

# **Divorce and the Gender Division of Labor in Comparative Perspective**

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## **Abstract**

This paper shows how cross-national variation in labor market attributes, social policies affecting female employment, and divorce laws affect both female labor force participation and divorce. These, in turn, lead to a systematic gendered pattern in the preferences for government spending on social services. Analyzing data on household division of labor and divorce, we show that a politically and institutionally mediated bargaining model better explains choices over allocation of work than does Becker's economic model, which assumes a single family utility function. This analysis suggests the fruitfulness of investigating how labor markets and public policies shape gender stereotypes, and for how child support rules may affect women's decisions about labor market participation.

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## 1. Introduction

During the past four decades two powerful forces of change have redefined gender relations in developed countries: divorce and female labor force participation. These have in turn reshaped gender preferences over public policy and opened up a new cleavage in electoral politics. While there are extensive literatures on various parts of these relationships, a systematic framework for understanding the link among divorce, the gender division of labor, and the gender gap in preferences remains undeveloped. In this paper we provide such a framework and show how cross-national differences in gender relations depend on production structure and the welfare state.

The numbers in Table 1 illustrate the cross-national patterns we are seeking to understand. The data are from the 1996 International Social Survey Program on the role of government and show the average difference in men's and women's preferences across six social transfer and public employment policy areas, using female labor force participation and divorce rates as the independent variables.<sup>1</sup> A positive number means that women favor more transfers and public subsidization of employment -- what we might simply call welfare state effort. We have data for 12 countries (listed in the table), and we simply divided the countries into two equally-sized groups according to whether the countries exhibited low or high labor force participation and low or high divorce rates.

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<sup>1</sup> Preferences for social transfers are based on three questions about whether the respondent wants more or less government spending on a) unemployment benefits, b) health care, and c) pensions. Preferences for public employment policies are likewise gauged by the responses to three questions: a) should the government finance projects to create new jobs?, b) should the government reduce the working week to produce more jobs?, and c) should the government be responsible for providing jobs for all who wants to work? All variables range from 1 to 5, where 5 means a strong preference for more spending or job creation. 1996 is the most recent year for which these data are available.

**Table1. Female labor force participation, divorce, and the gender gap in policy preferences**

		Divorce rate	
		Low	High
		0.10	0.24
<b>Female labor force participation</b>	<b>Low</b>	N=5 (Australia, Italy, Germany, Japan Spain)	N=1 (France)
		0.15	0.20
	<b>High</b>	N=1 (New Zealand)	N=5 (Britain, Canada, Norway, Sweden, United States)

Three patterns stand out. *First*, there is a strong positive association between female labor force participation and divorce. The strong correlation (0.9) between female labor force participation rates and divorce rates has been noticed by a number of scholars (Bergman 1986; Gerson 1985; Castles 1993; Hartmann; England). *Second*, women always favor more welfare state effort (defined here and throughout the paper, as government provision of services) than men. This is true in all 12 countries, and the difference is always statistically significant at the individual level. On average, the difference between men and women is equivalent to about 20 percent of a standard deviation on the dependent policy variable.<sup>2</sup> *Third*, the gender preference gap is smaller in countries with few women in the labor force and a low incidence of divorce. The average difference in the gap between the countries in the upper left cell and lower right cell is about 15 percent of a standard deviation (measured at the individual level). If gender differences were reflected in actual spending levels this could translate into several percentage points of GDP.

The patterns in Table 1 are not fully explicable in Becker's famous model of the family. In that model, married couples allocate housework and paid work between them to maximize the present value of consumption during their marriage, which leads to complete specialization, with one partner working solely at home and the other in paid work. This prediction is based on the assumptions that earnings depend on labor market experience, and that consumption and housework are public goods between wife and husband. Becker attributes the fact that the male typically specializes in paid work to the female having a preference for housework as a result of a small economic disadvantage from career interruption due to child birth, reinforced by socialization. Even a small preference for family over outside work by the female is sufficient for this pattern of specialization. Divorce is assumed away in Becker's model, but a logical extension would be to hypothesize that the divorce rate rises with higher levels of female labor

<sup>2</sup> This holds after control for many potentially confounding variables. See Iversen and Rosenbluth forthcoming.

force participation and more outsourcing of family work because lower levels of specialization mean fewer “gains from trade” that accompany specialization. Becker fails to capture, however, how asymmetric life prospects upon marital dissolution open up a gender preference gap once the probability of divorce rises. We interpret this to mean that women living in societies with higher divorce rates (and hence may have a higher expected probability of divorce, on average), are more likely to worry about their livelihood upon marital dissolution and will therefore have a greater preference than men for government policies that enable them to stay in the labor market. These are precisely the sorts of policies in which a gender preference gap emerges in countries with higher divorce rates and higher levels of female labor force participation.

In the paper that follows we present micro-mechanisms for the positive interrelationship between divorce and female labor market participation, and it suggests why we should observe gender policy preferences and where we should expect to see them. This model is based, as Becker’s, on microeconomic decision-making within the marriage. But contrary to the specialization equilibrium, the interests of men and women are no longer fully aligned and time allocation decisions within the marriage are the result of bargaining between the spouses. The model builds on recent economic bargaining models of the family (Folbre 1987; Braunstein and Folbre 2001; Pollak 1999; 2003; Lundberg and Pollak 1996; 2001). However, we emphasize conditions outside the family that these models ignore, but that have been central in the work of Orloff (1993), Esping-Andersen (1990; 1999), Estevez-Abe (1998), and others.

We test our argument on data for the gender division of family work and divorce. Higher levels of female labor force participation are correlated with a more gender-balanced division of housework, but as we have noted, this finding alone does not differentiate between Becker’s model and a bargaining one. More intriguingly, we find that the degree of skill specificity in the labor market reinforces the gendered division of labor, unless public sector employment is substantial. This is so, we argue, in part because specific skills economies increase the cost to an employer of hiring women who are likely to interrupt their careers on account of family work. We do not wish to deny the importance of the independent, historical evolution of social policy regimes and women’s labor force participation apart from skills specificity. Indeed, the size of the public sector is critical to our argument. We note, however, that “statistical discrimination” in the labor force should be more prevalent in specific skills economies, and that this, in turn, reduces the woman’s bargaining position in the family by reducing her value in the labor market in the event of marital dissolution. This matters for the likelihood of divorce as well, because she will have more of an incentive to keep the marriage intact, all else equal, than if her labor market options were such that divorce would not leave her substantially worse off. Public sector employment offsets this effect in specific skills countries, however, by providing women with general skills jobs for which there is less penalty, and/or on account of the government’s inclination to redistribute the costs of career interruption to tax payers.

## **2. The Argument**

This section sketches out our argument in fairly stylized terms. The first part of this section will outline the bargaining model of marriage and explain the implications for the gender division of labor; the second part explains the implications for divorce.

## *2.1. Explaining the gender division of labor*

Assume that a married couple does not know whether or not they will stay married for the rest of their lives. They must decide how to allocate their time between labor market participation and family work, on the assumption that family work cannot entirely be outsourced. In the absence of alimony that would perfectly replicate the income sharing within a marriage, each member of the couple can assume that they will be responsible for their own livelihood in the event of divorce.

Now assume, as in the Becker model, that there are increasing returns to human capital. That is, the more one does something, the better one gets at it. In the market place, this typically leads to higher salaries with seniority. The acquisition of human capital on the job means that the person with continuous labor market participation will have higher earnings than the person who spends less time, effort, or energy in the labor market on account of a greater share of family work.

It is also possible that, not only the time spent in the market, but also the value of experience or training differs per unit of time ~~varies~~ across the sexes. This will be the case if the economy requires specific skills and that men have better access to training in such skills than females. Skills are “specific” when they entail industry- or company-specific production knowledge or team experience that are less valued in industries and firms that produce different things ~~do things differently~~ or have different clients. There are good reasons to believe that men have such a specific skill advantage because employers will rationally discriminate against training women who might leave the labor force because of pregnancy and giving birth (Estevez-Abe 2002).

Statistical discrimination against women on the basis of the expected costs and likelihood of career interruption, on top of whatever other sorts of discrimination women are subject to, is a well-documented problem (Polachek 1985). To the extent that social norms give women the default role in family work, females experience statistical discrimination. For economies in which labor market protections give workers a higher expectation of long tenure, this statistical discrimination will be even more severe because firms and workers alike have a stronger incentive to invest in firm-specific skills. Ironically, then, women face greater discrimination in labor markets that provide greater worker security. Unless government regulation or subsidies can equalize to employers the costs of hiring a man and a woman, women are penalized in welfare economies in which human capital tends to be more firm specific. The same is not true in the case of general skills: if skills are truly general, there is no problem of moving in and out of employment, and employers will not make costly investments in their employees. Male and female incomes in the market will therefore be equalized. As Paula England (1992) has pointed out, in countries like the U.S. with fluid labor markets and weak labor protections, women’s greater propensity to take time off or quit for child-related reasons is offset by men’s greater propensity to switch firms.

On the assumption that there are no child care or alimony payments, the divorced man’s consumption bundle after divorce is equal to his wage plus the value of his accumulated market skills. The same is true for the woman, though her accumulated market skills are likely to be less. Although the woman may have made significant investments in her children (“family-

specific skills”), these investments cannot be monetized in the labor market and actually tend to reduce women’s value in the re-marriage market. The divorced partner benefits from having worked in the first period and thus invested in human capital to raise earnings in the event of divorce. This is the key to understanding why we take issue with Becker’s complete specialization model. Couples specialize incompletely in housework because paid work acts as an “insurance” policy against divorce, even if specialization is otherwise optimal. A rise in the exogenous probability of divorce—from a change in mores, or a change in laws that lower the cost to divorce, for example-- leads to a rise in women’s paid work and a decrease in her household work. The same is true of an increase in the returns to men’s investment in specific skills. The more emphasis on specific skills, all else equal, the greater the bargaining advantage of men and the higher the household share of work by women -- and the lower their labor force participation.

Gendered wage differentials operate in the opposite direction of the “insurance” effect and generate incentives for the woman to specialize in family work and the man to invest in market employment. To the extent that the gap in wages is based on the statistical discrimination of employers comparing the expected value of a woman’s (interrupted) and a man’s (uninterrupted) labor over the course of a career, policies that make it easier for a woman to supply uninterrupted labor can break the vicious cycle between the gender wage gap and female specialization in family work. These policies include the provision of low cost, quality day care. In countries such as the U.S. with high levels of intra-gender wage inequality, private provision of childcare for women with higher earnings may offset the demand for public services. In the case of a specific skills economy, the level of publicly provided childcare would have to be greater than for countries with fluid labor markets to have a comparable effect on women’s employment opportunities, since women face stiffer statistical discrimination on account of the higher cost of their career interruption. Anti-discrimination laws, while helpful, are unlikely to be sufficient in keeping enterprising managers from finding ways to avoid hiring or promoting women. In Sweden, for example, the high level of female labor market segmentation in the public sector speaks volumes about the challenges facing women in specific skills economies.

Economically well off couples may, of course, subcontract a substantial proportion of family work such as child care, cleaning, and other family duties to enable both spouses to increase their labor market participation. Extending the logic of Becker’s model, as we have noted, this should increase the probability of divorce by dint of smaller gains from trade -- at least the economic reasons for staying married would have decreased. But we are more interested in what happens to the *relative* bargaining power of the spouses in the event of divorce, and by implication, the preferences for government provision of services that can make career continuity more possible. Even a modest asymmetry in family work can have substantial effects on gender preferences if the costs of career interruption are sufficiently high or if the residual family work after outsourcing is disproportionately borne by the female.

## ***2.2. Explaining divorce***

The decision to divorce entails a comparison of payoffs to the man and the woman from divorce to the payoffs of remaining married. The economic value of remaining married for the female is

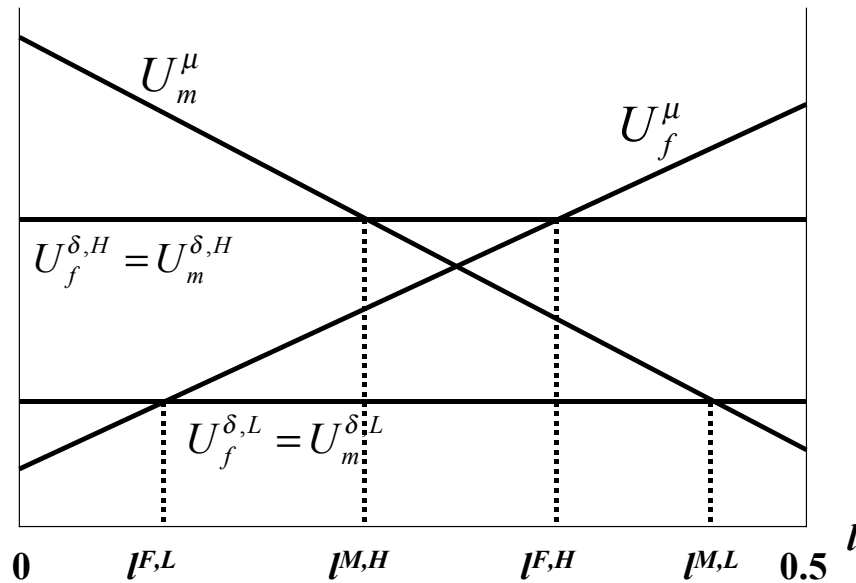
the utility she derives from her own and her husband's wages and her husband's unpaid work, compared to the wages she would earn and the unpaid housework she would undertake on her own. There is a mirror image calculation for the man.

To make the argument more realistic, imagine that each partner gets a given psychological utility from marriage. Since the man and woman cannot predict whether or not they will divorce at some future date, the simplest assumption to make is that the psychic utilities are only revealed at the start of any given period. It is also convenient to assume that there is no psychic utility from divorce at least in expected terms.

Assume that there is de facto no-fault divorce so that either party can successfully demand a divorce, but that there is a fixed cost of divorce that can be taken as a proxy for the difficulty of obtaining a divorce. If the divorce payoffs are higher for the man or woman than the marriage payoffs, then either the bargain gets renegotiated or the couple divorces. (We assume that these payoffs are common knowledge to both participants so that there are no non-credible threats of divorce.)

The couple will obviously divorce when they both think they would be better off outside the marriage. When the man and woman disagree about divorce, there are two possible outcomes, divorce or renegotiation. Renegotiation is a possible solution because one spouse would prefer to remain married and therefore has a reason to offer concessions to make the other spouse feel likewise. The couple will remain married if and only if the renegotiated allocation of paid work gives the man and woman utility levels at least as great as their outside option. The couple divorces if there is no such renegotiated allocation. The logic is illustrated in Figure 1.

### **Figure 1. Renegotiation and divorce**



On the X axis is  $l$ , which represents the woman's paid labor. She and her husband are each assumed to have one unit of time which can be devoted to some combination of paid work and household work. It simplifies the argument to assume that one unit of time has to be devoted to housework, so that the more the woman does the less the man has to do; and that the woman does at most as much paid work as the man. Thus (in this simplified case) the most paid work a woman can do is 0.5, implying that her husband will also be doing paid work of 0.5 and both will be doing 0.5 of housework,  $l = 0.5$ . While if she does no paid work, she does all the housework and husband devotes his 1 unit fully to paid work,  $l = 0$ . Consequently,  $l$  represents all possible divisions of labor, both between household work and paid work, and between the man and the woman.

The sloping lines are each spouse's utility for different divisions of paid labor within the marriage ( $U_m$  and  $U_f$ ). The man's utility from marriage falls and the woman's rises as the woman's share of paid work increases. The horizontal lines are the utility from divorce that the couple may have ( $U_m^d$  and  $U_f^d$ ). We assume for simplicity that the divorce utility is either high or low ( $H$  or  $L$ ) and in each case is the same for the man and the woman.

In the case of high divorce utility the man will prefer divorce to marriage if the woman works more than  $l^{M,H}$ , and the woman will prefer divorce in that case if she works less than  $l^{F,H}$ . With low divorce utility the man prefers divorce if  $l > l^{M,L}$  and the woman if  $l < l^{F,L}$ . When the division of labor is such that the utility of marriage is greater than the utility of divorce, the couple stays married. The bargaining space is then defined by the projections of the intersections of the sloping and flat lines, and the lower the utility of divorce, the greater the bargaining space.



Thus with low divorce utility the couple can bargain for the woman to work in the interval  $(l^{F,L}, l^{M,L})$ . But in the high divorce utility case it can be seen there is no space for bargaining.

If the woman's level of paid work is higher than the man's preference, he will want to divorce or renegotiate to some lower level of female paid work. The figure shows that when the couple's preference for divorce is low, the bargaining space is large and the woman is likely to want to renegotiate her share of paid work to a lower level (and her share of unpaid work to a higher level). In the Becker model, divorce is not an option (corresponding to a utility of divorce of zero in the figure), which enables a complete specialization. The role of socialization is to make both the man and the woman ready to accept such an outcome.

When the couple has a high utility from divorce, there may be no renegotiated level of female paid work that can satisfy both the man and the woman, and they will divorce. In the figure this is illustrated by a high utility from divorce line that is above the intersection of the two utility from marriage curves. This result can be readily extended to the general case in which the man and woman have a different utility from divorce. Either the man or the woman, or both, may prefer divorce to marriage as the outside options for either improve to the point where the utility from divorce is greater than from staying married. The probability that such a situation will arise is thus a function of the costs of divorce and the outside options of both men and women (or simply the utility of divorce).

Specifically, as the cost of divorce rises the probability of divorce falls. Since specific skill requirements in the economy reduce the demand for female labor, the outside option for women deteriorates, and the probability of divorce drops (and the division of labor is likely to increase). Employment opportunities for women in the public sector offset or reverse this, and since the time necessary for household work if divorced reduces the utility of divorce, if such time is lowered by public provision of daycare and other services, there is also a positive effect on the probability of divorce through this channel. The effect of women's relative wages is more ambiguous since it will simultaneously raise the utility from marriage (the sloped line for the female) and the utility from divorce (the flat line for the female). If the woman works more when divorced than when married, however, the latter effect should dominate, leading to a higher utility from, and hence probability of, divorce.

### **3. Testing the Argument**

The empirical test is divided into two main sections. In the first we treat the division of labor as dependent variable and examine how it depends on skills and public service provision. In the second we explain divorce as a function of the costs of divorce, skills, and wages.

#### ***3.1. The division of labor***

Recall that the household division of labor is a function of (i) the probability of divorce, (ii) income from paid work, and (iii) the skill specificity of jobs. Also recall that (iv) the latter effect is offset by the provision of public services, which may subsidize daycare and offer alternative employment opportunities for women.

In the simple formulation of the argument above, the implications of the model are the same whether we consider the division of household labor or the division of paid work. However, distinguishing the two allows us to explore some additional differences between the predictions of Becker’s model and the bargaining model. In so far as skills are specific, paid employment should benefit men more than women because men are in a better position to accumulate specific skills. Together with (i) – (iv) above, we test this hypothesis.

### 3.1.1. Data

The individual data for our analysis are from the 1994 International Social Survey Program, which focuses on the family and gender relations. The data cover most established democracies, a few east European transition economies, and one developing country (the Philippines). We focus on the former since we have macro-level data for our institutional and labor market variables for these countries. None of these data are available for the east European cases, which transitioned to democracy a few years before the survey and were still in the early phase of privatization. The cases included in the analysis below are Australia, Austria, Canada, Ireland, Italy, (west) Germany, Japan, New Zealand, Norway, Sweden, the UK, and the US.<sup>3</sup>

We focus exclusively on married and cohabitating couples. The dependent variable for the distribution of unpaid work is an index constructed from a battery of four questions asking who in the household, the man or the woman, performs a variety of household tasks. For example, one question reads: In your household who does the laundry, the washing and ironing? 1. Always the woman, 2. usually the woman, 3. about equal or both, 4. usually the man, 5. always the man? The other three questions ask who cares for sick family members, who shops for groceries, and who decides what is for dinner. One additional question asks who does repair work around the house. But as Hochschild (1989) has pointed out, such work is infrequent and often has a leisure or hobby component. This is confirmed by a principal factor analysis performed on all five items, which identifies two dimensions: one where only the first four items have high, and about equally large, factor loadings, and one where only the repair item has a (moderately) high loading.<sup>4</sup>

Based on these results, we created a simple additive division of household labor index based on

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<sup>3</sup> Spain is missing so many of the key independent variables that it had to be excluded. The Netherlands is also left out because it is missing data on labor market participation for the spouse as well as on the variable for the number of dependents.

<sup>4</sup> The complete factor loadings are as follows:

	Factor 1	Factor 2
Laundry	0.51	-0.09
Caring for sick	0.59	0.08
Shopping	0.67	0.01
Dinner	0.66	-0.05
Repairs	0.15	0.22

the first four items, where higher values mean that more of the work is performed by the woman. Since most household labor is done by the woman, one can loosely think of higher values as indicating more inequality in the division of labor. The variable ranges from 1 to 5, with 3 being an even sharing of work. The mean for the variable is 3.97, which is equivalent to an average response to each question of “usually the woman”. None of the reported results below change substantively if we instead use an index based on all five items.

The fact that child care is left out of these questions undoubtedly leads to a substantial understatement of the woman’s share of work. Research on family work based on time diaries, which do include a category for child care, show that children of all ages increase women’s overall unpaid work time three to four times more than they increase men’s (Bittman, England, Folbre, Matheson 2001).<sup>5</sup> But we expect, at least, that the male-female division of childcare responsibilities will parallel the way they divide other family tasks.

While it is not possible to know with precision how the survey-generated index (without childcare time) maps on to actual hours of work done, we can get a good sense of this by comparing the index to the results of international time budget research. According to one authoritative study, women on average perform more than two thirds of total household work (Gershuny 2000). This study also shows that the average adult spends 230 minutes per day on domestic work, equivalent to 460 minutes, or almost 8 hours, for a household with two adults. If the answer “always the (wo)man” means that the (wo)man literally does all the work, the index’s range of 4 units is equivalent to 460 minutes, or about 115 minutes per unit (or 14 hours per week) assuming equidistant spacing between the different values. One standard deviation on the index is .67 or about 77 minutes of work (9 hours per week).

For paid work we use two variables that ask about the employment status of the respondent and of the spouse. It is coded 1 for those who are full-time employed, 0.5 for part-time employed, 0.25 for less than part-time employed, and 0 for those who consider themselves homemakers or who are retired. Unemployed and students are ignored. The variables are coded for men and women separately. They are included as independent variables in the regressions of unpaid work.

In addition, the key independent variables are measured as follows:

*Divorce.* While there is no direct measures of the probability of divorce at the individual level, we have used past divorce as a (very imperfect) proxy since we know that the aggregate likelihood of divorce is higher for those who are previously divorced. The variable is coded 1 if one of the spouses is previously divorced, otherwise zero.

At the aggregate level we simply use national divorce rates as a proxy for the society-wide probability of divorce.

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<sup>5</sup> Time diaries, which ask respondents to keep track of how they allocate time during the day, are preferable to less complete surveys of this sort. Unfortunately, they are only available for a few countries.

*Income.* We only have direct information about the (pre-tax) income of the respondent, but the earnings of the spouse can be inferred from information about household income. To do this we have to assume that all income is wage income and that husband and wife are the only wage earners in the household. Since there are non-wage sources of income, and sometimes more than two adult wage earners, this would suggest that income estimates based on the difference between family income and respondent's income exceed the latter on average. In fact, inferred incomes of spouses are slightly lower than respondent incomes, but generally very similar (within 90 percent of the respondent's income). This suggests that the inferred number is a fairly good proxy for the spouse's income.<sup>6</sup>

*Absence from paid work.* Marketable skills are at least partly a (negative) function of time spent on household labor. We capture this logic using a battery of questions about past family-related labor market absences. Specifically, the questions inquire about time taken off during four different phases of child rearing: i) before the birth of the first child, ii) before the youngest child entered school, iii) after the youngest child entered school, and iv) after the children have left home. The variable takes on the value 1 when the wo(man) did not work during any of these periods, and the value 0 when the wo(man) worked full time during all four periods (part-time work is coded .5). This coding follows Librizzi (2002).

In addition to these variables we included the following controls:

*Number of dependents.* It is calculated by combining information about the number of household members with information about whether the family is headed by one or two adults. In most cases it refers to the number of children, although it will also capture older generations of family members living in the household. In either case, this variable is a proxy for the demand for household labor, and it will tend to raise the share of household labor assumed by the spouse specializing in such labor – i.e., usually the woman.

*Age.* Although information about age is only available for the respondent, the respondent's age is highly correlated with the age of the spouse and thus serves as a proxy for both. As in the case of education, age does not play any role in efficiency models, except in so far as it affects labor force participation or is associated with having dependent family members. We control for these variables directly. By contrast, age plays a role in bargaining models because it differentially affects the position of men and women in the re-marriage market. As suggested above there are two reasons. First, the value of household specific skills deteriorates with age because they are so closely related to the bearing and rearing of children. Second, age itself tends to be a liability in the re-marriage market.

*Gender of respondent.* The respondent might exaggerate how much work he or she does to look better in the eyes of the interviewer.

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<sup>6</sup> It does at any rate not *systematically* bias the estimates of male and female income since the respondents were roughly equally divided between men and women.

### **3.1.2. Findings**

The results reported in Table 2 have been pooled across data from our 12 cases, using country dummies to capture national differences in the division of household labor. The evidence is thus purely for individual-level differences within countries. To explore aggregate-level effects, we will subsequently drop the dummies in favor of national-level variables for skill specificity, public sector size, and divorce rates.

**Table 2: Individual-level determinants of the gender division of labor**

	Unpaid work (female share)		Paid work	
			Women	Men
Divorce	-0.087*** (0.023)	-0.083*** (0.027)	0.060*** (0.017)	0.027** (0.011)
Past absence from paid work	0.155*** (0.032)	0.175*** (0.044)	-0.555*** (0.023)	-0.021 (0.015)
Male labor force participation	0.253*** (0.025)	0.225*** (0.036)	-	-
Female labor force participation	-0.173*** (0.017)	-0.130*** (0.026)	-	-
Male income (log)	-	0.033** (0.017)	-	-
Female income (log)	-	-0.065*** (0.014)	-	-
Number of dependents	0.026*** (0.007)	0.035*** (0.009)	-0.012*** (0.005)	0.028*** (0.003)
Age	0.006*** (0.001)	0.006*** (0.001)	-0.007*** (0.001)	-0.019*** (0.000)
Gender of respondent	0.207*** (0.015)	0.204*** (0.019)	-0.023*** 0.011	-0.049*** (0.007)
Adj. R-squared	.191	.178	.239	.464
N	5942	3718	6523	6688
No of countries	12	12	12	12

*Note:* All models include a full set of country dummies (not shown).

*Key:* \*\*\* p<.01; \*\* p<.05

The first two columns are for household work, the latter two for paid work. Because there are many missing data for income, the first column excludes these variables. But it makes little difference to the results. As expected, the probability of divorce decreases the female share of unpaid work and increases their share of paid work. Divorce also makes men somewhat more prone to be in paid work, but the effect for women is twice as high. Women in families with one previously divorced spouse also spend about 1 hour less a week on household work.

Past absence from the labor market to care for children has a strong negative effect on women's labor force participation (column 3); but it has virtually no effect on men's participation. A woman who has taken off the maximum amount of time for child rearing is predicted not to work at all whereas someone who has not taken time off is predicted to work at least part-time. Very few men exit the labor market to care for children (less than 16 percent), and when they do it tends to be for very brief periods (less than 2 percent have taken full-time leaves). This neither

appears to affect their subsequent participation in paid work, nor to increase their share of household work. By contrast, women who have sacrificed work for family in the past end up with a greater share of the household workload. In other words, taking care of children is a principal (proximate) cause of the gender division of labor, something that is supported by the effects of the number of dependents variable.

Unsurprisingly, labor force participation reduces the share of household work for both spouses, but more so for men. As we noted above, this is consistent with an interpretation where men are better able to take advantage of opportunities to acquire specific skills in the labor market. Interestingly enough, however, this effect is partly (but only partly) offset by a smaller effect of income for men. In other words, women get a greater reduction in household work for every dollar they earn than men. Why this is so is unclear, but it appears to be at least partly accounted for by a declining marginal effect of earnings on bargaining power (with men earning more than women on average).

Another consistent result is that age increases the share of work performed by the woman. The only possible explanation for this effect in an efficiency model is that age is correlated with labor market participation or the scope of domestic work. Yet, the effect of age is *stronger* when we include controls for labor market participation and the number of dependents. Specifically, if we compare a newly wed couple at age 20 to a married couple at age 40, and controlling for everything else, the woman in the latter will work about 14 additional minutes a day.<sup>7</sup>

As noted, this effect of age is consistent with a bargaining perspective because age differentially affects men and women on the re-marriage market. Yet, it is also consistent with a generational hypothesis that younger generations have more equitable work norms. The data does not allow us to distinguish between these interpretations. But *if* norms have changed over time the next question is the cause of this change, and the bargaining model in fact has something to say about that. When outside options are important, and they *have* become more important over time in line with the rise in divorce rates, there is reason to expect that parents will raise their daughters to have more similar tastes for paid work as their sons. This makes daughters less willing to assume all domestic duties as adults. We consider this a fruitful area for future research.

To gauge the effect of aggregate-level variables, we substitute the country dummies for measures of national divorce rates, skill specificity, and the size of the public service sector. The division of household labor, if the model is right, should be affected by the interaction of skill specificity (which disadvantages women) and the size of the public sector (which compensate for such disadvantages). As we move from general to specific skill countries we would expect the division of household labor to become increasingly inegalitarian, except where the state steps in to provide jobs in the public sector. This is what is being tested in Table 3.

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<sup>7</sup> 20 years in age is equal to .12 units on the dependent variable, and a unit is equivalent to about 115 minutes of work.

**Table 3: Aggregate-level determinants of the gender division of labor**

	Unpaid work (female share)	Paid work	
		Women	Men
Divorce (micro-level variable)	-0.098*** (0.027)	0.045*** (0.017)	0.021* (0.011)
Divorce (macro-level variable)	-0.004*** (0.001)	0.004*** (0.001)	0.001*** (0.000)
Past absence from paid work	0.148*** (0.045)	-0.577*** (0.023)	-0.028* (0.015)
Male labor force participation	0.244*** (0.035)	-	-
Female labor force participation	-0.109*** (0.026)	-	-
Male income (log)	0.034*** (0.012)	-	-
Female income (log)	-0.073*** (0.011)	-	-
Skill specificity	0.242*** (0.066)	-0.155*** (0.034)	0.057** (0.023)
Public sector * Skill specificity	-0.401*** (0.106)	0.248*** (0.056)	-0.163*** (0.038)
Number of dependents	0.040*** (0.009)	-0.007 (0.005)	0.033*** (0.003)
Age	0.008*** (0.001)	-0.007*** (0.001)	-0.019*** (0.000)
Gender of respondent	0.199*** (0.019)	-0.016 (0.011)	-0.048*** (0.007)
Adj. R-squared	.143	.221	.452
N	3718	6523	6688
No of countries	12	12	12

Key: \*\*\* p<.01; \*\* p<.05

Public sector size is not included as a component variable because it turns out to have practically no effect on either dependent variable (i.e., it is indistinguishable from zero), yet produces serious problems of collinearity (95 percent of the variance in the interaction term is explained by its components). With that qualification, all the relationships turn out as expected. Divorce at the macro-level plays the same role as at the micro-level, raising women's paid employment and reducing their share of unpaid work. The effect is quite strong, increasing female labor force participation by one half a standard deviation, which, if we use actual participation data is equivalent to about 5 percent of all working age women. Like before, labor force participation



reduces the share of household work, but more so for men than for women – partly offset by a stronger effect of income for women.

The key new finding in Table 3 concerns the effect of skill specificity. The emphasis on specific as opposed to general skills in national training systems is measured by an index, which is equal to the mean, after standardization, of vocational training intensity and firm tenure rates.<sup>8</sup> Compared to general schooling (such as the American college system), vocational training is assumed to produce skills that are specific to an occupation or industry. Firm tenure rates, on the other hand, are assumed to be a good proxy for whether workers have acquired firm-specific skills (see Estevez et al. 2000 and Iversen 2005).

The results show that skill specificity unambiguously hurts the labor market participation of women when the public service sector is small. The opposite is the case for men who appear to thrive when the production system relies heavily on specific skills (although the effect is smaller than the (opposite) effect for women). In an economy with the smallest public sector in the sample (Japan at 8.6 percent of GDP), going from an economy with little emphasis on specific skills to one with a high emphasis, is predicted to reduce female employment by about one third of a standard deviation on the dependent variable (about 3 percentage of the female working age population), and to raise unpaid work by between one third and one half of a standard deviation (about 4 hours per week).

Crucially, however, the relationship between skills and the division of labor is attenuated by a larger public sector, measured here as public consumption as a percent of GDP (standardized to vary between 0 and 1 for ease of interpretation). The relationship between specificity of skills and a less favorable division of labor for women disappears when government spending is about one standard deviation above the mean. Clearly, while specific skills undermine private sector employment, the government can eliminate the effect, and potentially reverse it, by increasing the public service sector and the number of women employed in it.

We can now see the implications of the model for explaining the gender gap in political preferences. If the risk of divorce is high, women have an interest in supporting policies that facilitate their labor market participation. This would everywhere imply support for low-cost daycare and income protection during labor market leaves, and in specific skills countries it would also imply support for government job creation to compensate for the lack of general skills jobs in the private sector. Somewhat paradoxically, however, it is where women are in the weakest position in the economy, and most dependent on marriage, that their preferences are the *least* likely to diverge from men's. With poor marriage exit options, and a low probability of divorce, women have an incentive to maximize the household income, aligning their preferences with working men's. This is the Becker prediction, and roughly explains the pattern in Japan and in southern Europe.

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<sup>8</sup> Vocational training intensity is the share of an age cohort in either secondary or post-secondary (ISCED5) vocational training. *Source*: UNESCO (1999). Tenure rates are the median length of enterprise tenure in years, 1995 (Norwegian figure refers to 1991). *Sources*: OECD *Employment Outlook*, 1997, Table 5.5. For Norway: OECD *Employment Outlook*, 1993, table 4.1.

We can also now see how the model qualifies Becker's socialization argument. If the risk of divorce is substantial then caring parents should alter their behavior towards their daughters. Rather than teaching traditional female gender roles, they should be taught assertiveness, independence, and other traits valued in the labor market. With this also comes a greater emphasis on girls acquiring marketable skills through education. We would thus expect gender roles to be much more clearly delineated in countries where the gender division of labor remains extensive and where divorce is rare (see Hrdy 1999 for some support for this proposition). This is fruitful area for future research.

### ***3.2. Explaining Divorce***

Recall the predictions about divorce in Section 2.2. Similar to the case of explaining the division of labor, skill specificity will lower the probability of divorce, conditional on the availability of public sector jobs and public daycare. This is because women are more likely, all else equal, to value the husband's income and prefer to stay married when her own labor market value is weak. In terms of the model, it increases the bargaining space. In addition, the cost of divorce reduces divorce while higher wages for women raise it.

#### **3.2.1. Data**

The dependent variable is the number of divorces per 100 marriages as recorded by the OECD's statistical compilation of social indicators, 2001. We have data for 18 countries from 1970 to 1995, with one observation every five years. The maximum feasible number of observations is therefore 108, but five observations are missing, and with a lagged dependent variable to deal with serial correlation, the number is 85.

We use the following proxies for the explanatory variables:

*High barriers to divorce.* Comparative divorce data suggest that where additional and substantial barriers to divorce exist beyond the requirement that couples agree to marital dissolution, divorce rates tend to be lower. The distinction therefore should be drawn between systems that allow couples to divorce with little court interference (either unilaterally or by mutual consent) and those that actively discourage them by providing strict fault-based grounds for divorce such as in Ireland, Italy, and Spain. We have coded the systems with unilateral no fault divorce, or mutual consent, 0. Those country-years with fault systems, long mandatory waiting periods and additional judicial hurdles are coded 1. Sources: Tsubouchi 1970; Glendon 1987; Goode 1993; Smith 2002.

*Relative wages of women.* We measure relative wages for women as the average share of female to male wages across the lowest, middle, and top deciles of the earnings distribution. These data are from the OECD and available for 15 of the 18 countries. For the missing cases we imputed the data by first estimating female relative wages as a function of wage inequality at both the top and bottom of the distribution for all workers ( $d9/d5$  and  $d5/d1$  ratios), including a full set of time dummies ( $R$ -squared=.48). We are not assuming any particular causal relationship; the overall wage structure could affect the gender wage structure or vice versa. We are simply constructing a reasonable proxy for female wages where such data are missing. For country-

years where no wage data are available we use the closest available observation in time and adjust for the time effects as captured by the time dummies. *Source: OECD, Electronic Data Base on Wage Dispersion* (undated).

*Size of public sector.* Measured as above (public consumption as a percent of GDP).

*Skill specificity.* Measured as above (the mean, after standardization, of vocational training intensity and firm tenure rate).

The first column of Table 4 shows the main results using OLS regression with a lagged dependent variable and panel corrected standard errors. As expected, the restrictiveness of divorce legislation *does* appear to reduce the rate at which people divorce. Going from a legal system with easy unilateral no fault divorce (such as Sweden) to one with fault and long mandatory separation periods (such as Spain) is associated with 13 fewer divorces per 100 marriages in the short run, and more than 20 in the long run.

Based on these results, it is interesting to contemplate the public policy implications of imposing barriers to divorce (or “family values” in the language of the religious right). On the one hand, a rise in the probability of divorce can lead to a socially undesirable underinvestment in family-specific assets such as children (Becker and Murphy 1988). In response to growing evidence that children benefit from growing up with both parents at home, two U.S. states, Louisiana and Arizona, have adopted “Covenant Marriage” laws that allow couples to voluntarily bind themselves in stronger marriage commitments than the general law allows (Brinig 1998; Spaht 2002). Parents may recognize the value of investing more in their children, but fail to on account of strategic interaction with their spouse. Public opinion surveys in the U.S. reveal that at least some of the women in full-time jobs would rather be working part time (Waite 1999).

In Italy, where divorce is still more difficult than most elsewhere in the developed world, public policy advocates note that the rise in divorce may be related to an increase in adolescent male suicide. In northern Italy, divorce is more common than in the south: 5 separations and 3 divorces per 1000 couples compared with 2.7 separations and 1.2 divorces in the south in 1997. Policy advocates argue that this difference in divorce might be related to the higher suicide rate for adolescent males in the north compared with the south (Mancinelli et al. 2001).

On the other hand, to take the same Italian example, the suicide rate among females in the north decreased over the same period by more than it decreased in the south (Zanatta 1997; Mancinelli et al. 2001). These data are corroborated with evidence from other countries, where female suicide rates tend to decline as divorce increases (Wolfers 2001). While family stability may have some obvious benefits, particularly in encouraging higher parental investment in children, it can come at a high cost to some women who are trapped in unhappy or even abusive marriages. The fact that low-divorce countries also tend to have low fertility levels is further evidence that binding couples into more permanent unions may be biased against the woman’s interest. Low fertility may reflect the woman’s effort to gain some measure of economic independence, even at the cost of her maternal role.

The discussion about the pros and cons of various divorce laws may nevertheless be moot, for

there are few societies that combine strong outside options for women with restrictive divorce procedures. Empirically, societies where women have the possibility of being economically independent typically also tend to have permissive divorce rules, presumably because traditional values and eventually even legal systems give way in the face of massive defection. Divorce law is therefore perhaps better treated as an endogenous variable. We hasten to add that excluding this variable does not alter any of the substantive results in this section.

**Table 4: The determinants of divorce rates**

	1 Divorce	2 Divorce	3 Female LF participation	4 Female LF participation
Lagged dependent variable	0.39*** (0.12)	0.38*** (0.12)	0.76*** (0.08)	0.76*** (0.08)
Restrictive divorce legislation	-13.31*** (2.14)	-13.23*** (2.15)	-4.05*** (0.90)	-4.07*** (0.90)
Female relative wages	14.65 (8.18)	14.91 (8.15)	6.21 (4.09)	6.13 (4.17)
Size of public sector	0.31 (0.24)	-	-0.10 (0.16)	-
Specific skills	-23.20** (11.28)	-33.04*** (7.35)	-19.42*** (6.54)	-16.07*** (3.24)
Specific skills* size of public sector	1.38* (0.74)	2.05*** (0.40)	0.99*** (0.42)	0.77*** (0.21)
GDP per capita (log)	15.83*** (4.83)	16.37*** (5.19)	0.69 (2.46)	0.52 (2.54)
Constant	-126.42** (48.67)	-127.18** (50.00)	13.15 (19.78)	13.25 (20.14)
R-squared	.74	.74	0.93	0.93
N	85	85	85	85

Key: \*\*\* p<.01; \*\* p<.05 ; \* p<.10

Female relative wages have an effect in the expected direction, but it is not statistically

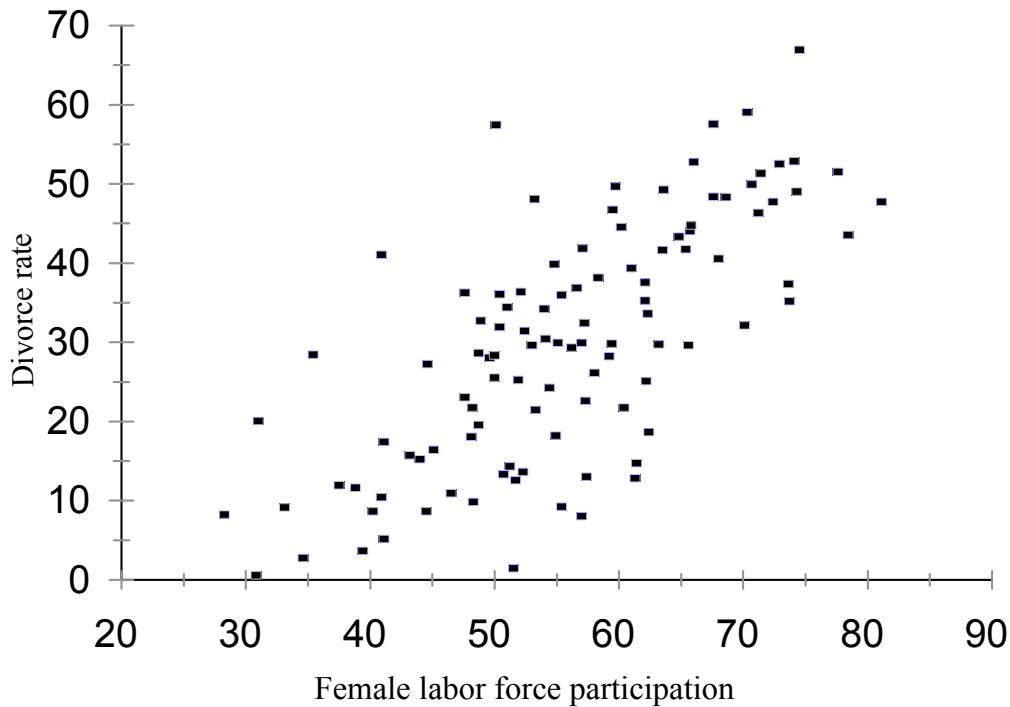
significant. The absolute level of wages, which is here picked up by per capita income, and especially women's opportunities for employment, seem to be more important. The latter in turn depends on the structure of skills in the economy and public employment policies.

As expected, production systems with a strong emphasis on specific skills reduce divorce because such systems, using the logic of the theoretical model, undermine women's opportunities outside the marriage and therefore increase their dependence on remaining married. However, this effect depends on the scale of public service provision. When the latter is about 18 percent of GDP there is no effect of skill specificity on divorce. Only the Scandinavian countries have a public sector this large. Conversely, when the public sector is only about 10 percent of GDP, going from a general to specific skill system reduces the expected number of divorces by 10 in the short run and 17 in the long run.

These effects are highly statistically significant once we take into account multicollinearity between the interaction terms and its components. Since government size only has a small direct effect on divorce, removing this variable does not alter the results much, but it does significantly reduce the standard errors on the estimated parameters for both the skill variable and the interaction term (column 2). There is little reason to doubt that skills, and their interaction with public employment policies, matter in a statistical sense.

Although the level of wages for women probably matters for divorce, the story seems to boil down to one about employment. Figure 2 illustrates just how tightly related divorce and female labor force participation is. Of course, this does not say anything about causality. Indeed the relationship simultaneously captures the logic we have developed to explain the gender division of labor, where higher risk of divorce is associated with more paid work for women, and the logic we have developed for divorce, where better outside options for women raise the probability of divorce.

**Figure 2: Female labor force participation and divorce rates.**



What allows us to escape the truism that everything depends on everything else is our theoretical specification of mechanisms. We argued above that it is the combination of the skill system (embedded in the structure of production), and public employment and social service policies that determine the position of women in the labor market -- hence their bargaining position in the family and the probability of divorce. This is strongly supported by the results in column 3 and 4 of Table 4, where we use female labor force participation as the dependent variable. Again, the public sector variable creates collinearity issues, but it does not raise concerns about the statistical significance of the key relationships. Specific skill economies do indeed seem to place women in a disadvantage in the labor market because employers tend to rationally discriminate against women when making investments in their employees' specific skills. The state can however compensate for this disadvantage by providing general skills jobs in the public service sector. These jobs are overwhelmingly occupied by women.

While divorce and female labor force participation are mutually dependent, it is harder to argue that training systems and public service provision are a function of divorce. Certainly we know of no argument that would explain the vocational training system as a function of divorce. This suggests a critical causal effect of employment opportunities for women on divorce, even as there is good reason to believe that the causality also runs in the opposite direction. Indeed, it is easy to confirm the effect of female labor force participation using the variables in column 3 to instrument this variable. But knowing what we know about the effect of these variables on

divorce, this is hardly adding much new information.

#### **4. Conclusion**

This paper has provided theoretical arguments and empirical support for the interlocking relationship between female labor force participation, divorce, and the gender gap in preferences for public spending on social services. Causality between female labor force participation and divorce seems to move in both directions: higher probabilities of divorce lead women to invest more in market work, and greater remunerative opportunities for women in the labor market may “release” more women from suboptimal marriages once they are able to support themselves economically.

This logic suggests a reason for the well-known gender gap in preferences for government spending on public services. Because labor market participation increases a woman’s exit options from a marriage, and thereby gives her greater bargaining equality with her already more mobile husband, women are likely to favor government subsidization for education, childcare, and public employment that augment her market value. We expect that this gender preference gap varies by labor market attributes such as skill specificity; by individual and societal divorce propensities; and by a woman’s working status.

Our analysis raises several additional issues for future research. Given the importance of socialization in Becker’s specialization model, how well do labor market attributes across countries explain variation in the strength of social norms that stereotype female behavior. We expect, all else equal, for countries with specific skills labor markets to have in place either public policies that reduce the barriers to women seeking employment, or to have social norms that encourage females to invest primarily in assets (beauty, femininity, fine arts and humanities education) of greatest value in the marriage market.

Second, our analysis suggests that laws and judicial practices governing the payment of alimony or child support should factor into females’ calculations about how to allocate her time and effort across family and outside work, holding constant divorce laws and norms. Where judges calculate alimony and child support payments to include a woman’s foregone market investment in support of her husband’s career, women may specialize relatively more in family work.

Finally, we appreciate the logic of the “covenant marriage” movement, now implemented in legislation in Louisiana and New Mexico. By raising the barrier to marriage dissolution, these laws go some distance to equalizing the exit options of a working man and a stay-at-home woman by reducing his. In some cases this arrangement encourages both parties to the marriage to invest more heavily in family well being. But given the personal and social costs of irretrievably bad marriages, our analysis suggests that it may be preferable to instead raise the exit options of the female to the male’s, by way of social policies that ease the supply of her labor, and alimony rules that compensate her for years lost to market investment.

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