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The Intensive and Extensive Margin of European Labour Supply

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Hanna Kröger and Sandra Schaffner[1]

The Intensive and Extensive Margin of European Labour Supply

Abstract

Labour supply is determined by two factors: the participation of workers in the labour market (extensive margin), and the number of hours supplied by those working (intensive margin). Based on the European Union Labour Force Survey (EU-LFS), we analyse which margin is more decisive in determining overall labour supply in 24 Member States. The results reveal large differences between countries, even after controlling for composition effects in terms of socio-demographic and household characteristics. In addition to individual labour supply, our focus is on differences between EU Member States concerning household labour supply. Joint determination of the number of hours worked between spouses can be observed for dual-income couples in Austria, the Netherlands and Spain.

JEL Classification: J22, J21, J16

Keywords: Female labour supply; household labour supply; European Union; EU-LFS

November 2011

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1 Introduction

The demographic challenge due to population ageing will lead to a decrease of labour supply in the European Union in the near future. Therefore, an increase in labour supply of the working age population, along with productivity growth, seems paramount for the long-term sustainability of the European Union economy. In March 2010, the European Commission proposed a strategy, referred to as Europe 2020, spanning the next decade to revive economic growth by focusing on "smart, sustainable, and inclusive growth" (European Commission, 2010). One core objective of Europe 2020 is to increase the employment rate of the population aged 20-64 years from currently 69 per cent to at least 75 per cent until 2020. However, labour supply cannot only be increased by the number of workers, but also by the number of hours worked.

In almost all countries, women are less likely to participate in the labour market and are more likely to be part-time employed (European Commission, 2009). Therefore, labour supply can especially be increased for women. However, there are large differences between the Member States regarding the employment rate of women and also the share of part-time employed women. Furthermore, institutional settings, which can influence the labour supply decision of singles and couples, differ between the countries.

In this paper the employment probability (extensive margin) and the number of hours worked conditional on employment (intensive margin) in the entire European Union, except for the Scandinavian countries, is analysed. Based on the European Labour Force Survey (EU-LFS) for the years 1998 to 2008, personal and household characteristics that influence labour supply are studied, while focusing on differences between Member States and between men and women. Last but not least, the question whether labour supply is an individual or a joint household decision is addressed.

The large majority of cross-country comparisons are only carried out for the EU-15 and solely focus on the female employment probability (e.g. Antecol, 2000; Del Boca, Pasqua, & Pronzato, 2009; Genre, Salvador, & Lamo, 2010). However, employment is only one component of labour supply. The number of hours supplied to the market once an individual is employed is equally important. Additionally, it is necessary to estimate simultaneous models of labour supply within the context of the household. Thus, we contribute to the existing literature by focusing on the intensive as well as the extensive margin of labour supply in a cross-country setting covering, with the exception of Scandinavia, the entire European Union (EU-27).

The decision to supply labour is not only determined by an individual's characteristics and the institutional framework, but may also be influenced by

the labour supply of the partner. Spouses have to allocate their time between market work, household production and leisure. The "unitary model" of household labour supply assumes that this allocation takes place through the joint maximization of one common utility function (e.g Lundberg, 1988; Fortin & Lacroix, 1997). In contrast, "collective models" of household labour supply relax the strict assumptions imposed by the unitary model, by explicitly allowing for individual preferences and utility maximization (Chiappori & Donni, 2009).

The available literature suggests that couples with pre-school children are more likely to have a shared utility function and to pool their income, because consumption within the household cannot be attributed clearly to one of the two spouses. Thus, their labour supply can best be explained by the unitary model, while collective models of labour supply are more appropriate when explaining the behaviour of childless households. We analyse the simultaneous decision of couples to test whether there is a joint labour supply decision or if both partners act independently from each other. In order to take differences between countries into account, not only country specific fixed effects are estimated, but also separate analyses for each country are carried out.

The results indicate that the correlation between individual characteristics, such as age and education, and labour supply is similar for men and women. In contrast, the composition of the household has a different influence on labour supply for the two genders. While single, childless women appear to have the highest labour supply, all else equal, this outcome is true for married men with children. Concerning household labour supply, the results suggest that in Austria, the Netherlands, and Spain the number of hours worked conditional on employment is jointly determined for dual-income couples with small pre-school children. In Greece, these families appear to take only the employment decision simultaneously.

The remainder of this paper is organised as follows. Section 2 gives a brief overview on the empirical strategy, while Section 3 introduces the data and offers some first descriptive results. Econometric results are presented in Section 4, and Section 5 concludes.

2 Empirical Strategy

The labour supply of workers is analysed in terms of hours usually worked per week. This implies that unemployed or inactive workers report zero working hours. Therefore, this analysis is carried out in terms of realized labour supply. This approach ensures that there are no differences between countries

due to statistical definitions of inactivity or unemployment. Further, the aims of Europe 2020 are formulated in terms of employment rates instead of participation rates. Still, it is important to keep in mind that demand-side effects might determine the realized labour supply in addition to supply-side effects, which are at the heart of this paper.
The number of hours worked is anlysed with the help of a tobit model, which assumes that an underlying, linear process determines the amount of labour an individual supplies:

$$y_i^* = x_i'\beta + \varepsilon_i. \tag{1}$$

If this latent variable y_i^* takes on negative values, the observed variable y_i is zero; otherwise the observed variable takes on the value of the latent variable:

$$y_i = \begin{cases} y_i^* & \text{if} \quad y_i^* > 0 \\ 0 & \text{if} \quad y_i^* \leq 0. \end{cases} \tag{2}$$

The tobit model provides a joint estimation of the relationship between the explanatory variables and the two dimensions of labour supply, namely the intensive and the extensive margin. The probability of employment (extensive margin) is equal to the probability of each observation to be larger than zero. Similarly, the intensive margin can be expressed as the number of hours worked conditional on employment. Indeed, the expected number of hours worked predicted by the tobit model can be split up into the two margins of labour supply:

$$E[y|x] = P(y > 0|x) * E(y|y > 0, x). \tag{3}$$

Along the same lines it is possible to decompose the marginal effects in order to find the effect of each explanatory variable on composite labour supply, the probability of employment and the number of hours worked conditional on employment (McDonald & Moffitt, 1980).

$$\frac{\partial E(y_i|x_i)}{\partial x_i} = \frac{\partial E(y_i^*|y_i^* > 0, x_i)}{\partial x_i} P(y_i^* > 0) + \frac{\partial P(y_i^* > 0)}{\partial x_i} E(y_i^*|y_i^* > 0, x_i) \tag{4}$$

This decomposition is especially useful from a policy perspective, because it allows differentiating between the effects any variable of interest might have on the probability of employment and the number of hours supplied given employment. This study will therefore always report all three marginal effects of the tobit model.[1]

[1]The reported marginal effects for the composite effect are the beta coefficients of the tobit model ($\frac{\partial E(y_i^*|x_i)}{\partial x_i}$) and not the marginal effect on the observed outcome y_i as given in equation 4.

In order to explain differences in individual labour supply, individual characteristics, information on household composition, as well as indicators for the single Member States are used. First, individual characteristics include sex, age, and education. Large differences exist concerning the level and the development of labour supply of women and men. Since female labour supply is lower in basically all Member States, it is often proposed that measures aimed at increasing labour supply should be targeted at women (Antecol, 2000). The following analysis will therefore always be carried out separately for men and women. Second, the information on household composition includes the number of adults (aged 15-64), the number of small children (aged 0-4), the number of school children (aged 5-14), and the number of elderly (aged 65 and above) living in the household. Additionally, the European Labour Force Survey permits the identification of spouses in a household. Therefore, indicators on whether a spouse lives in the household and the number of hours worked by the spouse are included.
The models described above observe each person individually. However, labour supply may be a simultaneous decision of both spouses and should be modelled as such. The labour supply of both partners can be described in the following way:

$$\begin{aligned} y_i^F &= \beta_F x_i^F + \gamma_F y_i^M + \varepsilon_i^F \\ y_i^M &= \beta_M x_i^M + \gamma_M y_i^F + \varepsilon_i^M. \end{aligned} \tag{5}$$

The labour supply of the woman y_i^F is determined by her own characteristics x_i^F and the labour supply of her partner y_i^M. The coefficient γ_F reflects the influence of the husband's labour supply on the labour supply of the wife. As described before we can only observe y_i^F and y_i^M instead of the latent variables:

$$y_i^j = \begin{cases} y_i^{*j} & \text{if} \quad y_i^{*j} > 0 \\ 0 & \text{if} \quad y_i^{*j} \leq 0 \end{cases} \qquad j = F, M. \tag{6}$$

The variables y_i^F and y_i^M on the right hand side of equation 5 are not exogenously given but dependent variables of the respective expression in equation 6. Therefore, the two equations have to be estimated simultaneously. In order to do so, we apply a two-stage strategy proposed by Nelson and Olson (1978). First, the reduced form is estimated by substituting the second equation in 5 for y_i^M in the first equation and vice versa:

$$\begin{aligned} y_i^F &= \alpha_F x_i^F + \delta_F x_i^M + \nu_i^F \\ y_i^M &= \alpha_M x_i^M + \delta_M x_i^F + \nu_i^M. \end{aligned} \tag{7}$$

Based on the estimated coefficients $\widehat{\alpha}_F$, $\widehat{\delta}_F$, $\widehat{\alpha}_M$ and $\widehat{\delta}_M$, fitted values for the dependent variables y_i^F and y_i^M are predicted. These predicted values are then substituted into equation 5. Hence,

$$\begin{aligned} y_i^F &= \beta_F x_i^F + \gamma_F \widehat{y}_i^M + \varepsilon_i^F \\ y_i^M &= \beta_M x_i^M + \gamma_M \widehat{y}_i^F + \varepsilon_i^M \end{aligned} \tag{8}$$

where the predicted values $\widehat{y}_i^M$ and $\widehat{y}_i^F$ are estimated.
One limitation of this empirical strategy is that the individual's labour supply, the labour supply of the spouse, and the personal characteristics of the spouse may all depend on some unobserved characteristics or preferences of the individual. If this is the case, the estimation of equation 5 to equation 8 is not able to establish a causal relationship.

3 Data

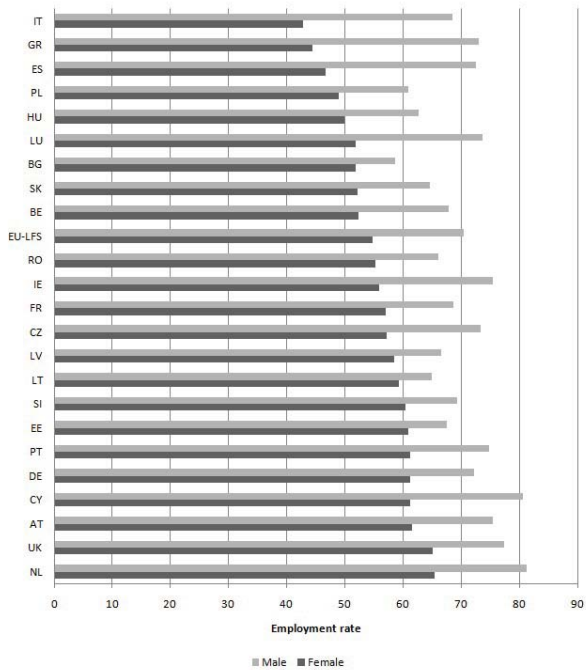
The empirical analysis is based on the European Labour Force Survey (EU-LFS) for the years 1998 to 2008. The EU-LFS is a random sample survey covering individual workers in all 27 EU Member States except Malta. Additionally, Norway and Iceland are covered by the EU-LFS data. The data include a wide range of variables on the demographic background, labour market status and employment characteristics at an individual level (EUROSTAT, 2009).

One advantage of the EU-LFS is that it covers a relatively long time period as well as all countries of the European Union. Unfortunately, the scientific use file of the EU-LFS data does not provide any longitudinal information. However, workers are asked about their employment status twelve months before the interview. Another disadvantage of the data is that wage and income information are missing. Further, Denmark, Norway and Sweden cannot be analysed since information on household composition in these countries is missing in the data.

The overall employment rate increased from 60.4 per cent in 1998 to 65.8 per cent in 2008. Figure 1 presents the employment rate by country and gender. There are substantial differences between the employment rates in the individual countries of up to 22 percentage points. The differences in the employment rates between men and women are equally large: 71 per cent of men aged between 15 and 64 are employed, while this is only true for 55 per cent of their female counterparts. This difference between male and female employment rates is highest in Italy, Spain, and Greece, where the employment rate of men is more than 25 percentage points higher than

that of women. The smallest differences are not observed for those countries with the highest female employment rates, such as the Netherlands or the UK, but for Lithuania and Estonia.

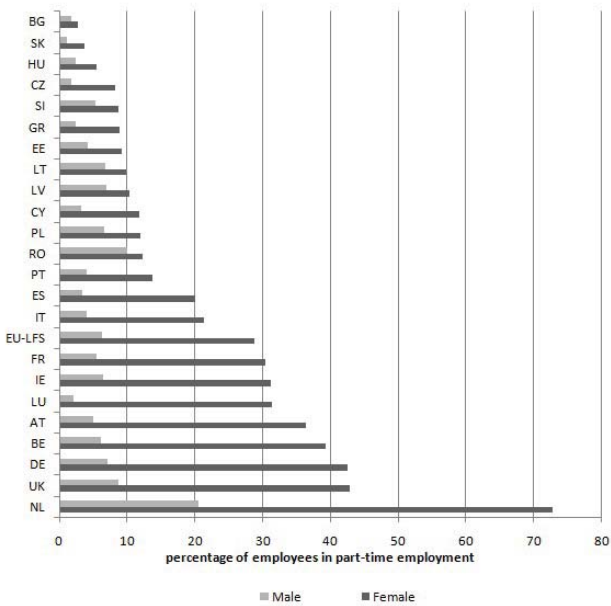
Figure 1: Employment rate by gender



Source: EU-LFS,own calculations.

Figure 2 presents the share of part-time employed workers. All countries have in common that women are more likely to work part-time than men. However, the differential between male and female part-time rates varies between the countries. Although the male part-time rate is the highest in the Netherlands (20.3 per cent), it is very low compared to that of female Dutch employees (72.7 per cent). It is remarkable that those countries with high shares of part-time employment - the Netherlands, the UK, Germany, and Austria - are also characterised by large differences between men and women in part-time employment as well as high employment rates. In these

Figure 2: Part-time employment by gender



Source: EU-LFS, own calculations.

countries the labour supply of women appears to be most decisive for changes in overall labour supply.

While some countries have potential to increase labour supply in the employment rate, some other countries show potential in the amount of hours worked. However, there are also countries such as Belgium and Ireland with relatively low employment rates and a relatively high part-time share. Besides these cross-national differences in the extent of part-time employment, differences in the development of part-time employment over time can be observed. The overall trend of increasing part-time employment is mainly driven by Austria, Belgium, Germany, Italy, Luxembourg, the Netherlands and Spain. These countries experienced sharp increases in part-time employment during the observation period. In contrast, part-time employment in Central and Eastern European (CEE) countries such as Bulgaria, the Czech Republic, Latvia, Lithuania, Poland and Romania decreased.

The findings above suggest that there are large differences in the employment rates as well as in the amount of hours worked of the employed between the countries. Table 1 therefore presents the distribution of hours worked for each country. The countries are first clustered according to their regional affiliation and then sorted according to the share of workers supplying exactly 40 hours each week. This peak at 40 hours is largest for the Central and Eastern European (CEE) Countries. In the majority of these countries more than 70 per cent of employed workers work 40 hours per week, and only a very small share of workers works less than 40 hours. In Poland, the Czech Republic and Slovakia the peak at 40 hours is somewhat lower compared to the other CEE countries with a significant proportion of the workforce supplying between 41 an 50 hours per week.

In most of the New Member States, the official working week is 40 hours and collective agreements do not deviate from the legal regulation (EIRO, 2010). Compared to these countries, the amount of workers with exactly 40 hours is somewhat lower in the Mediterranean countries. However, as Table 1 shows, the main differences are the existence of a second peak at 35-39 hours and the fact that deviations from the 40 hours peak occur upwards and downwards to a similar extent.

In contrast to the country groups described above, the share of workers working 40 hours per week is much smaller in Continental Europe. In some countries, such as France and Belgium, the share of workers supplying between 35 and 39 hours per week is actually larger than the share of workers supply exactly 40 hours. This pattern may be driven by institutional reforms and collective bargaining. For example, the so-called "Aubry laws" in France introduced in 2000 and 2002, respectively, reduced the statutory working week to 35 hours. Second, collectively agreed working time in Germany is

below 40 hours in most industries. Luxembourg is an outlier in the group of Continental countries with more than 70 per cent of employed individuals working exactly 40 hours per week.

Table 1 shows that the UK cannot be compared to the other countries with respect to working hours. Since the coverage of collective agreements is very low in the UK, working time seems to be more flexible than in all other countries. Only 12 per cent of all workers work exactly 40 hours and 37 per cent work more than 40 hours. In addition, working hours above 40 are not limited to certain "round lots" such as 45 or 50 hours. Instead the distribution of hours worked is much more smooth compared to the other country groups. In contrast, the distribution of working hours in Ireland is comparable to that in the Continental European Countries.

4 Results

4.1 Econometric Analysis of Individual Labour Supply

As described in Section 2, we determine the characteristics that are decisive for labour supply by estimating a tobit model. The results of this analysis for women are presented in the last two columns of Table 2. In addition, marginal effects on the probability of employment (extensive margin) are presented in the first two columns and the marginal effects on hours worked conditional on employment are presented in the third and fourth columns of Table 2.

Regarding the age structure, prime-aged women (25-54 years old) are more likely to participate in the labour market than young and older women. Furthermore, prime-aged women do not only work more often than young and older women, they also work more hours. Additionally, the employment rate is positively correlated with the skill level. Highly educated women are 25 percentage points more likely to participate in the labour market compared to women with a low education. They also supply ten hours more per week given employment. Taken together, both margins lead to a difference in hours worked between low- and high-skilled women of almost 21 hours.

It is often argued that the overall labour supply is strongly influenced by family needs. Therefore, the composition of the household should be correlated with labour supply especially for women. The number of children is negatively correlated with the employment probability of women. Each additional small child (aged 4 years or less) is associated with a decrease in the employment probability of 13 percentage points. The relationship is much smaller in magnitude for older children, with each additional school child

(aged 5 to 14 years) implying a decrease of six percentage points. The correlation between hours worked given employment and the number of children is also larger for small children than for school children. When combining the observations on employment probability and number of hours worked, each additional small child is associated with a decrease of nine hours, while each additional child aged 5 to 14 years is associated with a decrease of 4.5 hours.

Elderly persons living in the household can influence the labour supply of workers in both directions. First, they may offer the opportunity to other household members to increase their labour supply by assuming responsibility for (part of) the domestic work. However, they can also be in need of care, leading to a negative relationship between labour supply and elderly household members. However, the results suggest that the number of household members aged 65 years or more is generally not related to the labour supply of women. Women living together with a spouse supply less labour compared to single women. They are less likely to be employed and supply fewer hours given employment. However, each hour worked by the spouse increases women's overall labour supply by 0.24 hours. This means that, all else equal, a woman sharing the household with an employed spouse supplies more labour than a single woman as long as the spouse works more than 23 hours. In conclusion, these results suggest that women's labour supply is strongly determined by their spouses' labour market status.

The results for the labour supply of men are presented in Table 3. The relation between age and individual labour supply is similar to that of women. The same is true for the skill level. However, the differences between low skilled and more educated workers are less pronounced: low-skilled men work seven hours less than medium-skilled men. Regarding the household composition, significant differences to women can be observed. There is no relationship between the number of adults and male labour supply. However, the number of small children is positively correlated with male labour supply in both dimensions, employment and the number of hours worked. This finding is in contrast to the results reported for women. This deviating reaction of men and women suggests that women supply less labour when they have small children, while their partners compensate this by an increased labour supply. Similarly, men supply more labour when sharing a household with their spouse, even if the spouse is inactive or unemployed.

The estimations also include country dummies which capture level differences between the different countries. Figure 3 shows the country fixed effects for the composite effect on the number of hours worked. All country effects are expressed relative to the reference country Austria. All else equal, women in Italy, Belgium and Greece supply the least amount of labour, while

women in Latvia, Slovenia, and Portugal supply the highest amount. Next to Greece and Cyprus, Portugal is also leading in terms of male labour supply. Bulgaria, Lithuania and Hungary are the countries, in which men supply the lowest amount of labour to the market. Women in Italy work around 17 hours less than women in Portugal, and men in Bulgaria supply 13 hours less than men in Portugal.

Interestingly, it is not possible to group countries according to their geographical location in terms of female labour supply. Two Mediterranean Countries, Italy and Greece, are at the bottom and top respectively. The remaining country groups are equally scattered. One possible explanation is that composition effects are more important in determining female labour supply than country fixed effects. In contrast, men in the Central and Eastern European Countries supply the fewest hours to the market, while men in all Mediterranean Countries, except Italy, supply the highest number of hours. The Continental Countries are in between. The fact that male labour supply in the CEE Countries is relatively low appears surprising, because Table 1 suggests that hours worked conditional on employment is highest in these countries. However, demand side effects, such as a high unemployment rate implying a relatively low male employment rate, might lead to an overall reduction in labour supply.

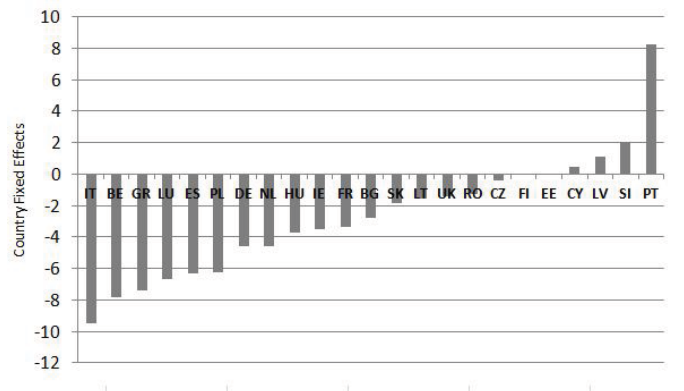
4.2 Econometric Analysis of Household Labour Supply

Up to this point, the labour supply of the individual has been estimated assuming that the spouse's labour supply is fixed and exogenously given. In reality, it is more likely that spouses determine simultaneously how many hours to supply taking into account their own and their partner's attachment to the labour market.

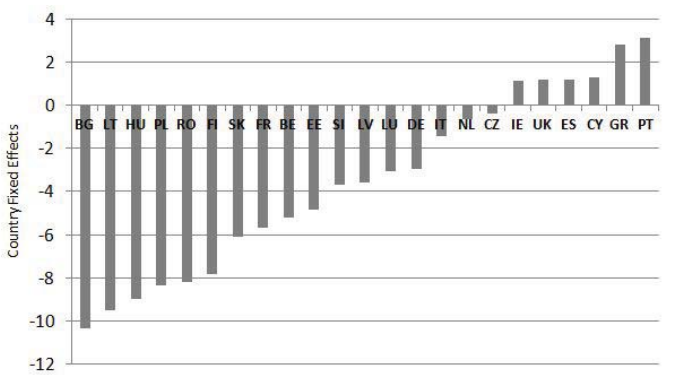
In order to analyse this issue in more depth, a simultaneous model is estimated for the labour supply of spouses. The available literature suggests that the reaction of each individual to his or her spouse's market productivity will, among other things, depend on the existence of small, pre-school children. More specifically, it is more likely that men and women with children react symmetrically to their spouse's labour market attachment. The underlying mechanism is that small children create non-separability in goods consumed by the household (Fortin & Lacroix, 1997), leading to the pooling of household income. Thus, cross-wage elasticities must be negative and symmetric for both spouses (Lundberg, 1988). Stated differently, women (men) cohabiting with high productivity men (women) should supply less labour, all else equal. We therefore present results for couples without children and for couples with pre-school children (up to the age of four years) and follow

Figure 3: Country Fixed Effects

(a) Women



(b) Men



The figure shows the marginal effects of the country dummies on the number of hours worked $\partial E(y_i^*|x_i)/\partial x_i$ (compare with Table 2 and Table 3). Austria is the reference country.
Source: EU-LFS, own calculations.

the strategy laid out in Section 2, which consists of presenting three different marginal effects of the tobit model for the extensive margin, the intensive margin and the composite effect.

In addition, all specifications are estimated using the two-step procedure described in Section 2. First, the spouse's labour supply in terms of hours worked is predicted using the reduced-form equations. These predicted values are used as regressors in the estimation of interest in the second step. The available sample for these estimations is reduced, because such a model can only be estimated for couples. Thus, all individuals not sharing a household with their spouse are excluded. Additionally, the estimations are repeated for dual-income couples with and without children. While specifically dual-income couples with small children are clearly a selective sample, this procedure is motivated by the question to which extent differences between EU Member States exist in terms of the simultaneous decision of spouses to supply labour in the presence of children. For these models, only the marginal effects for the intensive margin, i.e. the effect on hours worked conditional on employment will be presented.

Ideally it should be possible to control for assortative mating when estimating such simultaneous models of spouses' labour supply. Since the 1960s, the schooling levels of husbands and wives are becoming more similar to each other (Pencavel, 1998), which implies that high productivity men cohabit with high productivity women. Compared to the US, considerably fewer studies exist on assortative mating in Europe. However, Katrnak, Kreidl, and Fonadova (2006) report high degrees of assortative mating for Poland and low degrees for the Czech Republic during the period 1988 to 2000. In addition, Slovakia appears to have experienced a strong increase in the degree of assortative mating. Similarly, Halpin and Chan (2003) show that the degree of assortative mating has been increasing in Ireland, while is has been decreasing in the UK. As the degree of assortative mating used to be much higher in the UK compared to Ireland in the 1970s, both countries are now characterised by similar patterns of assortative mating. Finally, Esteve and Cortina (2006) find especially strong assortative mating among highly educated couples in Spain. The bottom line is that the pattern of assortative mating as well as its development over time appears to be rather different among the European countries.

While we do control for the highest degree of education of both spouses, other unobserved factors may exist that influence both the individual's labour market potential as well as the type of spouse that is chosen. These unobserved determinants may lead to the impression that women increase their labour supply proportionally to the number of hours worked by their spouses, while in fact women with a higher labour market potential are simply more

likely to cohabit with men supplying relatively many hours (and vice versa) (Bredemeier & Juessen, 2010).

Unfortunately, it is not possible to determine the size of this bias caused by assortative mating. The interpretation of the results is further complicated by the fact that additional, unobserved factors might exist, such as specific family needs, which induce both spouses to increase or decrease their labour supply simultaneously. This is especially relevant in terms of the cross-country comparison conducted in this paper. Generally, the correlation between the individual labour market supply and the spouse's labour market attachment due to assortative mating should be positive. Therefore, it is possible that some of the coefficients would be neutral or even negative if it were possible to control for assortative mating and additional unobserved determinants of labour supply in an appropriate manner. The following discussion of the results will therefore focus on estimated neutral or negative coefficients, since we assume that at least for those countries the relation is non-positive.

Table 4 gives an overview of the results. Each model includes all covariates as discussed in Section 4.1, but Table 4 only presents the marginal effects for the predicted number of hours worked by the spouse. The relationship between the individual's number of hours worked and the predicted number of hours worked by the spouse is positive, independent of the existence of children and the margin of interest.

Once the sample is reduced to dual-income couples, this positive correlation disappears. Only women without children work 1.02 hours more each week with each additional working hour of the spouse, given that both spouses are employed. In contrast, the number of hours worked by men is independent of the number of hours worked by their spouse (Table 4). Assuming that the positive correlation for women between hours worked given employment and the number of hours worked of the spouse is due to assortative mating, individuals in dual-income households without children appear to set their labour supply individually. The same is true for couples with small, pre-school children.

Because different institutional frameworks may imply different reactions to the spouse's labour market attachment, the estimations are rerun separately for each country. As previously, the sample is separated into couples without and with small children. The separate estimations for each country for couples without children confirm the impression the pooled regressions give, namely that a positive and significant correlation exists between the spouses' labour market attachment and the number of hours worked by the

individual[2].

In contrast, Table 5 shows that the reaction of women to the predicted number of hours worked by the spouse differs considerably between countries. While it is still positive in almost all EU-15 Member States (except of Greece and Austria), it is neutral for the New Member States (except of Latvia, Romania and Slovenia). Further, the labour market attachment of the spouse is negatively associated with women's labour supply in Greece and Latvia. This finding suggests that there is a joint decision on labour supply in these countries.

Indeed, Greece is the only country, for which the reaction to the labour market attachment of the spouse is significantly negative for men and women alike in the case of couples with pre-school children (Table 6). In the majority of countries men react positively to the spouses' labour market attachment, even in the presence of small children. In addition to Greece, the reaction is neutral in Estonia, Lithuania and Latvia. Thus, in these countries couples appear to set their labour supply individually, even in the presence of small, pre-school children.

Finally, the estimations for the intensive margin are repeated for dual-income families. The results for couples with children are presented in Table 7 and the results for couples without children in Table 8. In the presence of small children, dual-income spouses react negatively to each other's labour market attachment in Austria, Spain, and the Netherlands. That is, in these countries, individuals reduce the number of hours worked with an increasing labour market potential of their spouse. Spanish men decrease their number of hours worked by 1.13 with each additional hour supplied by their partner, given that both spouses are employed. The absolute value of the remaining coefficients for these countries are below one (see Table 7).

Therefore, individuals in these countries react such that they work less (and possibly have more time for child care) if their spouse works more, or they work more if their spouse works less (possibly to compensate the income loss of the partner). In order to interpret these results, it is important to note that the sample used for this specific analysis consists only of dual-income couples with small children. Obviously, this is a very selective sample in the sense that one may expect a strong correlation between (unobserved) determinants of hours worked and the decision to continue to have two earners in the household, despite the presence of at least one pre-school child.

When the sample is not restricted to dual-income families, spouses in

[2]The coefficients are positive and significant at least at the 5 per cent level for each country and margin, for men and women alike. These results are not reported in any table, but can be obtained from the authors upon request

Austria, Spain, and the Netherlands react positively to each other's labour supply (Table 5 and Table 6). This can be interpreted as an indication that in these countries the simultaneous decision is not taken in terms of employment, but only in terms of hours worked conditional on employment. The opposite appears to be true for Greece. Dual-income spouses react positively to their partner's labour supply, while the reaction is negative when all couples are included in the estimation. Along the same line of argument, Greek couples with small pre-school children take the employment decision simultaneously and the decision on hours worked conditional on employment independently.

When turning to dual-income couples without children, the same countries stand out as in the case of families with small children, namely Austria, Spain, and the Netherlands (Table 8). In Spain and the Netherlands, only men react negatively to their partner's labour market attachment. The same is true for women in Austria and Germany. The question, whether these reactions are due to differences in culture or institutions, such as the tax system, is beyond the scope of this paper.

To conclude, pooled regressions on the simultaneous labour supply of couples with small, pre-school children hide the fact that there are considerable differences between countries. In Greece and Latvia spouses take the employment decision simultaneously, while Austrian, Spanish, and Dutch couples decide simultaneously how much labour to supply given employment.

5 Conclusion

This paper analyses labour supply of men and women in the European Union. Labour supply covers two characteristics: the employment rate and the amount of supplied labour. We investigate both, the extensive margin (employment probability) and the intensive margin (the number of hours worked conditional on employment), as well as composite labour supply based on the European Labour Force Survey for 24 countries and the years 1998 to 2008.

Our results suggest that there are large differences in the employment rate and the number of hours worked between men and women, but also between the different Member States. While labour supply in Portugal is very high for both men and women, male labour supply in Central and Eastern Europe is relatively low, while female labour supply in Italy and Belgium is very low. These country differences result from different patterns. In Central and Eastern Europe, the gender differences in the employment rate are smaller than in the EU-15 countries, and most workers work 40 hours per week when employed. In all other countries, more variation in hours worked can be observed. This is especially true for the Netherlands and the UK.

Besides the differences between countries, age and skill level are most decisive for employment and the number of hours worked. Furthermore, we observe that the household composition is correlated with the labour supply, especially for women. The number of children in the household is negatively correlated to the employment probability and also the number of hours worked when employed. In contrast, men with small children are more likely to work and supply more hours given employment.

Since labour supply is not an independent decision of each spouse, we analyse labour supply in a simultaneous model for couples only. Our results suggest that the employment rate of men and women is positively correlated to the labour market attachment of the partner. This result is most likely caused by assortative mating. In the presence of small children, there seems to be a joint decision on household labour supply. This overall finding is mainly driven by Austria, the Netherlands and Spain, where we observe that working hours (intensive margin) are jointly determined in the presence of small children. Our results therefore confirm the findings of the existing literature (e.g. Lundberg, 1988 or Fortin & Lacroix, 1997) that the behaviour of childless couples can be explained by the collective model while the behaviour of couples with children can be explained by the unitary model. However, this result is mainly driven by the intensive margin, the number of hours worked.

Table 1: Distribution of Hours Usually Worked in EU Countries (in %)

	1-19	20-29	30-34	35-39	40	41-45	46-50	51-60	≻60	N
					Continental Countries					
FR	5.37	8.44	6.10	50.63	8.75	7.61	5.73	4.22	3.13	916,588
BE	8.06	10.54	7.06	42.27	17.11	3.88	4.24	3.76	3.09	247,928
NL	21.45	14.64	9.98	22.17	25.11	0.97	1.87	2.31	1.51	740,242
DE	10.98	8.86	4.43	30.50	30.58	4.43	4.39	3.94	1.90	696,052
AT	6.22	10.02	4.64	20.02	35.07	7.82	6.50	5.93	3.78	547,161
LU	3.68	11.23	3.72	3.62	72.60	0.88	1.92	1.52	0.85	123,081
					Mediterranean Countries					
CY	2.08	4.23	3.02	37.45	29.35	8.57	7.10	5.00	3.20	97,552
GR	2.15	5.03	5.48	8.85	38.18	5.29	21.07	8.74	5.22	664,238
IT	5.05	9.62	3.93	19.45	38.62	6.90	9.92	4.73	1.79	1,420,060
ES	3.67	5.59	3.78	14.40	50.23	7.25	8.47	4.44	2.18	823,788
PT	2.93	4.47	2.96	17.18	52.35	7.13	6.81	3.73	2.43	436,423
					Central and Eastern European Countries					
PL	3.84	6.73	3.43	2.11	53.89	5.25	14.26	7.59	2.90	392,591
CZ	0.79	2.12	2.02	11.68	55.69	10.29	9.40	5.42	2.59	635,533
SK	0.43	1.86	1.15	12.52	56.61	14.11	9.37	3.12	0.84	259,574
LV	1.86	5.06	2.49	2.84	64.29	4.47	9.84	6.08	3.06	83,382
SI	2.70	3.93	1.15	0.90	71.31	5.27	7.35	4.70	2.68	192,786
RO	0.36	3.50	3.10	2.29	72.15	1.64	13.47	3.11	0.39	450,576
EE	1.52	4.54	1.91	3.55	74.01	2.98	6.96	3.08	1.46	62,084
BG	0.28	1.67	1.50	0.91	77.80	2.21	12.51	2.33	0.80	235,687
LT	1.23	6.37	3.00	4.31	78.42	2.09	3.25	0.90	0.42	107,872
HU	0.45	2.60	2.03	1.24	82.50	3.18	5.07	2.14	0.78	592,981
					Anglo-Saxon Countries					
IE	7.95	11.67	4.02	38.62	21.07	4.64	5.24	3.96	2.83	396,934
UK	12.75	10.48	5.14	22.84	11.91	14.32	11.35	8.06	3.14	664,218
Total	5.78	7.37	4.34	19.61	41.21	6.27	8.45	4.61	2.35	10,980,996

Source: EU-LFS, own calculations.

Table 2: Intensive and Extensive Margin - Women

	Extensive margin[1]		Intensive Margin[2]		Composite Effect[3]	
	Marg. Effect	S.E.	Marg. Effect	S.E.	Marg. Effect	S.E.
Age 15-24 (d)	-0.2817^{***}	0.0354	-7.8034^{***}	0.9867	-20.0547^{***}	3.2338
Age 25-54 (d)	*Reference category*		*Reference category*		*Reference category*	
Age 55-64 (d)	-0.3086^{***}	0.0226	-8.2438^{***}	0.6229	-21.9692^{***}	2.3011
ISCED 0-2 (d)	*Reference category*		*Reference category*		*Reference category*	
ISCED 3-4 (d)	0.1805^{***}	0.0136	5.9868^{***}	0.4701	13.4026^{***}	1.1438
ISCED 5-6 (d)	0.2520^{***}	0.0129	10.5284^{***}	0.7335	20.8185^{***}	1.3548
Number of persons (15-65 years)	-0.0194^{***}	0.0064	-0.6233^{***}	0.2050	-1.4157^{***}	0.4640
Number of children (≤ 4 years)	-0.1250^{***}	0.0187	-4.0209^{***}	0.5561	-9.1323^{***}	1.0976
Number of children (5-14 years)	-0.0630^{***}	0.0099	-2.0268^{***}	0.2985	-4.6033^{***}	0.5942
Number of elderly persons (≥ 65 years)	0.0037	0.0094	0.1205	0.3042	0.2737	0.6917
No spouse in household (d)	*Reference category*		*Reference category*		*Reference category*	
Spouse in household (d)	-0.0751^{***}	0.0109	-2.4625^{***}	0.3865	-5.5326^{***}	0.9283
Hours worked by spouse	0.0033^{***}	0.0003	0.1064^{***}	0.0073	0.2417^{***}	0.0154
Country Dummies	*Output omitted*		*Output omitted*		*Output omitted*	
Year Dummies	*Output omitted*		*Output omitted*		*Output omitted*	
Constant					14.6181^{***}	1.7958
(Pseudo) R^2			0.0401			
Observations			8,013,538			

Legend: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported coefficients are marginal effects of the same tobit model. For dummy variables (d) the marginal effects refer to a change from zero to one.

[1] Marginal effect on the probability of employment: $\partial P(y_i^* > 0)/\partial x_i$

[2] Marginal effect on number of hours worked conditional on employment: $\partial E(y_i^* | y_i^* > 0, x_i)/\partial x_i$

[3] Marginal effect on number of hours wored: $\partial E(y_i^* | x_i)/\partial x_i$

Source: EU-LFS, own calculations.

Table 3: Intensive and Extensive Margin - Men

	Extensive margin[1]		Intensive Margin[2]		Composite Effect[3]	
	Marg. Effect	S.E.	Marg. Effect	S.E.	Marg. Effect	S.E.
Age 15-24 (d)	-0.2822^{***}	0.0286	-12.4267^{***}	0.8668	-22.5912^{***}	2.0290
Age 25-54 (d)	*Reference category*		*Reference category*		*Reference category*	
Age 55-64 (d)	-0.2634^{***}	0.0258	-11.4204^{***}	0.7635	-20.8856^{***}	1.7649
ISCED 0-2 (d)	*Reference category*		*Reference category*		*Reference category*	
ISCED 3-4 (d)	0.0725^{***}	0.0165	4.6607^{***}	1.0718	7.3533^{***}	1.6884
ISCED 5-6 (d)	0.0869^{***}	0.0163	6.7382^{***}	1.5375	10.0527^{***}	2.1745
Number of persons (15-65 years)	-0.0018	0.0021	-0.1136	0.1329	-0.1799	0.2105
Number of children (≤ 4 years)	0.0119^{***}	0.0036	0.7540^{***}	0.2175	1.1942^{***}	0.3573
Number of children (5-14 years)	0.0004	0.0022	0.0275	0.1396	0.0435	0.2215
Number of elderly persons (≥ 65 years)	0.0027	0.0042	0.1701	0.2624	0.2695	0.4175
No spouse in household (d)	*Reference category*		*Reference category*		*Reference category*	
Spouse in household (d)	0.0618^{***}	0.0080	3.8055^{***}	0.4763	6.0884^{***}	0.7661
Hours worked by spouse	0.0018^{***}	0.0002	0.1139^{***}	0.0134	0.1804^{***}	0.0216
Country Dummies	*Output omitted*		*Output omitted*		*Output omitted*	
Year Dummies	*Output omitted*		*Output omitted*		*Output omitted*	
Constant					23.8530^{***}	1.7986
(Pseudo) R^2			0.0428			
Observations			7,971,730			

Legend: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported coefficients are marginal effects of the same tobit model. For dummy variables (d) the marginal effects refer to a change from zero to one.

[1] Marginal effect on the probability of employment: $\partial P(y_i^* > 0)/\partial x_i$

[2] Marginal effect on number of hours worked conditional on employment: $\partial E(y_i^* | y_i^* > 0, x_i)/\partial x_i$

[3] Marginal effect on number of hours wored: $\partial E(y_i^* | x_i)/\partial x_i$

Source: EU-LFS, own calculations.

Table 4: Simultaneous Estimation of Couples' Labour Supply - All Countries

	Extensive Margin[1]		Intensive Margin[2]		Composite Effect[3]		R^2	N
	Marg. Eff.	S.E.	Marg. Eff.	S.E.	Marg. Eff.	S.E.		
Women								
Small Children	0.0060***	0.0018	0.2014***	0.0585	0.4351***	0.1251	0.0244	484,238
No Children	0.0061***	0.0004	0.2250***	0.0137	0.4563***	0.0406	0.0363	2,563,607
Men								
Small Children	0.0004***	0.0001	0.2370***	0.0408	0.2537***	0.0446	0.0118	484,238
No Children	0.0044***	0.0006	0.3390***	0.0404	0.5055***	0.0665	0.0306	2,563,607
Women (Dual-Income Couples)								
Small Children			0.1654	0.3086			0.0242	254,559
No Children			1.0216***	0.2987			0.0152	1,242,668
Men (Dual-Income Couples)								
Small Children			−0.1786	0.1467			0.0045	254,559
No Children			−0.0723	0.0710			0.0032	1,242,668

Legend: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported coefficients are marginal effects of the spouse's predicted number of hours usually worked. Other covariates are included, but not reported here (for a full list refer to Table 2 or Table 3). All models are estimated using 2SLS as described in Section 2.

[1] Marginal effect on the probability of employment: $\partial P(y_i^* > 0)/\partial x_i$

[2] Marginal effect on number of hours worked conditional on employment: $\partial E(y_i^* | y_i^* > 0, x_i)/\partial x_i$

[3] Marginal effect on number of hours wored: $\partial E(y_i^* | x_i)/\partial x_i$

Source: EU-LFS, own calculations.

Table 5: Simultaneous Estimation of Couples' Labour Supply - Women, Small Children

	Extensive Margin[1]		Intensive Margin[2]		Composite Effect[3]		R^2	N
	Marg. Eff.	S.E.	Marg. Eff.	S.E.	Marg. Eff.	S.E.		
AT	0.0003	0.0012	0.0132	0.0504	0.0242	0.0924	0.0093	24,411
BE	0.0055***	0.0019	0.2895***	0.1007	0.4632***	0.1611	0.0270	10,428
BG	0.0012	0.0016	0.0408	0.0549	0.1120	0.1505	0.0207	9,355
CY	0.0022	0.0042	0.1079	0.2070	0.1898	0.3641	0.0135	4,710
CZ	−0.0018	0.0012	−0.0633	0.0420	−0.2524	0.1675	0.0271	27,004
DE	0.0063***	0.0015	0.1892***	0.0443	0.4121***	0.0965	0.0222	27,052
EE	−0.0041	0.0064	−0.1340	0.2060	−0.4043	0.6215	0.0188	2,743
ES	0.0063***	0.0023	0.2090***	0.0770	0.4909***	0.1809	0.0204	42,926
FI	0.0133**	0.0057	0.4335**	0.1811	1.0856**	0.4572	0.0204	364
FR	0.0109***	0.0011	0.4515***	0.0434	0.8225***	0.0790	0.0308	33,117
GR	−0.0056***	0.0015	−0.1942***	0.0530	−0.4947***	0.1352	0.0201	30,409
HU	0.0006	0.0008	0.0235	0.0288	0.0918	0.1128	0.0241	27,811
IE	0.0098***	0.0019	0.3718***	0.0737	0.7085***	0.1403	0.0206	14,580
IT	0.0031**	0.0016	0.0983**	0.0488	0.2374**	0.1178	0.0203	75,439
LT	0.0011	0.0024	0.0495	0.1112	0.0890	0.1996	0.0246	3,992
LU	0.0071**	0.0030	0.2835**	0.1223	0.5312**	0.2291	0.0176	7,501
LV	−0.0089**	0.0041	−0.3298**	0.1491	−0.7717**	0.3497	0.0178	2,599
NL	0.0081***	0.0019	0.3369***	0.0797	0.5218***	0.1236	0.0225	39,125
PL	0.0002	0.0012	0.0074	0.0421	0.0177	0.1011	0.0176	23,192
PT	0.0076***	0.0013	0.5543***	0.0967	0.8287***	0.1443	0.0103	17,720
RO	0.0060***	0.0013	0.2544***	0.0564	0.5089***	0.1129	0.0194	17,795
SI	0.0017**	0.0007	0.1976**	0.0787	0.2550**	0.1014	0.0204	6,487
SK	−0.0016	0.0014	−0.0537	0.0449	−0.1865	0.1562	0.0369	11,854
UK	0.0042***	0.0010	0.1415***	0.0322	0.2777***	0.0631	0.0224	23,624

Legend: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported coefficients are marginal effects of the spouse's predicted number of hours usually worked. Other covariates are included, but not reported here (for a full list refer to Table 2 or Table 3). All models are estimated using 2SLS as described in Section 2.

[1] Marginal effect on the probability of employment: $\partial P(y_i^* > 0)/\partial x_i$

[2] Marginal effect on number of hours worked conditional on employment: $\partial E(y_i^* | y_i^* > 0, x_i)/\partial x_i$

[3] Marginal effect on number of hours wored: $\partial E(y_i^* | x_i)/\partial x_i$

Source: EU-LFS, own calculations.

Table 6: Simultaneous Estimation of Couples' Labour Supply - Men, Small Children

	Extensive Margin[1]		Intensive Margin[2]		Composite Effect[3]		R^2	N
	Marg. Eff.	S.E.	Marg. Eff.	S.E.	Marg. Eff.	S.E.		
AT	0.0006***	0.0001	0.4880***	0.0553	0.5129***	0.0585	0.0139	24,411
BE	0.0007***	0.0001	0.4259***	0.0343	0.4508***	0.0368	0.0121	10,428
BG	0.0047***	0.0006	0.3417***	0.0451	0.5188***	0.0688	0.0269	9,355
CY	0.0000*	0.0000	0.1203*	0.0663	0.1220*	0.0673	0.0035	4,710
CZ	0.0002***	0.0000	0.4914***	0.0487	0.4996***	0.0496	0.0147	27,004
DE	0.0009***	0.0001	0.3598***	0.0449	0.3916***	0.0491	0.0114	27,052
EE	0.0002	0.0002	0.1316	0.1088	0.1404	0.1161	0.0068	2,743
ES	0.0001***	0.0000	0.1318***	0.0222	0.1368***	0.0231	0.0063	42,926
FI	0.0008	0.0009	0.2193	0.2238	0.2480	0.2534	0.0164	364
FR	0.0006***	0.0001	0.2777***	0.0214	0.2990***	0.0232	0.0100	33,117
GR	−0.0000**	0.0000	−0.0406**	0.0200	−0.0412**	0.0203	0.0060	30,409
HU	0.0012***	0.0003	0.2111***	0.0446	0.2538***	0.0536	0.0267	27,811
IE	0.0009***	0.0001	0.4735***	0.0342	0.5079***	0.0369	0.0105	14,580
IT	0.0002***	0.0000	0.2127***	0.0154	0.2188***	0.0159	0.0071	75,439
LT	0.0004	0.0003	0.0897	0.0609	0.1051	0.0713	0.0158	3,992
LU	0.0000	0.0000	−0.0472	0.0537	−0.0473	0.0538	0.0155	7,501
LV	0.0002	0.0003	0.0487	0.0885	0.0559	0.1015	0.0093	2,599
NL	0.0000***	0.0000	0.0957***	0.0292	0.0967***	0.0295	0.0029	39,125
PL	0.0016***	0.0002	0.2586***	0.0303	0.3228***	0.0380	0.0180	23,192
PT	0.0001***	0.0000	0.2371***	0.0534	0.2407***	0.0542	0.0088	17,720
RO	0.0008***	0.0002	0.1138***	0.0354	0.1419***	0.0443	0.0195	17,795
SI	0.0002***	0.0001	0.1754***	0.0514	0.1821***	0.0534	0.0197	6,487
SK	0.0016***	0.0002	0.3219***	0.0456	0.3810***	0.0540	0.0290	11,854
UK	0.0004***	0.0000	0.3946***	0.0281	0.4126***	0.0296	0.0124	23,624

Legend: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported coefficients are marginal effects of the spouse's predicted number of hours usually worked. Other covariates are included, but not reported here (for a full list refer to Table 2 or Table 3). All models are estimated using 2SLS as described in Section 2.

[1] Marginal effect on the probability of employment: $\partial P(y_i^* > 0)/\partial x_i$

[2] Marginal effect on number of hours worked conditional on employment: $\partial E(y_i^* | y_i^* > 0, x_i)/\partial x_i$

[3] Marginal effect on number of hours wored: $\partial E(y_i^* | x_i)/\partial x_i$

Source: EU-LFS, own calculations.

Table 7: Simultaneous Estimation of Dual-Income Couples' Labour Supply - Small Children

	Women - Dual-Income				Men - Dual-Income			
	Marg. Eff.	S.E.	R^2	N	Marg. Eff.	S.E.	R^2	N
AT	-0.3071^{*}	0.1856	0.0036	15,294	-0.2912^{*}	0.1539	0.0081	15,294
BE	0.9603^{***}	0.3607	0.0029	7,020	0.1472	0.1559	0.0014	7,020
BG	-0.0166	0.1626	0.0033	3,465	-0.0629	0.2591	0.0036	3,465
CY	0.3780^{*}	0.1973	0.0044	3,105	0.5252^{**}	0.2486	0.0034	3,105
CZ	-0.3681^{*}	0.1997	0.0072	6,904	0.1968	0.1987	0.0027	6,904
DE	0.0777	0.1345	0.0019	14,637	-0.1739	0.1263	0.0030	14,637
EE	-0.5670^{*}	0.3407	0.0095	1,100	-0.2221	0.1943	0.0085	1,100
ES	-0.2595^{*}	0.1424	0.0019	21,027	-1.1383^{**}	0.5169	0.0028	21,027
FI	0.8091	0.6256	0.0046	170	0.7735	0.9198	0.0142	170
FR	0.3355^{**}	0.1448	0.0037	19,596	0.2195^{**}	0.1062	0.0021	19,596
GR	0.1419^{**}	0.0577	0.0085	14,670	0.2627^{***}	0.0529	0.0077	14,670
HU	0.2797	0.3038	0.0027	6,328	0.1266	0.2735	0.0034	6,328
IE	0.1422	0.0949	0.0039	8,840	0.6568^{***}	0.1559	0.0032	8,840
IT	0.3823^{***}	0.1086	0.0022	38,490	-0.0609	0.0976	0.0014	38,490
LT	0.0647	0.8990	0.0118	2,287	0.1366	0.1027	0.0028	2,287
LU	2.9013^{***}	1.0081	0.0027	4,906	-0.1776	0.1200	0.0034	4,906
LV	0.5892^{*}	0.3312	0.0054	1,255	0.2594	0.2925	0.0080	1,255
NL	-0.3671^{***}	0.1042	0.0157	30,192	-0.3276^{***}	0.0326	0.0031	30,192
PL	0.1426	0.1404	0.0074	10,763	0.2741^{***}	0.0674	0.0053	10,763
PT	-0.1203	0.1302	0.0041	11,970	0.2173^{**}	0.0958	0.0027	11,970
RO	0.9557^{***}	0.2088	0.0088	9,714	-0.1673	0.1731	0.0023	9,714
SI	0.7631^{**}	0.3251	0.0041	4,641	-0.0698	0.1988	0.0019	4,641
SK	-0.1452	0.6352	0.0058	3,266	0.3939	0.5378	0.0029	3,266
UK	0.1934	0.2944	0.0083	14,919	0.0086	0.0465	0.0016	14,919

Legend: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported coefficients are marginal effects of the spouse's predicted number of hours worked on the individual's number of hours worked conditional on employment: $\partial E(y_i^* | y_i^* > 0, x_i)/\partial x_i$. Other covariates are included, but not reported here (for a full list refer to Table 2 or Table 3). All models are estimated using 2SLS as described in Section 2.
Source: EU-LFS, own calculations.

Table 8: Simultaneous Estimation of Dual-Income Couples' Labour Supply by Country - No Children

	Women - Dual-Income				Men - Dual-Income			
	Marg. Eff.	S.E.	R^2	N	Marg. Eff.	S.E.	R^2	N
AT	-0.2926^{***}	0.0614	0.0039	67,975	0.0926^{**}	0.0375	0.0068	67,975
BE	-0.1300	0.2370	0.0025	24,626	0.1036	0.1	0.0010	24,626
BG	0.4489^{***}	0.1192	0.0021	31,820	0.0495	0.0985	0.0012	31,820
CY	0.2991	0.2099	0.0015	11,812	0.4165^{**}	0.2125	0.0014	11,812
CZ	0.1818^{***}	0.0330	0.0040	108,458	0.4896^{***}	0.0564	0.0034	108,458
DE	-0.1079^{**}	0.0508	0.0123	101,487	0.0048	0.0244	0.0028	101,487
EE	0.4137	0.2945	0.0020	9,409	0.8475^{**}	0.3708	0.0020	9,409
ES	-0.0477	0.0651	0.0016	75,213	-0.3160^{***}	0.121	0.0032	75,213
FI	0.1341	0.3324	0.0214	999	0.0218	0.1538	0.0035	999
FR	0.2248^{***}	0.0790	0.0020	72,254	0.2175^{***}	0.0504	0.0023	72,254
GR	0.2402^{***}	0.0268	0.0071	72,758	0.2242^{***}	0.0301	0.0097	72,758
HU	0.3724^{***}	0.1025	0.0024	74,740	0.5722^{***}	0.0788	0.0018	74,740
IE	0.2279^{***}	0.0716	0.0158	26,330	0.3519^{***}	0.0376	0.0020	26,330
IT	0.3271^{***}	0.0444	0.0048	132,345	0.1668^{***}	0.0286	0.0024	132,345
LT	0.6206^{**}	0.2624	0.0041	12,575	0.2293^{**}	0.1059	0.0037	12,575
LU	0.4838	0.3482	0.0187	13,110	-0.0629	0.0443	0.0050	13,110
LV	0.5375	0.4049	0.0012	7,896	-0.0109	0.2851	0.0024	7,896
NL	0.8865^{***}	0.0502	0.0221	97,109	-0.1271^{***}	0.0194	0.0024	97,109
PL	-0.0460	0.0890	0.0065	44,097	0.1097^{***}	0.0351	0.0024	44,097
PT	-0.0995	0.0824	0.0017	53,940	0.1631^{**}	0.066	0.0015	53,940
RO	0.6556^{***}	0.1228	0.0050	65,535	0.1524^{*}	0.0848	0.0011	65,535
SI	1.1292^{***}	0.1650	0.0034	25,152	-0.1445	0.169	0.0012	25,152
SK	0.4119^{***}	0.0726	0.0045	35,862	0.0653	0.1162	0.0030	35,862
UK	1.0401^{***}	0.0473	0.0185	77,166	0.0116	0.0144	0.0028	77,166

Legend: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reported coefficients are marginal effects of the spouse's predicted number of hours worked on the individual's number of hours worked conditional on employment: $\partial E(y_i^* | y_i^* > 0, x_i)/\partial x_i$. Other covariates are included, but not reported here (for a full list refer to Table 2 or Table 3). All models are estimated using 2SLS as described in Section 2.
Source: EU-LFS, own calculations.

Table 9: Proportion of Individual Characteristics in Regression Sample (in%)

	Women	Men	Total
Aged 15-24	9.51	9.86	19.37
Aged 25-54	32.82	31.29	64.12
Aged 55-65	7.69	8.82	16.51
ISCED 1-2	18.95	18.42	37.37
ISCED 3-4	22.79	23.67	46.47
ISCED 5-6	8.28	7.88	16.16
No small children	43.08	43.73	86.81
With small children	6.95	6.24	13.19
No school children	35.34	36.55	71.89
With school children	14.69	13.42	28.11
No elderly persons	45.65	44.86	90.50
With elderly persons	4.38	5.12	9.50
No spouse	20.13	20.29	40.41
Inactive/Unemployed spouse	5.87	11.96	17.83
Employed spouse	24.03	17.73	41.76

Source: EU-LFS, own calculations.

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- relaying the views of the stakeholders and society at large.

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