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**Working Paper**

How policies affect women's economic position within the family: Labor market institutions and wives' contribution to household income

LIS Working Paper Series, No. 505

**Provided in Cooperation with:**

Luxembourg Income Study (LIS)

*Suggested Citation:* Estévez-Abe, Margarita; Hethey, Tanja (2008) : How policies affect women's economic position within the family: Labor market institutions and wives' contribution to household income, LIS Working Paper Series, No. 505, Luxembourg Income Study (LIS), Luxembourg

This Version is available at:

<https://hdl.handle.net/10419/95389>

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# **Luxembourg Income Study Working Paper Series**

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## **How Policies Affect Women's Economic Position within the Family: Labor Market Institutions and Wives' Contribution to Household Income**

**Margarita Estévez-Abe and Tanja Hethey**

**November 2008**



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**Luxembourg Income Study (LIS), asbl**

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# **How Policies Affect Women's Economic Position within the Family: Labor Market Institutions and Wives' Contribution to Household Income<sup>1</sup>**

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## **Abstract**

This paper examines the effects of public policies in shaping wives' economic standing within the family in advanced industrial societies. It conducts two types of statistical analysis. One is a multi-level regression analysis to examine the effects of employment protection regulation, the size of the public sector, tax policy, and mother-friendly social policy while controlling for individual attributes of wives (age and education) as well as household characteristics (husband's income, presence of children, and the relative educational background between the spouses). The other consists of a two-step regression analysis, whereby coefficients on personal attributes are first measured country by country, then compared across countries. Both analyses use the micro-level data from the Luxembourg Income Study for 16 advanced industrial societies. It finds that strong employment protection negatively affects women's capacity to attain economic parity vis-à-vis their husbands by reducing women's employment levels, while the size of the public sector positively affects wives' contribution to household income by improving women's wages. The positive effect of the public sector is independent of mother-friendly social policies.

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<sup>1</sup> We would like thank Pepper Culpepper, Orit Kedar, Cathie Jo Martin, Glyn Morgan, Tom Remington, Jonathan Zeitlin, Daniel Ziblatt and Peter Jacobebbinghaus for the detailed comments on an earlier draft of this paper.

## **I. Introduction: The Wife's Economic Position within the Family**

This paper explores individual and institutional factors that affect women's economic contribution to household income. It asks if women in some countries are more likely than their peers elsewhere to attain economic parity vis-à-vis their husbands or their co-habiting male partners in terms of their contribution to household income.<sup>2</sup> This focus on economic gender equality at home is justified given the persisting gender inequality within the society at large as well as gendered division of labor within the family. Women's position within the family and their position within the society are intertwined.<sup>3</sup> We do not understand one without understanding the other.

While being interested in gender inequality, political scientists rarely study dynamics within the family<sup>4</sup>. This is because political scientists consider the family as part of the private sphere and not of the public sphere, which is the focus of their discipline. Sociologists, in contrast, have always been very interested in the unequal

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<sup>2</sup> Unlike some feminist studies that operationalize women's autonomy in terms of their capacity to form households without men, this study focuses on the dynamics between heterosexual cohabiting (whether married or not) couples. This is not to dismiss this particular conception of autonomy. Given that women were long dependent on their male protectors—fathers, brothers and husbands—women's capacity to sustain households on their own is a useful indicator of one aspect of gender equality. Today, there are more households headed by women, and these households are typically poorer than households headed by men. Indeed, the types of households have become highly diversified in many advanced industrial societies in recent decades. The number of single-parent households headed by women rose as well as other types of households. For instance, single-person households—both consisting of one woman or one man—and households of same-sex couples have been on the rise. Yet just as it is important to understand the transformation of the modern family away from families based on the traditional marriage, it is also important to understand changes in the economic dynamics within heterosexual married and cohabiting couples. Such couples still form the majority of households in most countries. (Moreover, many individuals who currently live alone are either young people yet to cohabit or divorced or widowed.) This is why this paper focuses on the gender dynamics in married and cohabiting couples.

<sup>3</sup> Sociologists interested in gender stratification have long been aware of this (Bianchi et al. 1996, 1999; Marx-Feree 1989; Morris 1990; Hakim 1997, Orloff 2002).

<sup>4</sup> Iversen and Rosenbluth (2006) constitute a rare exception.

positions of the wife and the husband in the family. They have accurately perceived that gender inequality reflected and reproduced gender inequality in the society (Hobson 1990; Sorensen and McLanahan 1987).<sup>5</sup> We argue that political scientists should take more interest in gender inequality at home for two reasons. One reason is because public policy actually has profound effects on women's earnings and hence on their economic contribution to the household income. The other reason is because gender inequality in terms of women's economic (in)dependence (from) on their husbands, in turn, is likely to affect their policy preferences (see Iversen and Rosenbluth 2006). Wives, who are dependent on their husbands, are likely to prefer greater protections of male jobs than more economically independent women. In other words, women's economic position at home is both an important dependent and an independent variable for political scientists. This paper primarily investigates the effects of different public policies on women's economic contribution in married and cohabiting couples.

Scholars—most of them economic sociologists—generally emphasize the role of the welfare state in reducing women's economic dependency on their husbands (Bianchi, Casper and Petola 1996, 1999; Hobson 1990; Sorensen and McLanahan 1987). They conceptualize a wife's dependency in terms of the gap between the husband's and wife's earnings as shares of the household income. They find that mother-friendly welfare states in Scandinavian improve wives' economic position within the family. This is not surprising given how much social democratic welfare states do to enable women to balance work and family (Huber and Stephens 2000, 2001). These welfare states offer generous paid care leaves as well as public childcare services to strengthen women's

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<sup>5</sup> Indeed, the existing sociological literature shows that individuals with greater earning power within the family have greater decision-making power over the allocation of resources within the family (Blumstein and Schwartz 1983; Pahl 1980, 1983).

labor market attachment. As a result, wives in these welfare states should have better access to their own earned income.

The presence of mother-friendly social policies, however, does not explain all cross-national variations. Bianchi et al. (1999) argue that Esping-Andersen's three typologies of welfare states—social democratic, liberal, and conservative—largely explain country clusters in terms of the mean economic dependency levels of wives. Wives' economic dependency is smallest in social democratic welfare states, largest in conservative welfare states, and intermediate in liberal ones (Bianchi et al. 1999). In this application of Esping-Andersen's taxonomy, social democratic welfare states are expected to do best. By promoting mother's work, they increase women's labor market attachment and hence their economic position in the family. Liberal welfare states—small welfare states in English-speaking countries—are expected to perform second best. Although public support is lacking, mothers in these countries find childcare services in the market, which help them balance family and work by private means (Esping-Andersen 1999). Women in conservative welfare states in continental European countries fare the worse because they have neither private nor public options to balance family and work. At the first sight, Table 1, which summarizes country means for the percentage of wives' economic contribution to household income, confirms this view. Upon a closer look, however, some puzzles emerge.

Figures 1A and 1B each illustrate patterns of cross-national variations in the shares of two different types of families.<sup>6</sup> Figure 1A shows the percentages of households headed by a male breadwinner in the overall sample of married and cohabiting couples. Figure 1B shows the percentages of households where wives make more money than

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<sup>6</sup> We have also compared the countries in our sample by selecting families with small children (below 3). The results look very similar.

their husbands. Scandinavian countries—Denmark, Finland, Norway, and Sweden—appear to be the most gender egalitarian countries in these figures. For the reasons already discussed, this is no puzzle. The pattern of variations among liberal welfare states (English-speaking countries) and conservative welfare states (Austria, Belgium, France, Germany, Italy, the Netherlands, and Spain), however, presents some puzzles. Let us focus on two of them.

[Figures 1A and 1B around here]

First, unlike the conservative welfare state, which display large shares of male breadwinner households and small shares of wife-dominant households, a subset of liberal welfare states present a more varied picture. The shares of wife-dominant households, where wives contribute more than 50 percent of the household income, are very high in a sub-group of liberal countries (Australia, Canada, and the United States). These countries favorably compare to Scandinavian countries. Yet, when we turn to the shares of male breadwinner households, a big gap appears between liberal and social democratic welfare states. In other words, the pattern of gender inequality in liberal welfare states differs from that in conservative welfare states. If the difference between these two sets of countries lies in the availability of private childcare options in liberal countries (that is, the absence of such options in conservative welfare states), it is puzzling why so many women in liberal welfare states choose to stay home and depend on their husbands' income.

Second, Belgium and France, which Esping-Andersen considers to be conservative welfare states, perform a lot better than other conservative countries when it comes to wives' economic contribution. France, in particular, is known for its generous public support for working mothers (Gornick 1997; Gornick and Meyers 2003; Morgan

2006). While scholars such as Gornick (1997) and Morgan (2006) argue that mother-friendly policies are not necessarily exclusive features of social democratic welfare states, Esping-Andersen (1999), however, stands by his original three typologies to predict cross-national patterns of female employment.

More recently, Stier and Mandel (2003) have modified the welfare state-based explanation by exploring a more institutionally nuanced analysis.<sup>7</sup> They proceed by conceptualizing two types of policies: (i) those that potentially challenge the traditional division of labor; and (ii) those that preserve it. They consider the availability of child care and generosity of paid maternity leaves as institutional features that promote wives' economic standing within the family. As for those policies that preserve the traditional division of labor, they look at the instance of part-time work.<sup>8</sup> Part-time work, while permitting wives, who would have otherwise not worked, to work, still falls short of full-time work when it comes to earnings. In other words, part-time work both increases and decreases wives' economic dependency. Stier and Mandel (2003) use this additional variable to explain cross-national variations in wives' economic dependency. They also pay attention to different patterns of cross-national variations that emerge when looking at different types of families—dual-earner families and single-earner families.

While Stier and Mandel (2003) correctly point out the need to include a wider range of policies into the analysis, some problems remain. Their measure of child care, for instance, lumps together both public and private supply of child care, and thus fails to distinguish different policy options and their independent effects on wives' economic

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<sup>7</sup> Janet Gornick (1999) has looked into a number of possible non-social policy factors that affect women's employment patterns in general as well as cross-national patterns of women's earnings.

<sup>8</sup> Many scholars have noted the importance of part-time work in producing highly gendered effects. (Daly 2000, Del Boca, Pasqua, and Prozano 2006; Gornick 1999; Jonung and Persson 1994; Hakim 1997b; O'Reilly and Fagan eds. 1998; Tijdens 2002).



dependency (or what we call wives' contribution to the household income). Similarly, despite their attention to gendered implications of part-time work, the way they define and integrate a variable for part-time work into the regression analysis is problematic. In order to examine whether the availability of part-time work affects women's economic behavior and status, they use the percentage of women working part-time (as a ratio of all working women) as a way to measure the supply of part-time work. We consider the ratio of women working part-time to actually reflect effects of women's decisions rather than the supply of part-time work. In other words, the way Stier and Mandel operationalized their part-time work variable confounds cause and effect. Moreover, it is also possible that labor market policies might be affecting the incidence of part-time work in the first place—affecting both the percentage of women who work part-time and their economic status within the family. Their study, however, does not control for labor market variables.

This paper develops an alternative institutional approach, which aims at more directly measuring the effects of labor market institutions on women's economic dependency within the family. More specifically, it examines the effects of four features of labor markets on wives' abilities to attain economic parity at home: (a) the degree of employment protection; (b) the degree of wage inequality; (c) the size of the public sector; and (d) tax penalty on second earners' income. In its attempt to delve into causal mechanisms that link institutions and women's economic dependency, this paper examines institutional effects on (i) wives' contributions to household income; (ii) women's working status; and (iii) women's earnings.

## **II. The Argument**

Social policies are not the only policies that affect women's labor market behavior and household decisions on time allocation by the wife and the husband. Mother-friendly policies are certainly important. Yet as it has already pointed out, they do not account for all cross-national variations. Labor market institutions such as employment protection regulation, the degree of wage dispersion, the largeness of the public sector, and tax penalty against working wives are likely to be part of the institutional context that shapes wives' contribution to household income. This section develops hypotheses that connect these four labor market institutions to wives' economic position at home.

## II.1. Employment Protection Regulation and Women

We expect strong employment protection to preserve the traditional division of labor by gender. Strong employment protection is likely to disadvantage women relative to men in the labor market for two reasons. One reason is that rigid labor markets that result from strong employment protection favor the development of internal labor markets, which systematically disadvantage workers who interrupt their careers (see Estévez-Abe 2005, 2006). Internal labor markets hoard good jobs for insiders, and those workers who interrupt their career find it difficult to get back to good jobs. Strong employment protection thus hurts women, who are more likely than men to interrupt their careers for child-bearing and rearing in addition to other family-related reasons. The second reason is that strong employment protection is likely to induce employers to hire fewer workers than otherwise since it will be difficult to lay off workers during a downturn in the business cycle. Therefore, private sector employers, who rely on a smaller workforce, find it difficult to manage workers who might reduce work hours for family reasons. Generous childcare and family care leaves do not necessarily

compensate women for the disadvantages they face in such a context. Women's time-off promoted by public policy only makes female labor more costly for private sector employers (Estevez-Abe 2006; Moss and Deven eds. 1999; Mandel and Semyonov 2006).<sup>9</sup>

From this it follows that we might expect to see a negative effect of strong employment protection in women's ability to attain economic parity in comparison to their husbands. To put it differently, we expect strong employment protection to be related to the prevalence of male breadwinner families.

**Hypothesis 1:** Strong employment protection is likely to reduce wives' economic standing within the family.

## II.2. Wage Inequality and Women

We also hypothesize two possible—but mutually incompatible—relationships between wage inequality and wives' contribution to household income. Blau and Kahn (1992) argue that a compressed wage structure reduces gender wage gap. Although women continue to make less than men in the market, the overall wage compression narrows the wage gap between the sexes. Because gender wage gap can be understood as a structural constraint on women's earnings, following Blau and Kahn (1992) and Rosenfeld and Kalleberg (1990), we can expect greater wage dispersion to reduce wives' possible economic contribution to the household. Here the assumption is that women's weaker earning potential leads to a division of labor at home, whereby the husband works more outside the home and the wife specializes more on unpaid domestic tasks (Becker

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<sup>9</sup> Studies by Semyonov and Mandel (2006) also provide evidence for potentially negative effects of generous leave policies.

1981; Lundberg and Pollak 1996; Ross 1987). We can also consider a different causal relationship. Estevez-Abe and Linos (2005) argue that wage dispersion helps highly educated married women to outsource their otherwise unpaid domestic chores to less educated workers. Following this logic, we can expect wage inequality to increase wives' contribution to household income in two ways. First, when wage inequality is greater, highly educated women can more easily purchase low skilled workers' services to increase their time spent in the market (Cohen 1998; Crompton 2006; Gregson and Loew 1994). Second, the greater demand for low skill services, in turn, provides more job opportunities for women with relatively little education. In both cases, wage inequality should lead to higher levels of earnings for these women because more women will work (and for longer hours).

**Hypothesis 2a:** Wage inequality is likely to increase wives' economic dependence on their husbands' income.

**Hypothesis 2b:** Wage inequality is likely to reduce wives' economic dependence on their husbands' income.

### II.3.Public Sector Size and Women

We expect larger public sectors to increase greater levels of wives' contribution to the household income. We consider this effect to be independent of the scope of public provision of childcare services. It has already been argued that strong employment protection can potentially preserve the traditional division of gender by institutionalizing sex-based disadvantages against women. The logic laid out earlier suggests the effects are stronger in the private sector, where labor cost concerns are more immediate. Public-sector employers (that is, the government) can follow different priorities in their personal

management practices. Female-specific time off such as maternity leave is likely to be tolerated to a greater degree in the public sector when compared to the private sector. Not only are public-sector employers less vulnerable to business cycles, but they can also hire enough workers to handle the fact that a certain share of their female workers might go on maternity and childcare leaves at any given point. Again, for the reasons identified earlier, such options can be too costly for private-sector employers.

As a result we can expect two causal mechanisms that lead to greater contributions to household income by wives in countries with a bigger public sector. First, women might find it easier to work in the public sector, because public-sector employers are less averse to hiring them than private-sector employers. Second, other things being equal, public-sector employers are likely to pay women better than private-sector employers who pay women less due to possible additional costs they may incur. In sum, we expect women to have a better chance of gaining economic parity at home when the public sector is larger.<sup>10</sup>

**Hypothesis 3:** The size of the public sector is likely to enhance wives' economic standing in the family.

#### II.4. Taxation and Women

Although Stier and Mandal (2003) use the share of part-time workers as a country-level independent variable to explain women's economic standing within the family, a more direct way to measure the effects of policies would be to use tax penalty on the second earners' earnings. As labor economists have shown, tax penalty on wives'

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<sup>10</sup> Janet Gornick and Jerry Jacob (1998) argue that there are more women in the public sector when the public sector wages are inferior to private sector wages in general. Here we are only concerned with women's relative options.

earnings affects wives' labor supply (Jaumotte 2004). A number of studies have shown that such a tax penalty increases the incidence of part-time work (Vermeullen et al. 1995; OECD publication). The greater the tax penalty is on the marginal income earned by the second earner (the wife in most cases), the greater the incentive to maintain a traditional division of labor. This means that such a tax penalty will reduce wives' contribution to the household income.

**Hypothesis 4:** Tax penalty on the second earner is likely to reduce wives' economic standing in the family.

### **III. Method of Analysis**

We are interested in investigating the effects of the aforementioned four institutional variables in explaining cross-national variations in wives' contribution to household income. Our dependent variable is the wife's share of household income at the level of individual household; and our independent variables of interest are the institutional characteristics discussed in the previous section. In order to explore the role of institutional constraints in producing cross-national differences at the level of the household, we adopt two methodological approaches: (i) a multi-level regression analysis; and (ii) a two-step regression analysis. The rest of this section presents the details of the variables and methodologies used in the analysis.

#### **III.1. Methodology**

We conduct two separate sets of statistical analysis: (i) a multi-level regression analysis; and (ii) a two-step regression analysis.

### A. Multi-level Analysis

The multi-level analysis permits us to simultaneously control for both individual-level and country-level characteristics. Due to the hierarchical structure of our independent variables, we decided to work with linear multi-level modelling in terms of a linear random intercept model. The model can be stated as follows:

$$y_{ik} = \beta_{0k} + \beta_1 x_{1ik} + \dots + \beta_n x_{nik} + r_{ik} \quad (1)$$

where  $y_{ik}$  is the share of household income for wife  $i$  in country  $k$ ,  $\beta_{0k}$  the country specific random intercept,  $\beta_1$  to  $\beta_n$  the fixed coefficients for individual characteristics  $x_1$  to  $x_n$  like age of wife, education level of wife, and number of children, and  $r_{ik}$  the individual error term  $r$  for wife  $i$  in country  $k$ . In contrast to the coefficients of the individual (level-1) characteristics, the intercept in a random intercept model is allowed to vary over the countries. This variation is modelled in the following way:

$$\beta_{0k} = \gamma_{00} + u_{0k} \quad (2)$$

where  $\gamma_{00}$  is the overall country mean of the dependent variable and  $u_{0k}$  is a country specific random term. This means that all country intercepts are spread randomly around the overall intercept. In a second step we introduce the country (level-2) characteristics. A country's deviance from the overall mean is no longer solely due to some random effect but also due to some country characteristics that shift the country mean in a certain direction.

$$\beta_{0k} = \gamma_{00} + \gamma_{01}z_{1k} + \dots + \gamma_{0m}z_{mk} + u_{0k} \quad (3)$$

with  $\gamma_{01}$  to  $\gamma_{0m}$  being the coefficients for country characteristics  $z_1$  to  $z_m$ .

Working with multi-level models brings several advantages. Two advantages deserve special mentioning. First, multi-level analysis leads to consistent estimation of standard errors for country characteristic coefficients (Snijders and Bosker 1999: 15-16). In a normal OLS regression, these estimates are too small and hence lead to incorrect inference. Second, multi-level models are sometimes referred to as “variance component analysis.” This means that these models can be used to identify how much variation in the data refers to which level. Therefore, also model fits can be calculated for each level separately and this can help to better understand what drives the correlation the most.

As mentioned above, we choose the multi-level model due to the hierarchical structure of our variables. It is important to recognize that multi-level models only make sense if there are country differences in the distribution of our dependent variable. Only then one can try to explain these differences by country characteristics. As Table 1 displays, country means of wife’s share of household income vary significantly across advanced industrial societies.<sup>11</sup> All models are estimated using the multi-level commands implemented in Stata 9.

[Table 1 about here]

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<sup>11</sup> As Table 1 shows there are great differences in the country means ranging from 28 percent in Spain up to more than 40 percent in the Scandinavian countries. An ANOVA F-test for group differences finds these differences to be highly significant.



This analysis necessarily limits the sample to married and cohabiting women. To ensure that our results are not merely representing behaviours of our self-selected sample of married and cohabiting women, we also conduct an additional regression analysis on all working-age women (and men). In expanding the scope of analysis beyond married and cohabiting women, we redefine the dependent variable to be something other than “wives’” contribution to household income. We replace our primary dependent variable with working status of all working-age women. This helps to further unravel the effects of our independent variables on women’s economic status. Do the institutional variables of interest reduce wives’ economic contribution by making it less likely for them to work? As a way of highlighting the gendered nature of institutional constraints, we run the same models separately for the male and female sample.<sup>12</sup> Alternatively, the same institutions might be negatively affecting wives’ economic contribution by reducing their labor market income. We also probe into this possibility by means of two-step regression analyses. Let us now turn to why we have adopted a two-step analysis in addition to multi-level regression analysis.

## B. Two-Step Regression Analysis

We have complemented our multi-level regression analyses with a series of two-step regression analyses. A two-step analysis is fundamentally different from the pooled-sample strategy of the linear multi-level models. Unlike in a multi-level analysis, a two-step regression analysis consists of two steps. First, it estimates regression coefficients on the level-1 variables such as education, age, and marital status separately for each of the

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<sup>12</sup> Due to small country level sample sizes for these two regressions, we are not able to conduct multi-level models in these cases (see chapter results and interpretations).

countries in the sample. Second, it compares the resulting regression coefficients on level-1 variables across the countries. The comparison is done graphically by plotting the level-1 regression coefficients against some level-2 characteristics like a country's public sector size and strictness of employment protection. This graphical two-step approach comes along with the advantage of being able to identify outliers or typical groups of countries instead of simply calculating a unique cross-level interaction effect.<sup>13</sup> As Orit Kedar and Philip Shively argue, a two-step regression analysis is a useful method when one is using a micro-level dataset that includes a relatively small number of countries (Kedar and Shively 2005; Long and Shively 2005). As we will discuss in the following section, this is precisely the case with the dataset used in this paper.

We have conducted two different sets of two-step regression analyses. One set of these analyses directly complement the multi-level analyses. This set of analyses regress all the same individual-level variables on wives' contribution to household income to estimate country-specific coefficients on all those variables. The other set of two-step analyses goes beyond a narrow sample of married and cohabiting women to explore how the same individual-level characteristics might affect women's earnings. In this set of two-step analyses, we add two new individual level variables: (i) whether the person works part-time or full-time; and (ii) whether she works in the private or public sector. This allows us to directly measure the effects of working hours and public-sector employment on individual women. The inclusion of these two binary variables means that we have to drop non-working people from our sample in the set of two-step analysis.

### III. 2. Data and the Variables

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<sup>13</sup> For a detailed discussion about advantages and drawbacks of the two-step approach see the 2005 special issue of *Political Analysis*—"Multilevel Modelling for Large Clusters" in *Political Analysis* 13(4).

For individual-level characteristics, we rely on data from the Luxembourg Income Study (LIS). The LIS is an international database including information from national household income surveys from 30 countries.<sup>14</sup> These surveys provide household as well as individual data on income, demography, employment status, and expenditures.<sup>15</sup> We use data from wave V. Depending on the country, the year of this wave varies from 1999 to 2004. Although the LIS dataset includes 30 countries, following the standard practice in comparative political economy of advanced industrial societies, this study focuses on a subset of relatively homogenous advanced industrial societies. Since we have had to exclude countries for which all of the institutional variables of interest were not available, our sample consists of the following sixteen countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Norway, Netherlands, Spain, Sweden, United Kingdom and United States.

Our principal dependent variable, a wife's share of household income, is calculated in the following manner using the household files in the LIS. Household income is calculated as the sum of gross wages for household head and spouse.<sup>16</sup> The share variable is a two-side censored variable with limited range 0-100. Linear models cannot be applied to variables with restricted ranges. Therefore, we convert the variable into  $\ln(y/1-y)$ , a variable ranging from minus infinity to plus infinity.

As for independent variables, we consider various individual-level characteristics and household-level characteristics. In the analysis to investigate determinants of wives' share of household income, we consider the following independent variables: the

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<sup>14</sup> The LIS includes many of the same countries included in a similar international micro-dataset called International Social Science Survey Program (ISSP). However, the sample size of each country data is much greater in LIS than in ISSP.

<sup>15</sup> For more information about the LIS and database access see <http://www.lisproject.org/>

<sup>16</sup> Unfortunately, not all countries in the LIS dataset report gross wages in every wave. For this reason, we have to use net wages for France and Italy.

household characteristics cover wife's age (years), wife's education level (low, medium, high), wife's relative education level compared to the husband (1=equal or higher), presence of children under 18 (1=yes) and the husband's income level. The last variable is problematic for the LIS reports it in units of national currencies. For reason of international comparability, we decide to use the z-standardized values of husband's income. We think of the age effect not as a linear correlation but as a convex one. A wife's share of household income should rise with age but only up to a certain point later in life from which it will start to decline. In order to model this convex relationship, we add age squared as an additional variable to the model. All these variables are present in the LIS dataset.

Variables that measure country-level characteristics are taken from several different databases. As for the country-level variables of interest, we look at the strength of employment protection regulation, wage inequality, public sector size, and tax penalty. We also use a number of country-level controls as well as alternative variables: government support for childcare, national culture, and political dominance of the left. The strength of employment protection is measured in terms of the index of employment protection regulation developed by Nicoletti et al. (2004). Wage inequality is defined as the gap between the top 10 percentile and the bottom 10 percentile. The OECD earnings data have been used except for Denmark, for which the OECD earnings data were not available. (Eurostat data have been used for Denmark.) Public sector size is based on the ratio of public sector employment as a percentage of total employment from an OECD publication, *Public Sector Size: Measuring Public Employment in OECD Countries* (OECD 1997: Table II.4). The variable for tax penalty measures the ratio of tax rates on second earners in the family and single persons. The larger the ratio, the greater is the

penalty on second earners' earnings. We have used the rates calculated by Jaumotte (2004: Table 2).<sup>17</sup>

Our analysis also includes a control variable for social policy. We use the generosity of national governments in providing or subsidizing childcare services. We have used national public childcare coverage expressed in percentages (Esping-Andersen 1999, table 4A). In order to test two alternative hypotheses, we use two variables. One is the cultural variable to examine the normative attitudes towards family and gender roles. It is quite possible that cultural attitudes shape wives' contribution to household income. We use religiosity as a proxy of traditional gender attitudes. The variables were constructed as percentages of respondents who said that they went to church at least once a week using the latest waves of World Values Surveys. The strength of the left-wing parties has been operationalized as the number of years during which left-wing parties have been in the government. We have used the data from Huber and Stephens (2001: Table 4.1.), which gives different weights depending on if the left-wing parties were in coalition or were ruling alone.<sup>18</sup>

At the individual level, we have restricted our analysis to married and cohabiting couples among the working age population (20-65). We have run our models with three different types of sample: (i) the whole sample (that is, working-age married and cohabiting couples); (ii) couples with children, and (iii) dual earner families.

As mentioned earlier, we also conduct two sets of additional regression analyses using two other dependent variables as part of a separate set of analysis to test the

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<sup>17</sup> Jaumotte (2004: Table 2) calculated two sets of ratios. One set represents tax penalty against women earning 67 percent of average production workers, and the other represents tax penalty against women earning 100 percent of average production workers. We have used the latter set of tax penalty ratios.

<sup>18</sup> Huber and Stephens (2001) do not include Spain, so we have calculated it using the list of past Cabinet in [www.terra.es/personal/mothman/spain3.htm](http://www.terra.es/personal/mothman/spain3.htm).

robustness of the findings from our main analysis. One is women's work status, and the other is women's earnings. The first variable is a binary variable (employed=1, not employed=0)<sup>19</sup>. For the second variable, we use z-standardized values of women's earnings using the gross income variable in the LIS to make the income variable comparable across countries. Absolute earnings in the LIS dataset are recorded in national currencies rendering it difficult for cross-national comparisons. Z-standardized values of women's earnings also possess the added advantage of capturing what affects women's position in the wage distribution curve in their respective countries. We use gross wages because we are interested in the effects of labor market institutions in shaping married and cohabiting women's economic behaviour and economic power. For France and Italy, however, only net wages are available. So for these two countries, we have used net wages instead. The use of net wages instead of gross wages might lead to overestimating the amount of wives' income contribution to the household.<sup>20</sup>

#### **IV. Results and Interpretations**

Table 2 reports the results of a series of multi-level analyses to examine factors influencing wives' contribution to household income. All these models were run on all married and cohabiting women in the sample. The results for individual-level characteristics are not surprising. As women get older, their contributions increase. Yet as it can be seen from the negative sign on the age squared variable, the relationship is a convex one: when women get much older, the effect of age becomes negative. Wives'

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<sup>19</sup> A person is classified as employed if he or she gets gross/net wages >0.

<sup>20</sup> Net wages includes income reductions due to taxation as well as increases due to welfare benefits such as child benefits. The inclusion of child benefits into net wages, for instance, can affect the coefficient for the number of children by increasing mothers' contributions to household income if the benefits are paid to mothers rather than fathers.

education levels have a positive and significant effect uniformly throughout different specifications of the basic model. Wives' educational level relative to their husbands (or male partners) has a positive effect as well. When the wife is better educated than or equally educated as her husband, it does translate to her greater income contributions. The presence of children always has a negative and very significant effect. Husbands' earnings matter too. As already mentioned, we use z-standardized values of husbands' earnings. This variable has a negative effect on wives' contribution to household. In other words, women married to high-earning men contribute less to their household income than women married to more modest earners.

[Table 2 around here]

When we turn to country-level variables, we observe that three out of the four institutional variables of interest in this paper report significant effects with the expected signs. Public sector size has a positive effect, while employment protection and wage inequality have negative effects on wives' contributions to household income. Tax penalty variable is not significant. As indicated in existing studies, public child care also has a positive effect. (Our paper will show that the positive effect of public sector size is independent of generous levels of public child care.)

How can we compare different models (that is, the significance of each of the institutional variables relative to others)? Due to the limited number of samples at the country level, we cannot incorporate all institutional variables into one model. Moreover, the very fact that some of the institutional variables might correlate to one another makes it problematic to include some of the institutional variables in the same model together. For these reasons, we run models that include institutional variables deemed mutually

independent. Even if we were to include all the variables into one model, the differences of unit of these variables would still make it difficult to compare their coefficients.

We thus use model fits to evaluate the relative merits of the models shown in Table 2. Analogous to OLS regression the model fit for a linear multi-level model can be measured by calculating the proportion of explained variance (R-squared) separately for each level (see Raudenbush, S.W/ Bryk, A.S. 2002:72-80, 149-150). This model fit is intuitive to understand. Models that account for more variance are thus superior to those that account for less. For a better interpretation of these fits, we calculated in a first step the base model containing no variables but the intercept. This base model indicates how much of the overall variation in the data belongs to which level. For the sample used for the analysis reported in Table 2, 95.7 percent of the overall variation in a wife's contribution to household income is located on level-1 and 4.3 percent is located at level-2 (country-level). Although the proportion of variance allocated at the country level is not that big, it clearly approves using a multi-level model in order to account for the clustered data structure.

Table 2 reports the model fits of all models. Model IV and I, which include public sector size and strictness of employment protection, have the best model fits. Based on this comparison of model fits, we consider public sector size and strictness of employment protection to be more significant factors that affect wives' contributions to household income than public child care and wage inequality. We have also run slightly different models that test potential alternative hypotheses. One alternative argument is that public sector size and/or strictness of employment protection might be picking up the effect of an omitted variable, namely the strength of social democracy (Huber and Stephens 2000, 2001). Another argument is that the real factor affecting wives' economic



role in the family is the gendered norms prevalent in the country (Fuwa 2004; Inglehart and Norris 2003). Table 3 shows models that include variables to test alternative hypotheses. Although the variable that measures the strength of the left is positive and significant, the model fit is not as good as in model IV shown in Table 2. As for the role of gendered norms, the proxy variable used in our analysis, the overall religiosity, has not produced any significant effect. Our variables of interest, public sector size, employment protection remain significant. It should be noted that Model II in Table 3 has produced the best model fit.

The results in Table 2 and Table 3 support our Hypotheses 1 and 3. Strict employment protection reduces wives' economic independence, whereas large public sector increases it. The results do not support our Hypothesis 4 concerning the effect of tax penalty on second earners. The superior model fit for Model III in Table 2 indicates that our Hypothesis 2a has more validity than Hypothesis 2b. Greater wage inequality shows a negative and significant effect on wives' share of household contribution.

[Table 3 around here]

We have also run the models shown in Table 2 with different samples—couples with children and dual earner couples (not shown here). It is noteworthy that the effects of public sector size and strictness of employment protection become stronger when the models are run on the sample of couples with children compared to the results reported in Table 2. Additionally, the model fit for level-2 increases. However, when the same models are run on the sample of dual earner couples, the effects of these variables become non-significant and the model fit for level-2 decreases. This observation suggests that public sector size and employment protection might be affecting wives' contribution to household by affecting wives' (particularly mothers') employment rates. Interestingly,

coefficients for individual-level characteristics also differ depending on the sample. For wives in dual earner households, their education, the presence of children, and their husbands' income all continue to matter in the same negative way as they did in Table 2, but coefficient sizes become significantly smaller.

In order to further explore the causal mechanism at work, we have conducted three sets of additional analyses. The first set of analyses consists of two-step regression analyses, which examine more closely country-specific coefficients for individual characteristics in influencing wives' contribution to household income. The second set of analyses consist of simple logistical regression to estimate effects of individual-level characteristics and institutional factors on women's working status (whether they work or not).<sup>21</sup> The third—and final—set of analyses includes a series of two-step regression analyses, which compare country-specific regression coefficients of various individual-level characteristics in affecting women's earnings. The goal here is to tease out systematic cross-national variations that unravel possible effects of institutions. Again, for the same reasons of international comparability already mentioned, we use z-standardized values of gross wages as our earnings variable. As we shall explain in greater detail later, we use this set of analysis to demonstrate the “woman-friendly” effect of public sector employment in ways that control for the Scandinavian effect. This is done in two ways. First, we use public sector employment variable at the individual level. Second, we exclude Scandinavian countries from the analysis.<sup>22</sup> The resulting reduction in the number of countries in the sample, however, prevented us from pursuing a multi-

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<sup>21</sup> Because multi-level logistical regressions require a much larger sample size at level-2 in order to converge, we have done regular logistical regressions accounting for the clustered data structure by using a special standard error estimation procedure.

<sup>22</sup> In fact, we would not have been able to include Scandinavian countries because the LIS dataset does not provide any information on working hours (such as full-time/part-time) for Scandinavian countries.

level analysis using the same variables. To capture potential gendered effects of the independent variables, for all these three sets of analyses, we have run the same models for working-age men and women separately.

[Tables 4a and b about here]

Table 4a and 4b summarize the results of our working status analysis for men and women. Again, effects of individual-level characteristics are not surprising. Education increases the odds that a woman works. Marital status has a negative sign but is not significant. Having a child—young or old—reduces the likelihood of a woman to work. At the country-level, public childcare provision and the strength of the left both increase women's odds of working. Employment protection, on the other hand, reduces women's odds of working. When the same models are run on the sample of men, however, results change. Marital status has a positive and significant effect on men's chance of working. The presence of children does not have any significant effect on men. Interestingly, employment protection and strength of the left have the same effects on men.

A separate two-step regression analysis we conducted on wives' contribution to household income sheds additional light on possible effects of employment protection and public sector. We estimated an OLS regression for every country on wives' contribution to household income using the same level-1 variables we used in Model IV in Table 2. A comparison of country-specific coefficients on wives' education in influencing their contribution to household income reveals an interesting pattern (see Figure 2). Education matters less in countries with weak employment protection and small public sectors. In contrast, education matters much more in countries with strong employment protection and small public sectors. We interpret the cross-national variations in the estimated coefficients in the following way.

[Insert Figures 2]

One argument put forth in this paper is that strict employment protection is likely to increase the cost of female labor for private employers. This is most likely to adversely affect women with relatively little education as they will be considered too expensive relative to their human capital. From this it leads that wives with inferior human capital are less likely to work in more regulated labor markets than in less regulated ones. In less regulated labor markets characterized with low levels of employment protection, wives with relatively little human capital also find work, because their labor is not overpriced relative to men's. We thus interpret the smaller coefficients on education in less regulated labor markets to reflect narrower employment gaps among wives of different educational levels. In strong employment protection systems, the employment gap among wives varies depending on one's education to a greater degree than in less regulated labor markets leading to larger coefficients for education in strong employment protection countries.

We also argue that public sector employment could potentially compensate for the adverse effect of strong employment protection in reducing employment rates of wives with inferior human capital. Unlike private sector employers who might find these women's labor too expensive, public sector employers are not solely motivated by labor cost. The Scandinavian deviation in Figure 2 provides evidence that adverse effects of strong employment protection might be compensated for by their large public sector. The fact that Scandinavian countries provide better employment opportunities for women with relatively low education via their public sector most likely explains why these countries also demonstrate low coefficients for women's education.

[Insert Figure 3 about here]

In order to highlight the compensatory effect of public sector, Figure 3 plots the same coefficients along the largess of public sector. Figure 3 provides further evidence for interpretation. We claim that this public sector effect is independent of mother-friendly policies such as generous public child care. (We provide more evidence on this point later in this section.)

Figure 4 further supports our interpretation. If women with relatively little education are squeezed out of private employment opportunities in strong employment protection countries, we should expect these women to rely more on marriage (that is, their husbands' income) for their economic subsistence. Figure 4 demonstrates that this is indeed the case. It should be noted that Denmark, Sweden, and France, which visibly deviate from the pattern, are all countries with relatively large public sectors. This deviation is in accordance with our argument concerning the role of the public sector.

[Figure 4 about here]

Figures 5 and 6 also provide additional insights. Figure 5 presents the coefficients for wives' relative education variable (measured as wives having either equal or more education than their husbands). Although the coefficients on wives' education are bigger in many countries with strong employment protection than in countries with weak employment protection, the coefficients on wives' education relative to their husbands do not. This variable for wives' relative education is only positive in a handful of countries—the United States, Canada, Finland, and Sweden. It is negative in most other countries; Denmark, Norway and the United Kingdom are borderline cases.

[Figure 5 about here]

Figure 6, in turn, shows coefficients on husbands' income levels. Although this variable always negatively affects wives' contribution to household income, the negative

effects are smaller in Canada, Denmark, Finland, Sweden, the United Kingdom, and the United States. Clearly, wives with equal and superior education are finding greater levels of economic independence in this subset of countries, which includes low employment protection countries (Canada, the United Kingdom, and the United States) and those with very large public sectors (Denmark, Finland, and Sweden.) In short, in spite of the relatively large coefficients for wives' education in strong employment protection countries, we should not overestimate the degree to which those women are actually economically independent from their husbands.

[Figure 6 about here]

So far, our analyses have mainly focused on married and cohabiting women. As Figure 4 indicates, at least for some countries, married and cohabiting women could be a self-selected sample of women. Therefore, we have conducted a parallel set of two-step regressions on a broader sample of all working women. This required that we redefine our dependent variable. The new dependent variable is women's earnings rather than their share of household income. As we have done with the variable for husbands' earnings, we have used z-standardized earnings to make country-specific coefficients comparable across countries. This means that we are not really measuring earnings in the absolute but in relative terms. We then conducted OLS regressions to estimate coefficients for the following independent variables on out[our? what should this word be?] dependent variable country-by-country. These variables include individual-level variables: age, age squared, education, marital status(1=married), children under 18, children under 6, number of children, whether one works for public sector or not (public sector employment =1), and part-time/full-time work (part-time=1). By including public sector employment and part-time work variables at the individual level, we can observe

more directly how these variables affect women's earnings. We have also run the same models on men to compare estimated coefficients for men and women separately. Scandinavian countries are not included in this parallel analysis because they do not provide information on working hours (that is, whether respondents are working full- or part-time).

Our two-step regression analyses cast additional light on the role of institutions in different ways. Figure 7 plots countries with estimated coefficients of marital status in affecting women's earnings in the vertical axis and strictness of employment protection in the x-axis. Although the coefficients for marital status are universally negative for women, coefficients are generally lower in low employment protection countries. This suggests that women's earnings go down more drastically in strong employment protection countries when they get married. This is consistent with our argument that labor markets with strong employment protection are more gender-discriminating. Italy and Spain are anomalies in Figure 7. Employment rates of married women in Italy and Spain are much lower than other countries in the sample of countries under study. This suggests that married women who work probably are more of a self-selected sample of women.

[Insert Figure 7 around here]

Figure 8 turns to effects of education on earnings. It plots countries in terms of the gender gap in the estimated coefficients of education in determining earnings and strictness of employment protection. The gender gap is calculated on the basis of coefficients we estimated on male and female samples separately. We then calculated the ratio of male coefficients to female ones. The bigger the ratio, the more men gain from

incremental increase in educational investment. The pattern we observe here is very similar to what we observed in the sample of married women and cohabiting women (see Figure 2). In all countries, we found that coefficients for education were bigger for men than for women. Nonetheless, gender gap was generally greater in strong employment protection countries. Figure 8 highlights the correlation between employment protection and returns on women's education more starkly than Figure 2, because it does not include Scandinavian countries, where large public sectors mitigated effects of strong employment protection. The group average of gender gap in these coefficients is 1.3 for countries with weak employment protection (Australia, Canada, Ireland, the United Kingdom, and the United States), while the group average is 1.6 for those with strong employment protection (Austria, Belgium, France, Germany, Italy, the Netherlands, and Spain). This means that educated men do enjoy a systematic advantage over women in strong employment protection countries. This kind systematic advantage that men enjoy is likely to encourage division of labor between the sexes that lead to the formation of breadwinner households.

[Figure 8 about here]

Figure 9 provides yet another source of evidence for the effect of public sector employment. Interestingly, public sector employment boosts women's earnings almost everywhere regardless of employment protection. In most countries—but not all—public sector employment produces positive coefficients for women but not for men. This result strongly supports our argument that the public sector compensates for difficulties women find in the private sector. Note that the effect we find here has nothing to do with public sector size or the Scandinavian (social democratic) effect. Instead our results show gains



that individual women make by working in the public sector—while controlling for all personal attributes such as marital status, presence of children, age, and education,

[Figure 9 about here]

Figure 10 shows that working part-time always reduces one's earnings. This is not surprising given that overall number of hours work should influence how much one makes. Figure 10 nonetheless reveals interesting cross-national variations. The full-time versus part-time earnings gap is generally bigger for men. This gender gap varies across countries. Belgium, Italy, Ireland, Spain, and the United Kingdom show much bigger gender gaps than other countries. Part-time workers—regardless of their sex—in Canada and the United States fare relatively well. There are three possible ways of interpreting these variations. The first interpretation is to say that men lose more from reducing working hours because their full-time earnings are generally higher than women's full-time earnings. The second interpretation is that cross-national variations are picking up differences in the actual hours worked by part-time workers. Countries in which female part-time workers work a lot fewer hours than female part-time workers in other countries are likely to report much bigger negative coefficients than other countries. The third interpretation is that cross-national patterns observed here reflect "qualities" of part-time jobs. Countries in which part-time work simply means fewer hours of work at the same hourly wage are likely to report much smaller negative coefficients than those countries in which part-time work means cheaper work. Unfortunately, given the limitations of the LIS dataset, we cannot examine these three possibilities. Our

inconclusive findings on part-time work suggest that a more in-depth country study of part-time work is necessary.<sup>23</sup>

## V. Conclusion

This paper has provided evidence for the role of labor market institutions in influencing women's economic position within the family. Strict employment protection and wage inequality reduce wives' contributions to household income, whereas public sector employment improves their contributions. While it is difficult to establish causality on the basis of a limited number of country cases, our method of combining multi-level analysis with a series of two-step regression analyses has allowed us to delve into possible causal mechanisms.

The findings in this paper suggest that in countries with strong employment protection, women receive less for their education and get penalized more (in the labor market) for being married. As a result, a more traditional division of labor between the two sexes appears to become more dominant once women get married or cohabit. In particular, women with relatively little education in these countries clearly adhere to the traditional family model given their higher marriage rates. The negative effects of wage inequality observed here are compatible with the view of bargaining models of division of labor. Strict employment protection clearly further strengthens men's bargaining position within the family.

We find very consistent positive effects of public sector employment for women. Both at the country-level and at the individual-level, public sector employment improves women's earnings power as well as their contribution to household when they are

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<sup>23</sup> Del Boca et al (2006), Gornick and Meyers (2003), and O'Reilly and Fagan eds. (1998) suggest that qualities of part-time work matters greatly.

married (or cohabit). Importantly, this public sector effect persists even when we eliminate social democratic countries from the sample. This positive effect of public sector employment can offset the more gender-discriminating nature of private sector employer. Profit considerations of private sector employers either make them adverse to hiring women or paying them less.

On the basis of these observed effects of labor market institutions, we can explain why women in liberal countries, which lack generous policy support for working mothers, nonetheless perform better than their peers in many European countries when it comes to their economic position vis-a-vis their husbands. Low levels of employment protection clearly level the playing field between the sexes. A large public sector, however, can compensate for potentially negative effects of strong employment protection on wives' economic contribution to household income.

**Table 1:** Country means of wife's share of household income

<b>Country</b>	<b>Mean (%)</b>
Spain	28
The Netherlands	29
Austria	31
Italy	31
United States	34
France	35
Germany	36
Australia	37
Ireland	37
United Kingdom	37
Canada	37
Belgium	38
Sweden	41
Finland	42
Denmark	43
Norway	45

Datasource: LIS wave V, own calculations

Figure 1A Datasource: LIS wave V (around 2000) own calculations

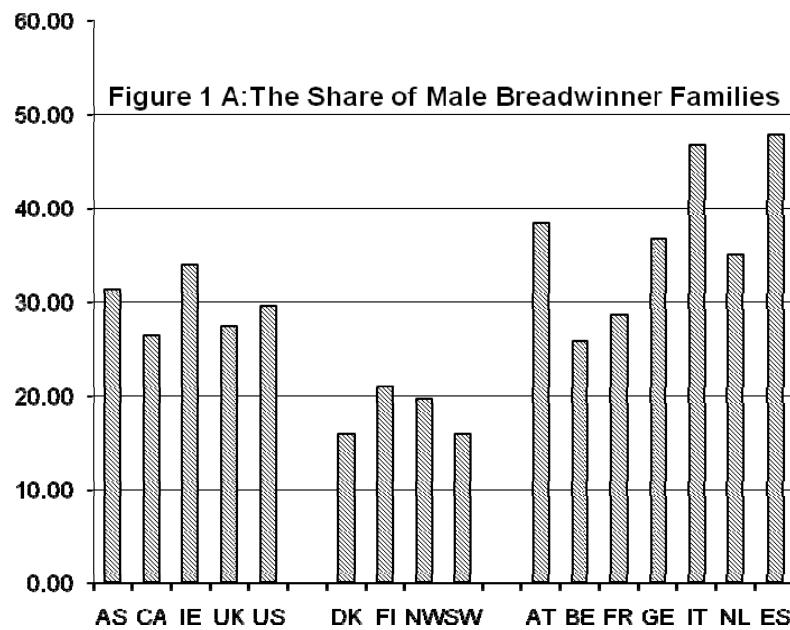
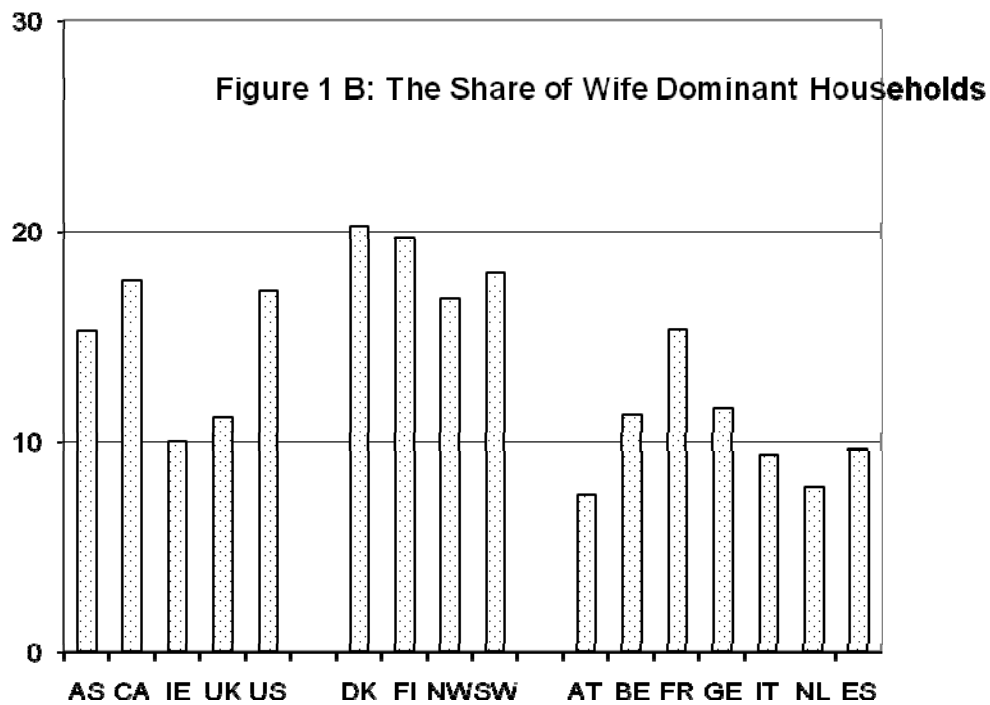


Figure 1B. Datasource: LIS wave V (around 2000) own calculations



**Table 2: Results for All Married and Cohabiting Couples**

	<u>Model I</u>	<u>Model II</u>	<u>Model III</u>	<u>Model IV</u>	<u>Model V</u>
	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)
<u>Individual/Household Level Variables</u>					
Wife's age	0.63*** (0.02)	0.63*** (0.02)	0.63*** (0.02)	0.4*** (0.01)	0.4*** (0.01)
Wife's age squared	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)
Wife's education	1.54*** (0.05)	1.54*** (0.05)	1.54*** (0.05)	1.64*** (0.04)	1.64*** (0.04)
Wife's relative education	0.09* (0.05)	0.09* (0.05)	0.09* (0.05)	0.08* (0.05)	0.08* (0.05)
Children under 6				-3.33*** (0.16)	-3.33*** (0.16)
Children under 18	-2.25*** (0.13)	-2.25*** (0.13)	-2.25*** (0.13)		
Children x education level wife	0.36*** (0.06)	0.36*** (0.06)	0.36*** (0.06)	0.63*** (0.07)	0.63*** (0.07)
Husband's income	-2.82*** (0.02)	-2.82*** (0.02)	-2.82*** (0.02)	-2.82*** (0.02)	-2.82*** (0.02)
<u>Institutional Variables</u>					
Public Child Care		0.04** (0.02)	0.01 (0.03)		0.04** (0.02)
Public Sector Size	0.11*** (0.04)			0.11*** (0.04)	
Tax Penalty	-0.92 (1.47)	-1.33 (1.7)	-2.1 (1.63)	-1.03 (1.48)	-1.42 (1.7)
Employment Protection	-0.54** (0.27)	-0.47 (0.31)	-0.8** (0.34)	-0.55** (0.27)	-0.48 (0.31)
Wage Inequality			-0.9* (0.5)		
Constant	-16.87*** (2.29)	-14.85*** (2.39)	-10.3*** (3.37)	-12.7*** (2.3)	-10.65*** (2.38)
<u>Model Fit</u>					
Level 2 (R-squared in %)	70.9	60.9	67.3	70.7	61.0
Level 1 (R-squared in %)	15.7	15.7	15.7	16.0	16.0
N(total)	115,900	115,900	115,900	115,903	115,903
N(countries)	16	16	16	16	16

\*\*\* significant at the 0.01 level, \*\* significant at the 0.05 level, \* significant at the 0.10 level

**Table 3. Alternative Hypotheses**

	<u>Model I</u> Left Cabinet Coefficient (std. error)	<u>Model II</u> Religiosity Coefficient (std. error)	<u>Model III</u> Religiosity Coefficient (std. error)
<u>Individual/Household</u> <u>Level Variables</u>			
Wife's age	0.63*** (0.02)	0.63*** (0.02)	0.63*** (0.02)
Wife's age squared	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)
Wife's education	1.54*** (0.05)	1.54*** (0.05)	1.54*** (0.05)
Wife's relative education	0.09* (0.05)	0.09* (0.05)	0.09* (0.05)
Children under 6			
Children under 18	-2.25*** (0.13)	-2.25*** (0.13)	-2.25*** (0.13)
Children x education level wife	0.36*** (0.06)	0.36*** (0.06)	0.36*** (0.06)
Husband's income	-2.82*** (0.02)	-2.82*** (0.02)	-2.82*** (0.02)
<u>Institutional Variables</u>			
Strength of the Left	0.06* (0.03)		
Religiosity		-0.03 (0.02)	-0.03 (0.02)
Public Child Care			0.03 (0.02)
Public Sector Size		0.09** (0.03)	
Tax Penalty	-0.95 (1.88)		
Employment Protection	-0.52* (0.32)	-0.64** (0.25)	-0.58** (0.30)
Constant	-15.45*** (2.66)	-16.9*** (1.11)	-15.44*** (0.99)
<u>Model Fit</u>			
Level 2 (R-squared in %)	58.9	75.5	66.4
Level 1 (R-squared in %)	15.7	15.7	15.7
N(total)	115,900	115,900	115,900
N(countries)	16	16	16

\*\*\* significant at the 0.01 level, \*\* significant at the 0.05 level, \* significant at the 0.10 level

Table 4a. Models on Working Status—female.

	<u>Model I</u>	<u>Model II</u>	<u>Model III</u>	<u>Model IV</u>	<u>Model V</u>
	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)
<u>Individual/Household</u>					
<u>Level Variables</u>					
Age	0.21*** (0.02)	0.21*** (0.02)	0.16*** (0.02)	0.16*** (0.02)	0.16*** (0.02)
Age squared	-0.003*** (0.00)	-0.003*** (0.00)	-0.002*** (0.00)	-0.002*** (0.00)	-0.002*** (0.00)
Education	0.73*** (0.04)	0.73*** (0.04)	0.74*** (0.04)	0.74*** (0.04)	0.74*** (0.04)
Marital status	-0.14 (0.15)	-0.13 (0.15)	-0.13 (0.15)	-0.11 (0.14)	-0.11 (0.14)
Children under 6			-0.92*** (0.25)	-0.89*** (0.25)	-0.89*** (0.25)
Children under 18	-0.56*** (0.18)	-0.56*** (0.18)			
Children x education level	0.01 (0.07)	-0.01 (0.063)	0.05 (0.09)	0.03 (0.09)	0.03 (0.09)
<u>Institutional</u>					
<u>Variables</u>					
Public Child Care	0.02*** (0.004)			0.02*** (0.004)	
Public Sector Size		0.05*** (0.01)			0.05*** (0.01)
Employment Protection	-0.15 (0.11)	-0.22** (0.09)	-0.22* (0.13)	-0.16 (0.11)	-0.23** (0.09)
Left cabinet			0.03*** (0.01)		
Constant	-3.45*** (0.45)	-4.1*** (0.46)	-2.56*** (0.49)	-2.59*** (0.44)	-3.23*** (0.47)
<u>Model Fit</u>					
Pseudo R-squared	0.13	0.14	0.14	0.14	0.14
N(total)	206,165	206,165	206,166	206,166	206,166
N(countries)	16	16	16	16	16

\*\*\* significant at the 0.01 level, \*\* significant at the 0.05 level, \* significant at the 0.10 level



Table 4b. Models on Working Status—male.

	<u>Model I</u>	<u>Model II</u>	<u>Model III</u>	<u>Model IV</u>	<u>Model V</u>
	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)	Coefficient (std. error)
<u>Individual/Household</u>					
<u>Level Variables</u>					
Age	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)
Age squared	-0.001*** (0.00)	-0.001*** (0.00)	-0.002*** (0.00)	-0.002*** (0.00)	-0.002*** (0.00)
Education	0.53*** (0.03)	0.53*** (0.03)	0.52*** (0.03)	0.52*** (0.03)	0.52*** (0.03)
Marital status	0.51*** (0.06)	0.51*** (0.06)	-0.51*** (0.07)	-0.53*** (0.06)	-0.53*** (0.06)
Children under 6			-0.1 (0.14)	-0.1 (0.14)	-0.1 (0.14)
Children under 18	-0.04 (0.11)	-0.04 (0.11)			
Children x education level	-0.02 (0.04)	-0.02 (0.04)	0.01 (0.05)	-0.0 (0.04)	-0.01 (0.04)
<u>Institutional</u>					
<u>Variables</u>					
Public Child Care	0.01*** (0.003)			0.01*** (0.003)	
Public Sector Size		0.03*** (0.01)			0.03*** (0.01)
Employment Protection Left cabinet	-0.16* (0.09)	-0.21** (0.09)	-0.19 (0.13) 0.02* (0.01)	-0.16* (0.09)	-0.21** (0.09)
Constant	-1.00* (0.52)	-1.41** (0.57)	-0.95* (0.55)	-0.99* (0.51)	-1.39** (0.57)
<u>Model Fit</u>					
Pseudo R-squared	0.11	0.11	0.10	0.11	0.11
N(total)	201,366	201,366	201,366	201,366	201,366
N(countries)	16	16	16	16	16

\*\*\* significant at the 0.01 level, \*\* significant at the 0.05 level, \* significant at the 0.10 level

Figure 2. Effect of Education on Wives' Contribution to Household Income Plotted along Strictness of Employment Protection

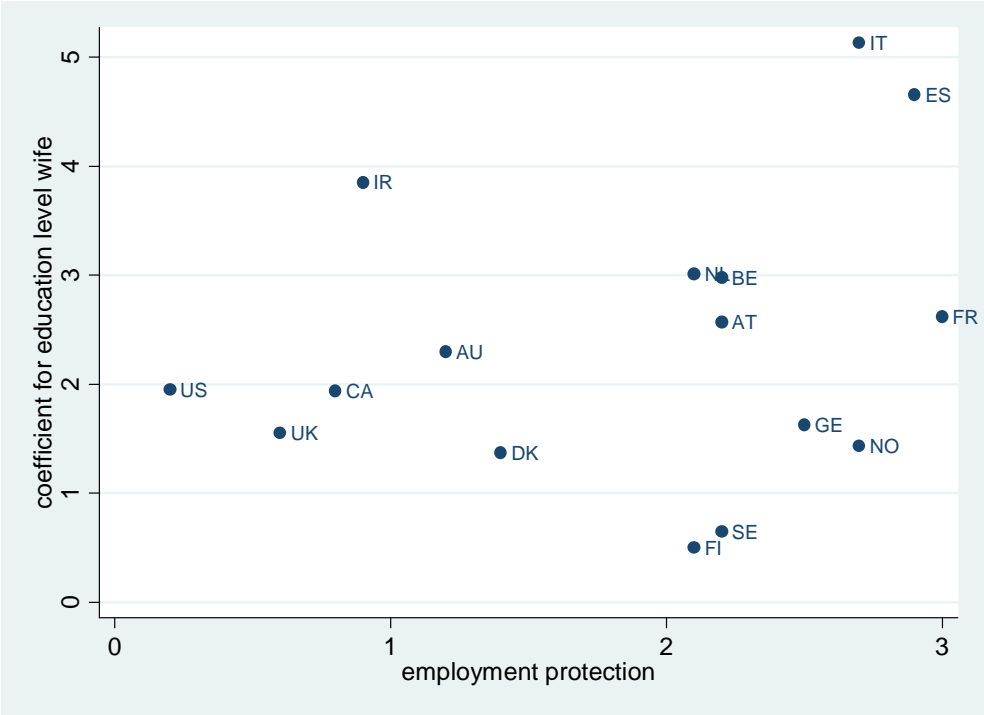


Figure 3. Effect of Education on Wives' Contribution to Household Income Plotted along Public Sector Size

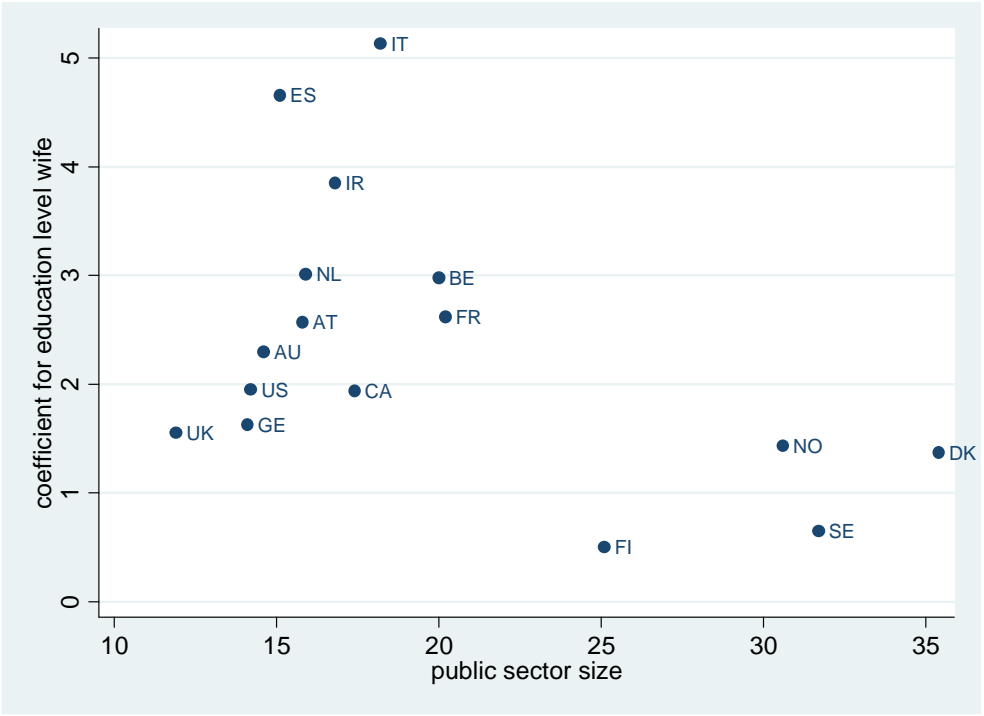


Figure 4. Employment Protection and Marriage Rates (for low-education women)

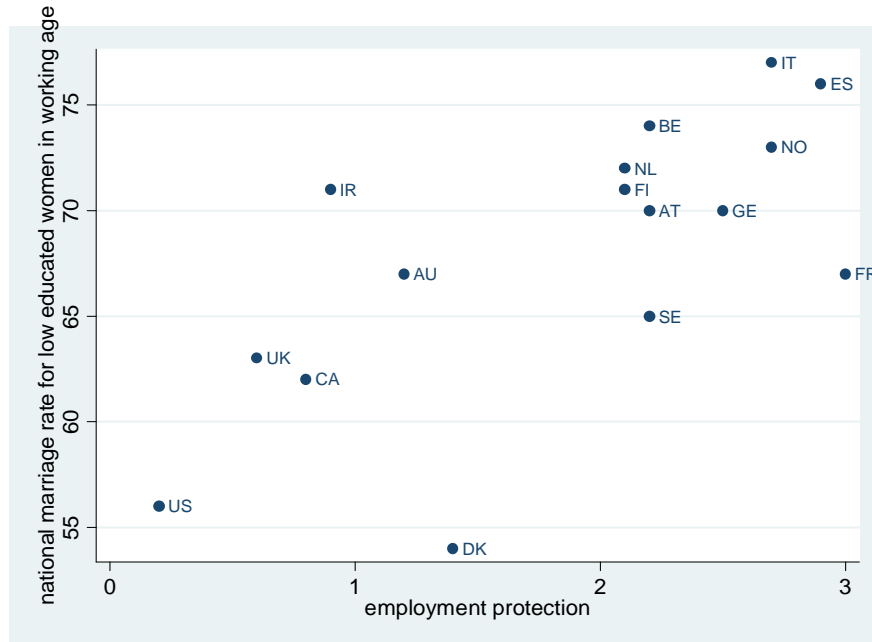


Figure 5. Employment Protection and Effects of Wives' Education Relative to Their Husbands'

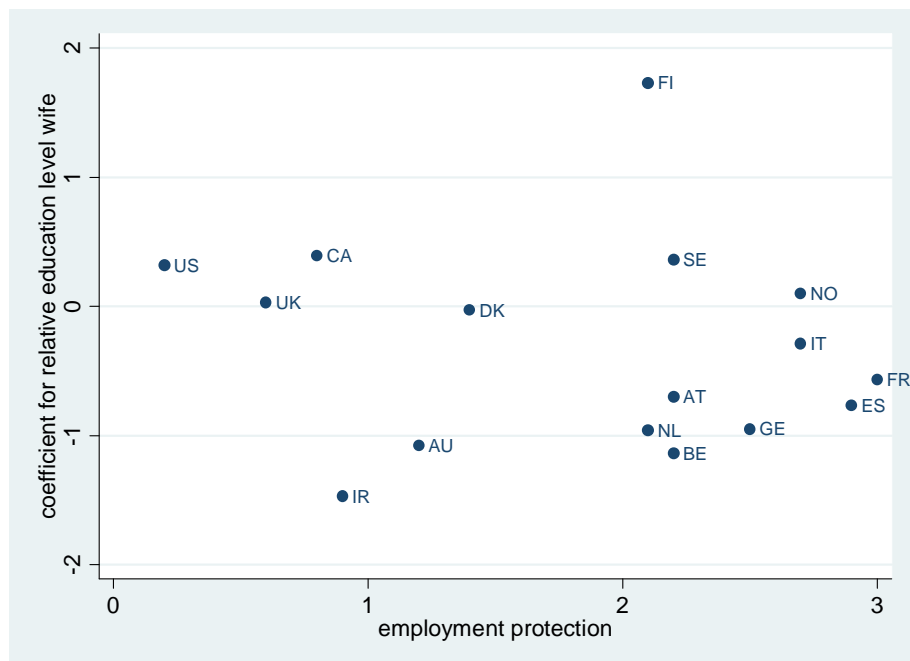


Figure 6. Employment Protection Effects of Husband's Income on Wives' Contribution to Household Income

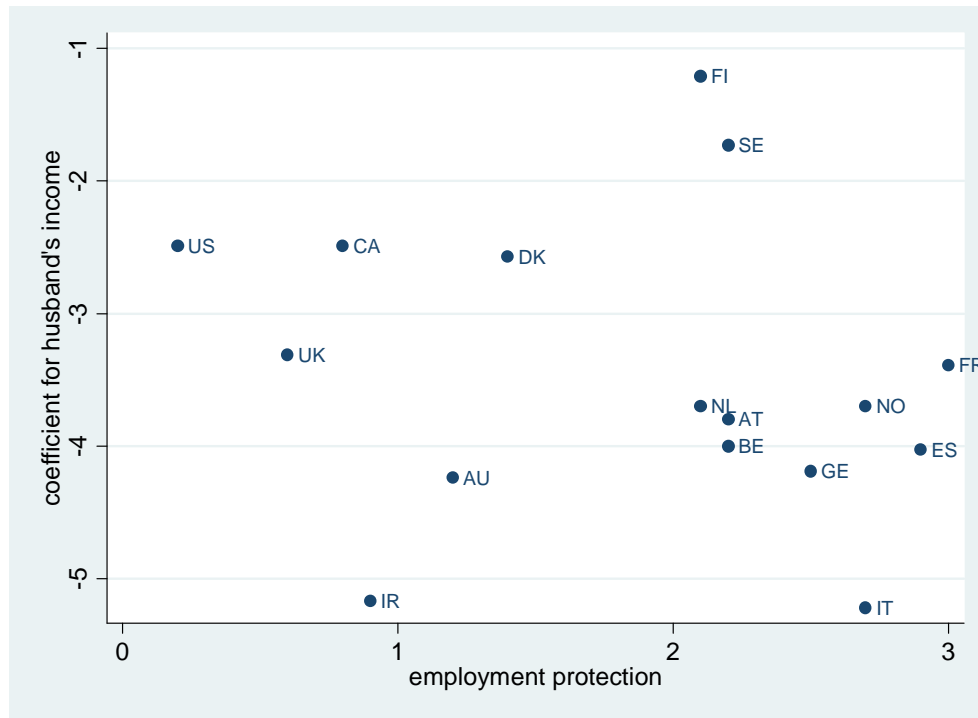


Figure 7: Employment Protection and Effects of Marital Status on Women's Earnings

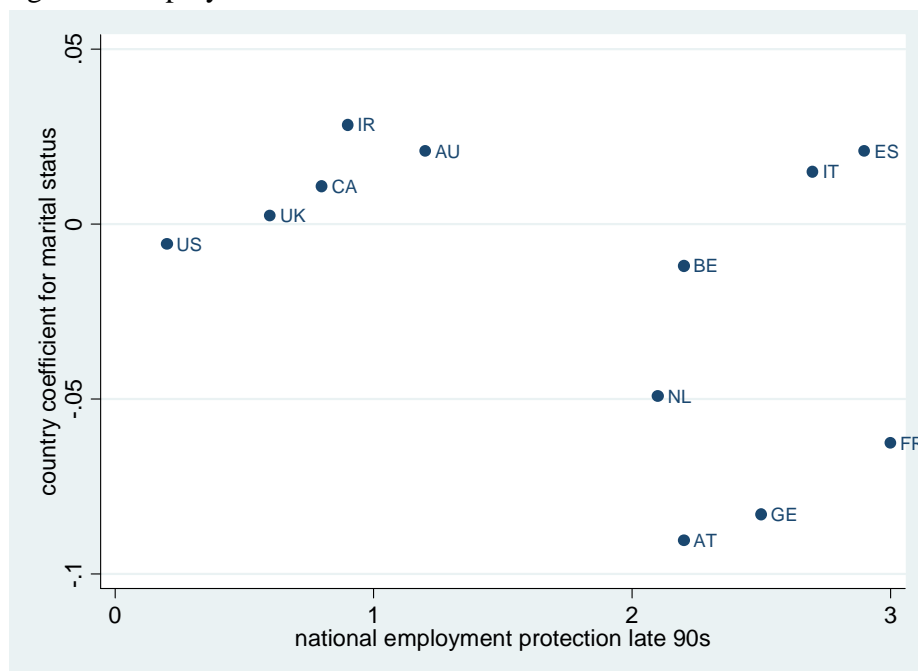


Figure 8: Employment Protection and Gender Gap in Returns on Education

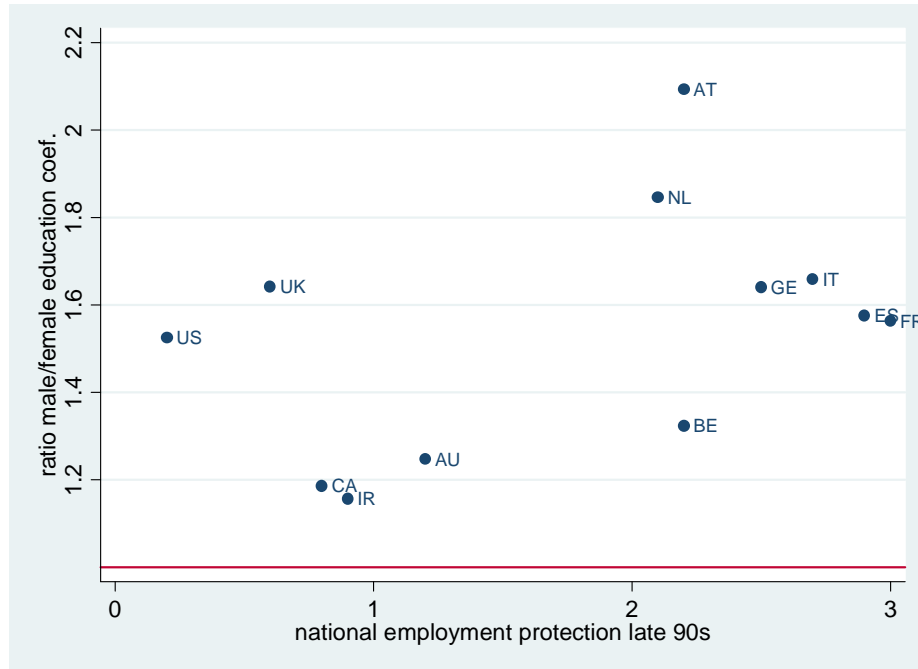


Figure 9: Public Sector Effects on Earnings (Men and Women)

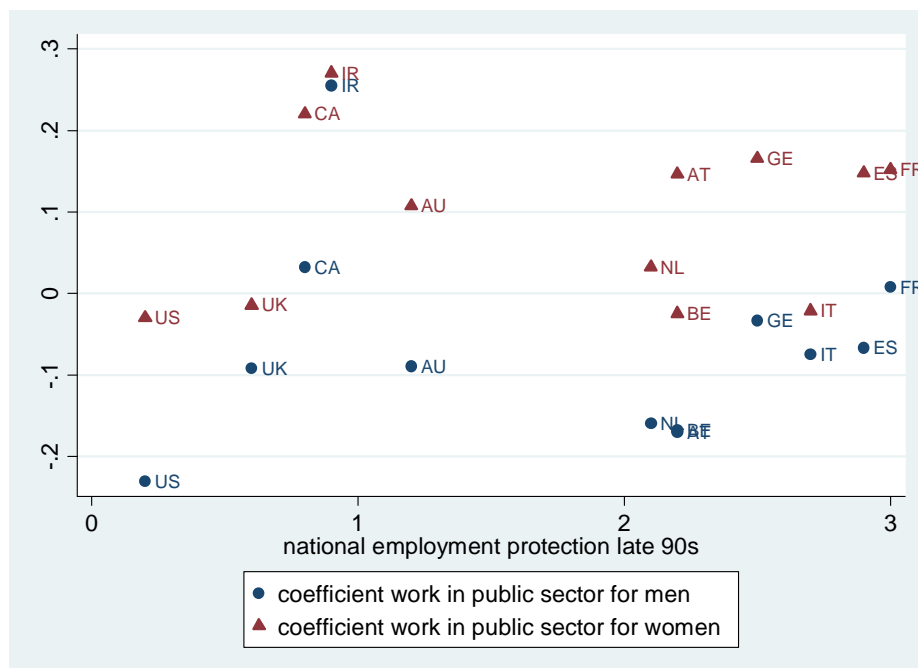
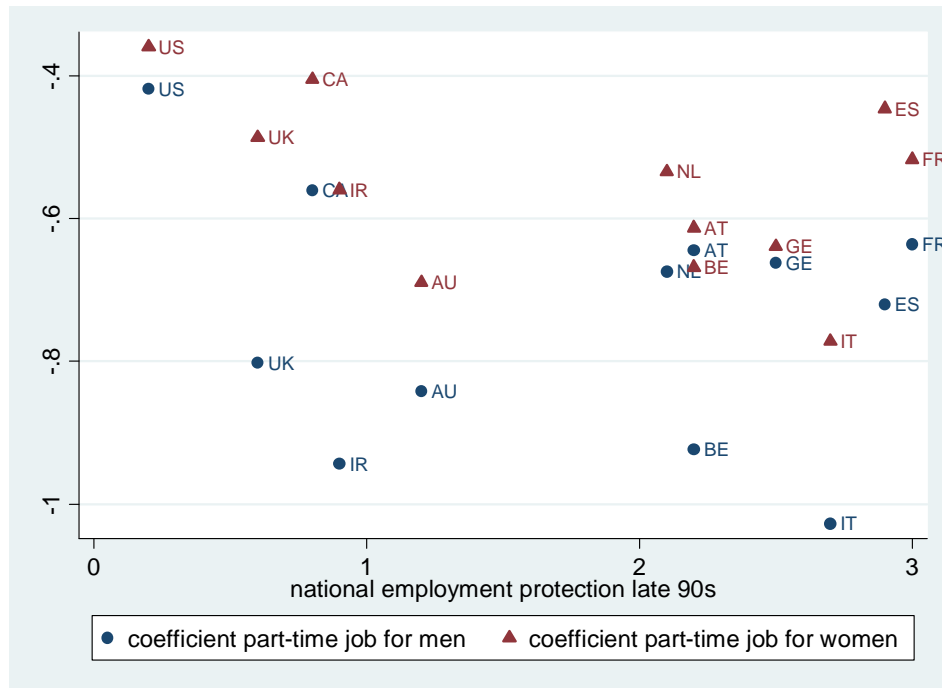


Figure 10: Part-time Effects on Earnings



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