to an increase of precariousness in this regard. The gap between gendered behaviors in the distribution of domestic work and the choice of marital status poses a risk for cohabiting women, as is suggested by Martin & Thery (2001): cohabiting and married women performed the same share of domestic work, but cohabiting women do not benefit from specific protections or compensation for it. The French social welfare state has not been overhauled in the light of changes in behavior and marital choices, and still lies between two models. The first one centers on marriage and the male breadwinner model, associated to protections and transfers to compensate the cost of specialization. It encourages at least in part a gendered division of roles, and it attracts couples with more conservative values. It includes safeguards for the wife in case of a separation. The second model is centered on cohabitation, which does not take account of the observed persistence of the gender division of labor in the family. The PACS provides only a partial answer in terms of regulation, but to the extent that this form of union attracts couples holding egalitarian values, the consequences in terms of reducing gender inequality are limited.

More broadly, and beyond the specific case of France, the results show the interrelation between two major effects that explain the difference in gender division of labor within couples with different status: the *marital status effect* and the *gender ideology effect*. The change in the institutional context, through the introduction of a new type of union that is less regulated than marriage but more than cohabitation, induces a shift in the behavior of the couples who hold the most egalitarian values. The regulation of different type of unions also affect the marriage market: the suppression of survivor benefits in Sweden in 1989, and the reform of social insurance related to marriage has altered the decisions of couples (Persson 2017). Policies that regulated unions in Europe have changed recently due to the increasing trend of cohabitation: some countries have reinforced the rights for cohabiting couples and others, like France, have introduced a civil union. More research is needed to evaluate the impact of such institutional changes on gender equality (Perelli-Harris & Sanchez Gassen, 2012).

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